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ІНОЗЕМНА МОВА ЗА ПРОФЕСІЙНИМ СПРЯМУВАННЯМ (АНГЛІЙСЬКА)

навчально-методичний посібник
для спеціальностей 121 «Інженерія програмного забезпечення»,
122 «Комп'ютерні науки», 126 «Інформаційні системи та технології»
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Мета навчально-методичного посібника полягає у забезпеченні студентів практичними навичками і знаннями, вільного спілкування англійською мовою, розвитку компетенцій, необхідних для успішної професійної діяльності в умовах глобального співтовариства. Матеріали посібнику сприятимуть розвитку вмінь читання, говоріння (включаючи діалогічне та монологічне мовлення) і письма (включаючи можливість створення проєктів), вивченню термінології на професійну тематику.

Методична розробка призначена для широкого кола читачів: майбутніх ІТ-фахівців, студентів та аспірантів, студентів фахових передвищих закладів, викладачів ЗВО, слухачів курсів іноземних мов, підготовки до ЄВІ, практичної, самостійної, індивідуальної роботи для денної, заочної та дистанційної форми навчання.

Розглянуто та затверджено на засіданні кафедри прикладної лінгвістики факультету міжнародних економічних відносин ДВНЗ «УжНУ», протокол № 1 від 18 вересня 2023 р.

Схвалено методичною комісією факультету міжнародних економічних відносин ДВНЗ «УжНУ», протокол № 1 від 18 вересня 2023 р.

Рекомендовано до друку рішенням Вченої ради факультету міжнародних економічних відносин ДВНЗ «УжНУ», протокол № 1 від 18 вересня 2023 р.

ПЕРЕДМОВА

У контексті проголошеного Україною курсу на європейську та євроатлантичну інтеграцію, розширення міжнародних ділових зв'язків стає не тільки актуальним, але й необхідним завданням для нашої Батьківщини на політичному, дипломатичному та економічному рівнях. Ця нова реальність ставить перед Україною виклик – потреба у висококваліфікованих фахівцях, які здатні володіти не тільки основами іноземної мови, але й майстерно впроваджувати їх у сферу міжнародних відносин і бізнесу. Саме ця потреба обумовлює важливість зрозуміння майбутніми фахівцями ІТ сфери, того, наскільки важливим є власне майбутнє співробітництво із міжнародними партнерами.

Сучасний фахівець повинен вміти використовувати іноземну мову практично, як засіб ефективного спілкування в професійному середовищі, в усному та писемному мовленні. Розроблені матеріали призначені допомогти, зрозуміти та оволодіти іноземною мовою як необхідним інструментом для успішного спілкування, налагодження партнерських відносин і співпраці з міжнародними колегами, клієнтами і партнерами.

Навчальний матеріал містить комплекс практичних текстів і вправ, які допоможуть розвинути необхідні навички володіння іноземною мовою у сфері інформаційних технологій; професійною лексикою, розширення словникового запасу; перекладу спеціалізованих текстів; з використанням аудіоматеріалів для тренування навичок слухання; повторення та вивчення найуживаніших граматичних структур у фаховій літературі.

Практичне значення навчально-методичного посібника полягає в тому, що він сприятиме формуванню у студентів їхніх навичок говоріння, читання, написання та аудіювання англійською мовою в професійній сфері. Матеріали призначені для аудиторної, дистанційної та самостійної роботи студентів ІТ спеціальностей та слухачів мовних курсів.

CONTENTS

TOPIC 1. WHAT IS INFORMATION TECHNOLOGY?

Discuss with a partner. How do you understand IT?

In what spheres can you use IT?

Active vocabulary

Account – Обліковий запис

As opposed to – На противагу

Backup – Резервний

Beta testing – Бета-тестування

Business improvement – Покращення бізнесу

Circa – приблизно

Create – Створювати

Deploy – Впроваджувати, розміщувати

Dispose – Позбуватися, викидати

Distinguish – Розрізняти

E-commerce – Електронна комерція

Electronic data – Електронні дані

Encompass – Охоплювати

Entertainment - Розваги

Exchange – Обмінювати

Function properly – Працювати належним чином

General-purpose computing machines – Універсальний комп'ютер загального призначення

Influx – Приплив (даних)

Information technology (IT) – Інформаційні технології

Iteration – Повторення

Limited scope – Обмежений обсяг

Maintain – Підтримувати

New software – Нове програмне забезпечення

Noncompliant – Нетиповий, невідповідний

Operational – Експлуатаційний

Posture – Стан

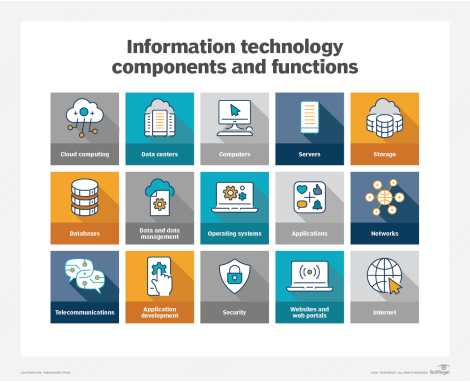
Process – Обробляти

Procure – придбати

Published – Опублікований
Purpose-built machines – Спеціально створені машини
Refine – Доопрацювати, вдосконалити
Remediate – Виправляти
Revenue – Дохід, прибуток
Reporting tools – Засоби звітності, інструменти для створення звітів
Software – Програмне забезпечення
Storage – Зберігання
Store – Зберігати
Telecommunication equipment – Телекомунікаційне обладнання
Troubleshoot – Вирішувати проблеми
Umbrella term – Загальний термін
User support – Підтримка користувачів

Exercise 1. Read and translate the text.

Information technology (IT) is the use of any computers, **storage**, networking and other physical devices, infrastructure and processes **to create, process, store, secure** and exchange all forms of electronic data. Typically, IT is used in the context of business operations, **as opposed to** technology used for personal or entertainment purposes. IT is also used as **an umbrella term** to cover: television, telecommunication equipment, software, e-commerce and the internet.



Humanity has been manipulating, storing, and communicating information since the early Sumerians pioneered the written word in ancient Mesopotamia, **circa** 3000 BC. The term IT did not appear until the mid-20th century however when an **influx** of early office technology appeared. The term was first published in the 1958 Harvard Business Review when authors Harold J. Leavitt and Thomas C. Whisler said “the new technology does not yet have a single established name. We shall call it Information Technology.” The Harvard Business Review coined the term information technology to make a distinction between purpose-built machines designed to perform a **limited scope** of functions, and general-purpose computing machines that could be programmed for various tasks.

What does information technology encompass?

The IT team handles three major areas:

- deploys and maintains business applications, services and infrastructure (servers, networks, storage);
- monitors, optimizes and troubleshoots the performance of applications, services and infrastructure;
- oversees the security and governance of applications and services.

Five common examples of IT and teams at work:

Server upgrade. IT staff will select and **procure** replacement servers, configure and deploy the new servers, **backup** applications and data on existing servers, transfer that data and applications to the new servers, validate that the new servers are working properly and then repurpose or decommission and dispose of the old servers.

Security monitoring. Businesses routinely employ tools to monitor and log activity in applications, networks and system IT staff receive alerts of potential threats or noncompliant behavior - such as a user attempting to access a restricted file - check logs and other **reporting tools** to investigate and determine the root cause of the alert and take prompt action to address and remediate the threat, often driving changes and improvements to security **posture** that can prevent similar events in the future.

New software. The business determines a need for a new mobile application that can allow customers to log in and access account information or conduct other transactions from smartphones and tablets. Developers work to create and **refine** a suitable application according to a planned roadmap. Operations staff posts each **iteration** of the new mobile application for download and **deploy** the back-end components of the app to the organization's infrastructure.

Business improvement. A business requires more availability from a critical application to help with **revenue** or business continuance strategies. The IT staff might be called upon to architect a high-availability cluster to provide greater performance and resilience for the application to ensure that the application can continue to function in the face of single outages. This can be paired with enhancements to data storage protection and recovery.

User support. Developers are building a major upgrade for a vital business application. Developers and admins will collaborate to create new documentation for the upgrade. IT staff might deploy the upgrade for limited beta testing - allowing a select group of users to try the new version - while also developing and delivering comprehensive training that prepares all users for the new version's eventual release.

Exercise 2. Answer the questions.

1. What do you know about IT?

2. What are components of IT?
3. What can you tell about the first appearance of the term IT?
4. Name three major areas of IT?
5. What do you know about security area?
6. What is important about support area?
7. What can you tell about server upgrade?
8. What is the clue idea about business improvement?
9. Why do we need to use technologies?
10. Where can we use technologies?

Exercise 3. Say whether the following sentences are true or false. Correct the false ones.

1. The term «Information Technology» was coined in the 1958 in Harvard Business Review article by Harold J. Leavitt and Thomas C. Whisler.
2. IT staff is responsible for physically disposing of old servers after a server upgrade.
3. IT staff plays a role in selecting and procuring replacement servers during a server upgrade.
4. The validation of the new servers' functionality is part of the IT staff's tasks during a server upgrade.
5. IT staff has no involvement in repurposing or decommissioning old servers after a server upgrade.
6. The IT department is not involved in monitoring the performance of applications and infrastructure.
7. IT staff is responsible for troubleshooting any issues that arise with applications and services.
8. IT staff has no role in overseeing the security and governance of applications and infrastructure.
9. The IT team does not monitor and optimize the performance of networks during a server upgrade.
10. IT staff is not involved in maintaining business applications and services in the organization.

Exercise 4. Match words with the correct definitions.

1.networking	a. failing to act in accordance with a wish or command.
2. store	b. to let news or official information be known and printed
3. encompass	c. the action or process of interacting with others to exchange information and develop professional or social contacts
4. rely on	d. the ability to become strong, happy, or successful again

	after a difficult situation or event
5. dispose	e. keep or accumulate (something) for future use.
6. refine	f. to get rid of something that is no longer needed or wanted
7. noncompliant	g. to include a wide range of ideas, subjects
8. release	h. to trust or depend on someone or something to do what you need or expect them to do
9. resilience	i. to improve a method, plan, system etc by gradually making slight changes to it

Exercise 5. A) Find synonyms to the given words from the text;
b) make up sentences with synonyms
information, save, swapping, buy, income, improve, repetition, enter, parts, letting, trying, team, count on.

Exercise 6. Translate into Ukrainian.

opposed to_____
encompasses _____
evolved_____
validate_____
threats_____
purpose-built machines_____
application_____
lifecycle_____
repurpose_____
eventual _____

Exercise 7. Translate into Ukrainian.
1. In a modern context, the term 'IT' is commonly used to describe computers and networks within a business environment.
2. It refers to their applications in: generating, manipulating, storing, regaining, transmitting, handling, exchanging, studying and securing all data or information in an electronic format.
3. When thinking about IT you need to consider IT support within both your personal and private life.
4. Especially when it comes to the increasingly sophisticated level of cyber crime we see every day.
5. This is so that when you are surfing the web on your computer or receiving an email, your personal and business data is kept safe.
6. IT support also covers technical problems you may come across, ensuing you are using the most up to date software and finding the best tools possible to effectively complete tasks.

Exercise 8. A) Read and translate idioms and their meanings;
b) make up your own sentences with them.

Idiom	Meaning	Example
To pull the plug	to stop something in its tracks, to stop it immediately	The business was not doing very well in the last 3 months, and the owners decided to pull the plug.
To be right on the button	to be exactly right	He confirmed her suspicions; he was right on the button.
To blow a fuse	to get angry or agitated very quickly, and they really explode	I'm sorry, Dad, I had a slight accident with the car, but please don't blow a fuse.
To be at the cutting edge	to be right there in the lead, at the front	Apple is always at the cutting edge of technology. The company has become a leader in the industry.
To be on the same wavelength	to have the same thoughts, the same intentions; to understand exactly the same thing, to be in agreement with somebody	After the first few brief conversations, we already knew that we were on the same wavelength.

Exercise 9. A) Prepare a project work and speak about «What is the best position in the IT industry»? B) Prepare interesting slang words or phrases concerning professions in the IT industry.

TOPIC 2. COMPUTER ARCHITECTURE

Name items which you see on the picture.
What is the function of those items?

CPU(Central Processing Unit)

Memory Unit

Input Devices

Storage Device

Active vocabulary
Booting up – Завантаження
Buses – Шини
Central Processing Unit (CPU) – Центральний процесор (ЦП)
Channels – Канали
Control Unit (CU) – Пристрій керування
Hard Disk Drives (HDDs) – Жорсткі диски
Hardware – Апаратне забезпечення
Input devices – Пристрої введення
Interconnectivity – Взаємопідключення
Memory – Пам'ять
Output devices – Пристрої виведення
Peripherals – Периферійні пристрої
Random Access Memory (RAM) – Пам'ять з довільним доступом; первинна пам’ять
Software – Програмне забезпечення
Sound card – Звукова карта
Storage devices – Пристрої зберігання

Exercise 1. Read and translate the text.

Computer architecture is the foundation upon which modern computing systems are built. It encompasses the design and organization of the various hardware components that make up a computer system, enabling it to execute instructions and

perform tasks. Understanding computer architecture is essential for anyone interested in delving into the inner workings of computers and exploring how they process information.

A typical computer consists of 2 parts: hardware and software. **Hardware** is any electronic or mechanical part of the computer system that you can see or touch. **Software** is a set of instructions, called a program, which tells a computer what to do.

The heart of computer architecture is **the Central Processing Unit (CPU)**. The CPU acts as the brain of the computer, executing instructions and coordinating the activities of other hardware components. It consists of two primary units: the Control Unit (CU) and the Arithmetic Logic Unit (ALU). ***The Control Unit*** manages the flow of instructions and data within the CPU and other components, while the **ALU** performs arithmetic and logical operations.

Memory is another critical component of computer architecture. It is where data and instructions are stored temporarily for processing. ***Random Access Memory (RAM)*** is a type of memory that provides fast access to data, allowing the CPU to retrieve and manipulate information quickly. ***Read-Only Memory (ROM)*** contains permanent instructions necessary for booting up the computer.

Peripherals are the physical units attached to the computer. They include: storage devices, input devices, output devices, disk drives.

Storage devices which are used to store data and programs for long-term use. Hard Disk Drives (HDDs) and Solid-State Drives (SSDs) are common types of storage devices. **A hard disk drive (HDD)** is composed of a platter that contains compartments to hold data. This data is your operating system, applications, and any files you have created. **HDDs** use spinning disks to store and retrieve data, while **SSDs** utilize flash memory chips, offering faster access times and better reliability.

Input and output devices are essential for interacting with a computer system. These devices allow users to provide **input**, such as keyboard, mouse, scanners, cameras, joysticks, and microphones and receive **output** that helps us to get data processed from a computer, usually in the form of visual, audio, and xerox such as a monitor, printer, plotter, projectors, speaker, headphones. They enable communication between the user and the computer, facilitating information exchange and interaction.

Disk drives are used to read and write data on disks.

Computer architecture also involves the design of the system's interconnectivity. **Buses and channels** provide pathways for data transfer between components. **The system bus** connects the CPU, memory, and peripheral devices, allowing for the exchange of data and instructions. **Peripheral Component Interconnect (PCI)** is a common bus standard used for connecting expansion cards, such as graphics cards, video card and network adapters. Sound card is built into the motherboard is used for audio output.

In conclusion, computer architecture forms the fundamental framework of computing systems. It encompasses the design and organization of the CPU, memory, storage, input/output devices, interconnectivity, and system architecture. By understanding computer architecture individuals gain insights into how computers process information, explore new possibilities in the field of technology.

Exercise 2. Answer questions.

1. What is computer architecture?
2. What are the two main parts of a typical computer?
3. What is the function of the Central Processing Unit (CPU)?
4. What are the two primary units of the CPU, and what functions do they perform?
5. What is the purpose of memory in a computer system?
6. What is the difference between Random Access Memory (RAM) and Read-Only Memory (ROM)?
7. What are peripherals in the context of computer architecture?
8. Name two types of storage devices commonly used in computers.
9. Give an example of an input device and an output device.
10. What is the role of buses and channels in computer architecture?

Exercise 3. Match the following vocabulary words (3 are extra) with their corresponding meanings.

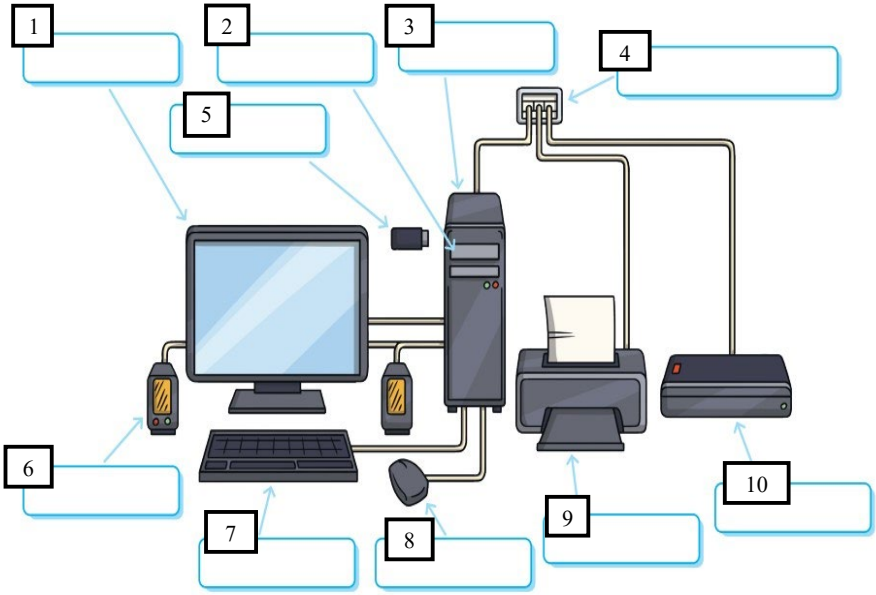
computer architecture	*hardware*	*software*
CPU	*CU*	*ALU*
RAM	*memory*	*ROM*
buses	*storage devices*	*input devices*
output devices	*sound card*	*disk drives*
	channels	

a) The physical components of a computer system.
b) A unit within the CPU responsible for managing instructions and data flow.
c) The electronic circuitry that performs arithmetic and logical operations.
d) Temporary storage where data and instructions are held for processing.
e) Permanent storage containing instructions necessary for booting up the computer.
f) Devices used for storing data and programs in a computer system.
g) Devices used to interact with and provide data to a computer system.
h) Devices that display or produce the results of processing.
i) Devices used to read and write data on disks.
j) The design and organization of the various hardware components of a computer system.
k) The brain of the computer responsible for executing instructions and coordinating activities.
l) High-speed memory that allows fast access to data for the CPU.
m) A sound processing device used for audio output.

Exercise 4. Choose the best word.

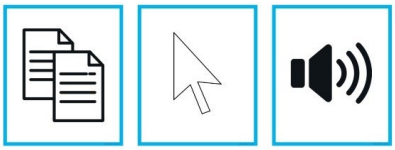
1. The mouse moves on a _____.
a. mouse mat b. mouse carpet c. mouse table
2. TV and computer screens are usually measured in _____.
a. feet b. miles c. inches
3. Before you start work, _____ the height of your chair.
a. adjust b. change c. rearrange
4. To get sound from your computer, plug in a pair of _____.
a. loudhailers b. loudspeakers c. loud voices
5. The computer is connected to the telephone line via a _____.
a. module b. modem c. mod
6. You can increase the functions or performance of a computer with an _____.
a. extension card b. exploding card c. expansion card
7. Mobile phones and PDAs can communicate with computers via _____.
a. Bluebeard b. Blueberry c. Bluetooth
8. There's a spare _____ in the workstation.
a. electric hole b. power point c. electrical opening
9. You can plug in your mobile phone _____.
a. charger b. power c. electrification
10. SD cards can be read in a computer's _____.
a. storage reader b. memory reader c. card reader

Exercise 5. Write down names of the images and say which parts belong to input devises and output devise or both.



Exercise 6. Group work. Discuss names of computer icons with your partner. What are they used for?

1)_____



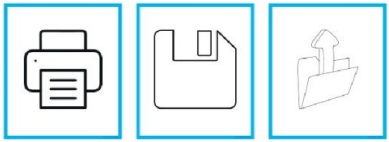
2)_____

3) _____

4)_____

5) _____

6) _____



7) _____

8)_____

9)_____

Exercise 7. Translate into English.

1. Комп'ютер, в повсякденному розумінні, складається з системного блоку, монітора, клавіатури, мишки, аудіосистеми. До нього можна підключити геймпад, принтер, сканер і багато інших пристроїв.

2. Процесор - головна мікросхема комп'ютера. Він виконує всі команди користувача і керує іншими складовими комп'ютера. Від нього безпосередньо залежить швидкодія комп'ютера і його можливості.

3. Зовні процесор виглядає як невелика плата з багатьма контактами з одного боку і плоскою металевою коробкою з іншого

Всередині він має дуже складну мікроструктуру, яка включає мільйони транзисторів. 4. Щоб користуватися всіма перевагами, в комп'ютери часто встановлюють два запам'ятовуючих пристрої. Однин з них - SSD, який служить для зберігання системних файлів і програм, інший - HDD для зберігання решти інформації. Внутрішніх запам'ятовуючих пристроїв в системному блоці може бути більше двох. Але для роботи комп'ютера достатньо й одного такого пристрою (будь-якого типу).

Exercise 8. Rewrite the sentences using the appropriate modal verb (can, can, must, musn't, may).

a) It is important to back up your data regularly.

b) You are allowed to download the software from the official website.

c) Users should take caution when opening email attachments.

d) The technophobe is not able to fix the hardware issue.

e) It is possible that the problem is related to the graphics card.

Exercise 9. Use modal verbs to give advice on computer usage.

Ex. Users should keep their operating system up to date.

a) _____

b) _____

c) _____

d) _____

e) _____

f)_____

g)_____

TOPIC 3. THE PARTICIPLE

Present Participle

A **Present Participle** is formed with 'ing' form of the verb to indicate an action going on, incomplete or imperfect.

Example of Present Participle

1. *Hearing* the noise, we rushed out of the restaurant.
2. *Thinking* all is well, he went to bed.

In the above sentences, 'V1 + ing' denotes an action going on or an incomplete action.

Past Participle:

A **Past Participle** ends with *'ed', 'd', t or 'n'* and is used to indicate an action as completed.

Example of Past Participle

1. *Driven* by poverty, he committed suicide.
2. *Deceived* by his best friend, he was left in the lurch.

In the above sentences 'V3' shows an action already completed before the second action took place. 'V3' is called **Past Participle.**

Perfect Participle:

A **Perfect Participle** is formed with 'having' +Verb to indicate an action as completed in the past.

Example of Perfect Participle

1. *Having done* with it, they got down to work.
2. *Having rested*, they started their journey again.

The above sentences show an action being completed in past. 'Having + V3' (**Perfect Participle**) is used for such purpose.

Rules of usage

Past Participle	Adjective	We were **exhausted** after cleaning up the shed.
	Participle phrases	**Disgusted by the terrible smell**, Jeff put the stinky shoes outside.
	Perfect verb tenses	The sheep have **jumped** over the fence.
Present Participle	Adjective	She bought a new pair of **running** shoes.
	Participle phrases	**Thinking quickly**, Heather threw a pillow under the vase before it hit the ground.
	Continuous verb tenses	We are **eating** lunch.
Perfect Participle	combining the word having with a past participle indicate that one event happened before another	**Having finished his homework**, Benny ran outside to play with his friends.

Exercise 1. Complete the following sentences using the Present Participle (-ing form) of the verbs in brackets:

1. The programmers are _____ (code) a new software application.
2. The system administrator was _____ (install) the latest updates.
3. By _____ (debug) the code, you can identify and fix errors.
4. The artificial intelligence algorithm is _____ (analyze) large data sets.

Exercise 2. Combine the pairs of sentences by using Present Participles.

1. She was reading a book. I saw her.

Answer: I saw her reading a book.

2. They were playing chess.We found them.
3. The children were playing in the garden. We noticed them.
4. Tom was waiting for a bus. I found her.
5. The Police were arresting him. We watched it.
6. He was reading my diary. I caught him.
7. She was taking out money from his pocket. Her husband saw it.
8. Mike was talking to her friend. I hear her.
9. He was directing the film. We watched him.
10. The dog was barking at the postman. We noticed it.
11. The boy was climbing the tree. We saw it.
12. He was walking into the hotel. I noticed that.
13. She was filling up the application form. I found it.
14. They were playing cricket in the ground. I saw this.
15. They were laughing and talking. I found them.

Exercise 3. Complete the following sentences using the Past Participle (-ed or irregular form) of the verbs in brackets.

1. _____ (Develop) by a team of engineers, the software worked well.
2. The network security measures were _____ (enhance) to prevent unauthorized access.
3. _____ (Backup) regularly the database, he avoided data loss.
4. The algorithm has _____ (optimize) the performance of the system.

Exercise 4. Fill in the blanks with Present Participles with your own verb form.

1. I saw her _____ English to school children.
2. _____ the language, I faced many troubles in Denver.
3. _____ money and _____ friends, I could not know what to do.
4. _____ along the road, we saw a dead snake.
5. We found Kristina _____ to her sister.
6. I noticed Matt _____ the child into her arms.

7. _____ through the window, he found a car in front of his house.
8. _____ she is fit for the job, I sent her a call for the interview.
9. _____ away the newspaper, I looked at the main gate.
10. _____ that she love me, I asked her to marry me.

Exercise 5. Complete the following sentences using the Perfect Participle (having + past participle) of the verbs in brackets.

_____ (Having complete) the software development phase, the team proceeded to the testing phase.

The engineers presented the project after _____ (having finish) the implementation process.

_____ (Having update) the system, the IT department ensured better security measures.

The software crashed due to a bug, _____ (having overlook) an important error in the code.

Exercise 6. Make participle clauses from these sentences.

Ex. He went to London because he needed some rest and relaxation.
Needing some rest and relaxation, he went to London.

1. Because they were intending to buy a new house, they looked through the newspapers every day.
2. She was eating potato chips while she was watching a movie.
3. He had been previously married so he had no interest in marrying again so soon.
4. She ran over a dog when she was driving to work.
5. A woman who wears a blue hat opened a door.

Exercise 7. Change sentences by using Participle.

1. *Peter was shouting loudly when he walked home.*
Answer: Shouting loudly, Peter walked home.
2. I wanted to speak to him about the contract so I decided to arrange a meeting.
3. While I was sitting at the cafe with my friends, I suddenly realized that I had left the oven on at home.
4. As Emily walked on the beach, she dodged jellyfish that had washed ashore.
5. Freddie woke to the buzz of the alarm clock and he cursed the arrival of another Monday.
6. William shouted with happiness, he celebrated his chance to interview at SunTrust.
7. Greg straightened his tie and smoothed his hair, he was relieved that the interview finally started.
8. When I saw the accident ahead, I stopped my car.

9. Tom lost his keys while he was walking through the park.
10. She left the room as she was singing happily.
11. I opened the envelope and I found two concert tickets.
12. As I knew a little French, I had no difficulty making myself understood.

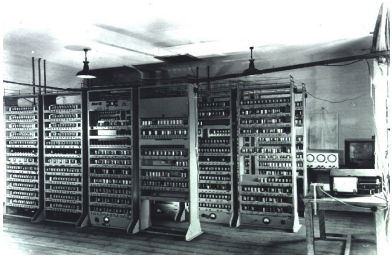
TOPIC 4. THE HISTORY OF COMPUTER DEVELOPMENT

Discuss with a partner:
What do you know about first computers? How did they look like?
How does a modern computer look like? How did it change?

Active vocabulary

Abacus – Рахівниця
Brief overview – Короткий огляд
Calculations – Обчислення
Capable of performing – Здатний виконувати
Circuits – Схеми
Contributors – Учасники
Early calculating devices – Ранні обчислювальні пристрої
Electronic Numerical Integrator and Computer (ENIAK) – Електронний числовий інтегратор і комп'ютер
Emerged – Виникли
Facilitate software development – Сприяти розробці програмного забезпечення
Invented – Винайдений
Key milestones – Ключові події, етапи
Laid the foundation – Поклав основу
Loom – Ткацький варстат
Mechanical Calculators – Механічні калькулятори
More reliable – Надійніші
Outlined – Описав
Paved the way – Створити передумови, прокласти шлях
Programming languages evolved – Мови програмування еволюціонували
Storing instructions and data – Зберігання інструкцій та даних
Vacuum tubes – Електронні лампи
Widespread use – Широке використання

Exercise 1. Read and translate the text.



Computers have revolutionized the world, transforming the way we work, communicate, and live. The origins of computing can be traced back thousands of years to the development of early calculating devices. However, the modern era of computing began in the mid-20th century with the advent

of electronic computers. Here is a brief overview of the key milestones and contributors in the history of computing.

Pre-Modern Computing Devices:

Abacus: Developed around 3000 BC, the abacus was the earliest known calculating tool and was widely used in ancient civilizations.

Mechanical Calculators: Various mechanical devices for performing arithmetic calculations were invented during the 17th and 18th centuries, such as Blaise Pascal's Pascaline and Gottfried Wilhelm Leibniz's stepped reckoner.

Early Computer Concepts:

1801: Joseph Marie Jacquard, a French merchant and inventor invents a loom that uses punched wooden cards to automatically weave fabric designs. Early computers would use similar punch cards.

Charles Babbage: In the 19th century, Charles Babbage designed the Analytical Engine, which were mechanical computers capable of performing complex calculations. While these machines were never fully built during Babbage's lifetime, his concepts laid the foundation for modern computing.

Von Neumann Architecture:

In the late 1940s, the concept of the Von Neumann architecture was introduced, which outlined the structure of modern computers with separate memory for storing instructions and data. This architecture became the foundation for subsequent computer designs.

The Era of Electronic Computers:

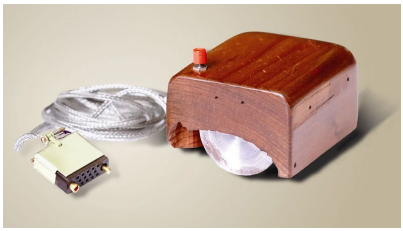
ENIAC: The Electronic Numerical Integrator and Computer (ENIAC), completed in 1945, was one of the earliest electronic general-purpose computers. It used vacuum tubes to perform calculations and was primarily designed for military purposes.

UNIVAC I: Developed in the early 1950s, the UNIVAC I (Universal Automatic Computer) was the first commercially available computer and marked a significant shift towards the widespread use of electronic computers.

Transistors: In the late 1940s and early 1950s, transistors were invented, which replaced vacuum tubes and made computers smaller, more reliable, and more efficient.

High-Level Programming Languages:

As computers became more powerful, programming languages evolved to facilitate software development. Languages like FORTRAN (1957), COBOL (1959), and ALGOL (1958) emerged, making programming more accessible and efficient.



Integrated Circuits:

In the 1960s, integrated circuits (ICs) were introduced, allowing multiple transistors and electronic components to be etched onto a single semiconductor chip. This development revolutionized computer design and paved the way for miniaturization.

The first computer mouse was invented in 1963 by Douglas C. Engelbart and presented at the Fall Joint Computer Conference in 1968.

Microprocessors and GUI:

The invention of the microprocessor in the early 1970s, notably the Intel 4004, brought the entire central processing unit (CPU) onto a single chip.

Graphical User Interface (GUI): Xerox PARC's Alto computer, introduced in the 1970s, featured a graphical user interface (GUI) with icons, windows, and a mouse. Additionally, Ethernet networking technology was developed, enabling computers to communicate and share resources.

Altair 8800:

In 1975, the Altair 8800, a build-it-yourself microcomputer kit, was released. It sparked the hobbyist and home computing revolution, inspiring individuals such as Bill Gates and Paul Allen to develop software for the Altair, leading to the creation of Microsoft.

Apple and IBM: In the late 1970s, companies like Apple and IBM introduced personal computers, bringing computing power and accessibility to individuals and businesses.

The development of the ***World Wide Web*** in the 1990s transformed computing into a globally interconnected network, facilitating information sharing and communication on a massive scale.

Computing in the 21st Century:

Mobile Computing and Smartphones: The emergence of smartphones and tablets in the 2000s revolutionized personal computing by making computing power accessible on portable devices. The introduction of mobile apps further expanded the capabilities of mobile computing.

Cloud Computing:

Cloud computing, which gained prominence in the late 2000s, enables users to store and access data and applications remotely, providing scalability, flexibility, and cost-effectiveness.

Since these early milestones, computing technology has continued to evolve rapidly, leading to advancements such as mobile computing, cloud computing, artificial

intelligence, and quantum computing. It continues to shape and influence nearly every aspect of our lives, from business and science to entertainment and communication.

Exercise 2. Answer questions.

1. How have computers revolutionized the world and impacted various aspects of our lives?
2. What were the early calculating devices used before the development of modern computers?
3. What is the Von Neumann architecture, and how did it shape the structure of modern computers?
4. Can you explain the significance and features of ENIAC and UNIVAC I, two early electronic computers?
5. What were the major advancements in computing during the late 1940s and early 1950s?
6. How did the invention of transistors and the introduction of high-level programming languages impact the field of computing?
7. What were the key developments in computer design with the introduction of integrated circuits and microprocessors?
8. Who invented the first computer mouse, and when was it presented to the public?
9. How did the emergence of graphical user interfaces (GUI) and Ethernet networking technology shape the way we interact with computers?
10. What do you know about Altair?
11. How did companies like Apple and IBM contribute to the accessibility and popularity of personal computers?
12. What was the impact of the World Wide Web on computing and global communication?
13. In what ways do you think computing will continue to evolve in the future?
14. How can individuals stay updated with the latest developments in computing and adapt to changing technology trends?

Exercise 3. Fill in the blanks with the appropriate word from the word bank:

calculations evolve mechanical advancements revolutionized integrated communicate origins accessibility microprocessors

1) Computers have _____ the way we work, communicate, and live.
2) The _____ of computing can be traced back thousands of years.
3) Various _____ devices were invented during the 17th and 18th centuries.

4) Early computers were capable of performing complex _____.
5) The introduction of _____ circuits revolutionized computer design.
6) _____ brought the entire central processing unit onto a single chip.
7) The widespread use of computers has improved the _____ of information.
8) Technological _____ have led to the development of faster and more efficient devices.
9) Computers have made it easier for people to _____ with each other across long distances.
10) Computing technology continues to _____ at a rapid pace.

Exercise 4. Match the vocabulary words with their corresponding meanings.

1. Widespread	a. Made significant changes or improvements that completely transformed something.
2. Microprocessors	b. Found or discovered the origin or beginning of something by following a path or timeline.
3. Accessibility	c. The arrival or appearance of something significant or important.
4. Paved the way	d. Small chips that contain the central processing unit of a computer.
5. Interconnected	e. Having the ability or potential to do something.
6. Advent	f. Existing or happening over a large area or to a great extent.
7. Capable	g. Prepared or created the conditions for something to happen or exist.
8. Traced back	h. Mathematical operations or processes.
9. Revolutionized	i. The quality or state of being easy to approach, understand, or use.
10. Calculations	j. Connected or linked together in a complex or intertwined manner.

Exercise 5. Complete the sentences by filling in the blanks with the correct forms of the verbs in parentheses (past tense or present perfect tense).

1. The first electronic computer, ENIAC, _____(invent) during World War II.
2. Charles Babbage _____ (design) the Analytical Engine which was considered the precursor to modern computers, in the 1830s.
3. Steve Jobs and Steve Wozniak _____ (found) Apple Inc. in 1976.
4. Grace Hopper, a pioneer in computer programming, _____ (develop) the first compiler in the 1950s.

5. The World Wide Web _____ (invent) by Tim Berners-Lee in 1989.
6. Computers _____ (become) smaller and more powerful over the years.
7. Many technological advancements _____ (occur) in the field of computer science since the 20th century.
8. Alan Turing, a British mathematician, _____ (play) a crucial role in breaking the Enigma code during World War II.
9. IBM _____ (introduce) the first personal computer in 1981.
10. By the time you finish this exercise, you _____ (learn) more about computer history.

Exercise 6. Fill in the blanks with the appropriate words from the word bank.

electronic	**vacuum tubes**	**completed**	**milestone**
ENIAC	**military**	**computing**	**mechanical**
	machine		

1. The _____ was the first _____ computer ever built.
2. It was _____ in 1945 after several years of development.
3. The _____ occupied a large amount of space and was quite heavy.
4. _____ were used in ENIAC to perform calculations.
5. The machine was primarily designed for _____ purposes.
6. ENIAC was a significant _____ in the field of _____.
7. It marked a shift from _____ to _____ computers.

Exercise 7. Match collocations and idioms with their meanings.

1. Computing pioneer	a) Describes the rapid and transformative changes brought about by the widespread adoption and integration of digital technologies.
2. Digital revolution	b) Describes someone who is knowledgeable, skilled, or experienced in the use and understanding of technology.
3. Technological breakthrough	c) Refers to the speculative investment frenzy and subsequent crash in the value of many internet-based companies during the late 1990s and early 2000s.
4. Cutting-edge technology	d) A term used to describe a major or influential company that specializes in the development and distribution of software products.
5. Silicon Valley	e) Refers to individuals who played a significant role in the early development and advancement of computing

	technologies or concepts.
6. Software giant	f) Refers to the latest and most advanced technology available at a given time.
7. Internet boom	g) Represents the period of rapid growth and expansion of the internet, with increased usage, connectivity, and the emergence of new online services.
8. Digital age	h) A region in California, USA, known for its high concentration of technology companies and innovation in the field of computing and electronics.
9. Tech-savvy	i) Describes the entrepreneurial environment and mindset associated with the creation and development of innovative and often technology-driven companies.
10. Start-up culture	j) Signifies a significant advancement or discovery in technology that leads to a notable shift in capabilities or understanding.
11. Dot-com bubble	k) Represents the gap or disparity in access to and usage of digital technologies, often referring to inequalities based on factors like socioeconomic status or geographic location.
12. Information superhighway	l) A term used in the 1990s to describe the internet and its potential as a vast network for the exchange of information.
13. Hack into	m) Refers to small or concise pieces of information, often in reference to the storage or processing capacity of computers (a byte is a unit of digital information).
14. Byte-sized information	n) Describes the act of gaining unauthorized access to a computer system or network.
15. Digital divide	o) Refers to the current era characterized by the widespread use of digital technology and the digitization of various aspects of life and society.

Exercise 8. Prepare a project and speak about some extraordinary facts in the computer history.

TOPIC 5. CYBERSECURITY

How do you understand the word cybersecurity?
Why do we need to protect our data?
Who are hackers?

Active vocabulary
Antivirus software – Антивірусне програмне забезпечення
Complement – Доповнювати
Cyberattacks – Кібератаки
Cybersecurity – Кібербезпека
Defense – Захист
Detection – Виявлення
Digital attacks – Цифрові атаки
Effective – Ефективний
Email security solutions – Рішення з безпеки електронної пошти
Endpoint devices – Пристрої-кінцеві точки
Essential – Важливий
Ethical considerations – Етичні міркування
Extorting money – Вимагання грошей
Identify – Визначати
Implementing – Впровадження
Information technology – Інформаційні технології
Investigation – Розслідування
Malware protection – Захист від шкідливих програм
Measures – Заходи
Next-generation firewalls – Брандмауери нового покоління
Protection – Захист
Ransomware – Програма-здирник, програма-шантажист
Recover – Відновлювати
Remediation – Усунення наслідків

1. Read and translate the text.

Cybersecurity is the practice of protecting systems, networks, and programs from digital attacks. In today's interconnected world, cybersecurity has emerged as a critical discipline for information technology (IT) professionals. Cyberattacks are usually aimed at accessing, changing, or destroying sensitive

information; extorting money from users via ransomware; or interrupting normal business processes.

Implementing effective cybersecurity measures is particularly challenging today because there are more devices than people, and attackers are becoming more innovative.

A successful cybersecurity approach has multiple layers of protection spread across the computers, networks, programs, or data that one intends to keep safe. In an organization, the people, processes, and technology must all complement one another to create an effective defense from cyber attacks. A unified threat management system can automate integrations across Security products and accelerate key security operations functions: detection, investigation, and remediation.

People. Users must understand and comply with basic data security principles like choosing strong passwords, being wary of attachments in email, and backing up data.

Processes. Organizations must have a framework for how they deal with both attempted and successful cyber attacks. One well-respected framework can guide you. It explains how you can identify attacks, protect systems, detect and respond to threats, and recover from successful attacks.

Technology. Technology is essential to giving organizations and individuals the computer security tools needed to protect themselves from cyber attacks. Three main entities must be protected: endpoint devices like computers, smart devices, and routers; networks; and the cloud. Common technology used to protect these entities include next-generation firewalls, DNS filtering, malware protection, antivirus software, and email security solutions.

Why is cybersecurity important?

Nowadays everyone benefits from advanced cyberdefense programs. At an individual level, a cybersecurity attack can result in everything from identity theft, to extortion attempts, to the loss of important data like family photos. Everyone relies on critical infrastructure like power plants, hospitals, and financial service companies. Securing these and other organizations is essential to keeping our society functioning.

Types of cybersecurity threats:

Phishing is the practice of sending fraudulent emails that resemble emails from reputable sources. The aim is to steal sensitive data like credit card numbers and login information. It's the most common type of cyber attack. You can help protect yourself through education or a technology solution that filters malicious emails.

Social engineering is a tactic that adversaries use to trick you into revealing sensitive information. They can solicit a monetary payment or gain access to your confidential data. Social engineering can be combined with any of the threats listed above to make you more likely to click on links, download malware, or trust a malicious source.

Ransomware is a type of malware that locks down files, data or systems, and threatens to erase or destroy the data – or make private or sensitive data to the public – unless a ransom is paid to the cybercriminals who launched the attack. Recent ransomware attacks have targeted state and local governments, which are easier to breach than organizations and under pressure to pay ransoms in order to restore applications and web sites on which citizens rely.

Malware. The term "malware" refers to malicious software variants—such as worms, viruses, Trojans, and spyware—that provide unauthorized access or cause damage to a computer. Malware attacks are increasingly "fileless" and designed to get around familiar detection methods, such as antivirus tools, that scan for malicious file attachments.

Advanced persistent threats (APTs). In an APT, an intruder or group of intruders infiltrate a system and remain undetected for an extended period. The intruder leaves networks and systems intact so that the intruder can spy on business activity and steal sensitive data while avoiding the activation of defensive countermeasures.

Ethical Considerations:

As an IT professional, it's crucial to uphold ethical standards in the field of cybersecurity:

- respect user privacy,
- follow legal and organizational guidelines, and
- prioritize the responsible use of your knowledge and skills.

Cybersecurity professionals play a vital role in safeguarding individuals, organizations, and society as a whole from cyber threats.

Exercise 2. Answer the following questions.

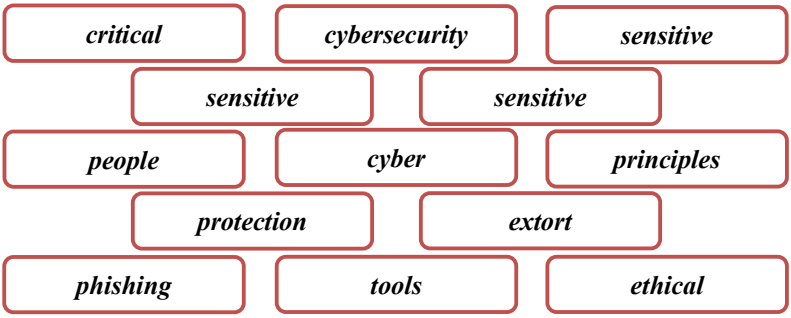
1. What is the definition of cybersecurity?
2. Why is implementing of effective cybersecurity measures challenging in today's world?
3. What are the three main entities that need protection in terms of technology in cybersecurity?
4. How can technology tools help in protecting against cyber attacks?
5. Why is cybersecurity important for individuals and society as a whole?

6. What is phishing, and how can individuals protect themselves against it?
7. What is social engineering, and how can it be combined with other threats?
8. Describe ransomware and its impact on computer systems.
9. What is malware, and what are its purposes?
10. Why is it important for IT professionals to uphold ethical standards in cybersecurity?

Exercise 3. Determine whether the following statements are true or false according to the information provided in the text.

1. Cybersecurity is the practice of protecting systems, networks, and programs from physical attacks.
2. Cyberattacks are primarily aimed at interrupting normal business processes.
3. Implementing effective cybersecurity measures is easier today due to the decreasing number of devices.
4. People, processes, and technology must all work together to create an effective defense against cyber attacks.
5. A unified threat management system can automate key security operations functions.
6. Users do not play a significant role in maintaining cybersecurity; it is solely the responsibility of organizations.
7. Technology tools are not essential in protecting against cyber attacks.
8. Phishing is a type of cyber attack that aims to steal sensitive information through fraudulent emails.
9. Ransomware is a type of software that can be used to recover files once the ransom is paid.
10. IT professionals are not expected to uphold ethical standards in the field of cybersecurity.

Exercise 4. Fill in the blanks with the appropriate words.



1. _____ is the practice of protecting systems, networks, and programs from digital attacks.
2. In today's interconnected world, cybersecurity has emerged as a _____ discipline for IT professionals.
3. Cyberattacks are usually aimed at accessing, changing, or destroying _____ information.
4. Implementing effective cybersecurity measures is particularly challenging today because there are more devices than _____.
5. A successful cybersecurity approach has multiple layers of _____ spread across various components.
6. A unified threat management system can automate _____ across security products.
7. Users must understand and comply with basic data security _____ like choosing strong passwords.
8. Organizations must have a framework for how they deal with attempted and successful _____ attacks.
9. Technology is essential to giving organizations and individuals the computer security _____ needed to protect themselves.
10. _____ is the practice of sending fraudulent emails to steal sensitive data.
11. Ransomware is a type of malicious software designed to _____ money by blocking access to files or computer systems.
12. As an IT professional, it's crucial to uphold _____ standards in the field of cybersecurity.

Exercise. 5 .Read and translate tips.

To excel in cybersecurity, adopt the following strategies to enhance your English skills while deepening your cybersecurity knowledge:

1. Read and Research: Engage with cybersecurity-related articles, books, and resources in English to expand your vocabulary and understanding of the subject.
2. Practice Technical Writing: Write essays, reports, or blog posts on cybersecurity topics, focusing on explaining complex concepts in clear and concise English.
3. Join Cybersecurity Communities: Participate in online forums, discussion groups, or social media communities focused on cybersecurity. Engaging in English discussions will help you refine your language skills while gaining insights from experts.
4. Attend Webinars and Conferences: Look for webinars or conferences conducted in English on cybersecurity topics. These events provide opportunities to learn from industry professionals and engage in English-speaking environments.

5. Seek Feedback: Share your written work or engage in conversations with English speakers knowledgeable in cybersecurity. Request feedback on your language usage, clarity, and accuracy to improve your communication skills.

Exercise 6. Match the vocabulary words from the text with their corresponding meanings.

1. Ransomware	a. The practice of protecting systems, networks, and programs from digital attacks.
2. Adversaries	b. To obtain something, especially money, through force or threats.
3. Vulnerabilities	c. Weaknesses or flaws that can be exploited by attackers.
4. Framework	d. Software designed to gain unauthorized access or cause damage to a computer.
5. Phishing	e. A structured plan or system for dealing with something.
6. Endpoint	f. The act of sending fraudulent emails to deceive people into revealing sensitive information.
7. Extort	g. Pertaining to principles of right and wrong conduct.
8. Cybersecurity	h. Enemies or opponents in a conflict or competition.
9. Malware	i. Malicious software designed to block access to files or systems until a ransom is paid.
10. Ethical	j. A device such as a computer or smartphone that connects to a network.

Exercise 7. Discuss in small groups following questions.

1. Which crimes do you think are the most dangerous?
2. Is it fair or unfair to pay for the songs, videos, articles, books that you download? Should copyright infringement be allowed online?
3. What measures can be taken by governments to stop cybercrime?
4. Do you think governments have the right to censor material on the Internet?
5. Personal information such as our address, salary, civil and criminal records is held in databases by marketing companies. Is our privacy in danger?

Exercise 8. Match idioms and collocations with their corresponding meanings. Examples will help you to make the right choice.

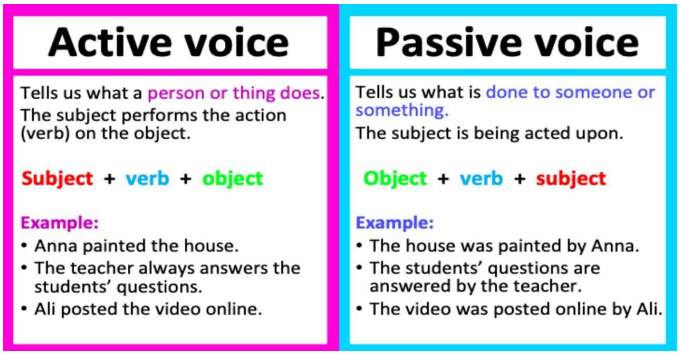
Idiom/collocation	**Meaning**	**Example**
1.**Stay one step**	a) To strengthen or enhance	In the world of cybersecurity,

ahead.	security measures.	it's essential to stay one step ahead of hackers.
2.Encryption technology.	b) An incident where unauthorized access or a violation of security protocols occurs.	Strong encryption technology is vital in safeguarding sensitive information from unauthorized access.
3.Vulnerability assessment.	c) A concerted effort to deceive individuals or organizations through fraudulent emails or communication.	Regular vulnerability assessments are crucial to maintaining a robust cybersecurity posture.
4.Security breach.	d) A security mechanism that monitors and controls incoming and outgoing network traffic to prevent unauthorized access.	The company experienced a security breach that compromised customer data.
5.Patch/update vulnerabilities.	e) A security measure that requires multiple forms of verification before granting access to a system or account.	It's important to regularly patch and update software to address vulnerabilities and protect against cyber threats.
6.Phishing expedition.	f) The use of cryptographic techniques to secure data by converting it into an unreadable format.	The cybercriminals embarked on a phishing expedition, targeting unsuspecting users with fake emails.
7.Firewall protection.	g) The process of addressing and mitigating the impact of a security incident or breach.	Installing a reliable firewall is a fundamental step in ensuring network security.
8.Tighten security.	h) The process of identifying and evaluating potential weaknesses in a system or network.	After the data breach, the company decided to tighten security to prevent future cyberattacks.
9.Multi-factor authentication.	i) To fix or address weaknesses in software or systems to prevent	Using multi-factor authentication adds an extra layer of security to protect

	exploitation.	against unauthorized access.
10.Security breach response.	j) To anticipate or be prepared for potential cyber threats.	The company activated its security breach response plan to contain the incident and protect affected systems.

Exercise 9. Write essay-advice about «How to protect your personal data and devices?».

TOPIC 6. PASSIVE VOICE



Formation of Passive voice

Tense		Active	Passive	Note: *the action is done to the subject*
SIMPLE	Present	Ask(s)	am is asked are	He asks/ He is asked
	Past	asked	was were asked	
	Future	will ask	will be asked	
CONTINUOUS	Present	am is asking are	am is being asked are	He is asking/ He is being asked
	Past	was were asking	was being asked were	
	Future	will be asking	---	He will be asked.
PERFECT	Present	Have has asked	have has been asked	He has asked/ He has been asked
	Past	Had asked	had been asked	
	Future	Will have asked	will have been asked	
PERF. CONT	Present	Have has been asking	-	He has been asking..for.../ He has been asked...for...
	Past	had been asking	-	
	Future	will have been asking	-	

Exercise 1. Change sentences into the Passive or Active voice.

1. Gerry has fed the cat this morning._____
2. They always announce the result of the exam in June._____

3. Students don't speak English in class._____
4. My wallet was taken by a thief._____
5. Thomas Edison didn't invent the light bulb in 1867._____
6. The bedrooms have been cleaned by the maid._____
7. The boys offered the girls some help.
*The girl…_____
*Some…_____
8. Helen is not making us dinner tonight.
*Dinner…_____
*We…_____
9. A hail storm destroyed many homes last week._____
10. Notebooks are going to be bought for the school._____
11. Farmers had often used pesticides when planting corn._____
12. Sherry can listen to music in every room of her home._____
13. Leonardo da Vinci painted the Mona Lisa in Venice._____
14. My students have given me a cherry tree for my garden.
*I _____
* A cherry tree …_____

Exercise 2. Define the tense form and rewrite the following sentences in the passive voice.

1. The engineers are designing a new computer chip.
2. They have developed an innovative software application.
3. The company will release the new operating system next month.
4. We can upgrade the computer's memory easily.
5. The programmer had completed the coding before the deadline.
6. They are installing the software on all the computers in the office.
7. People use computers for various purposes.
8. The IT department will fix the network issues tomorrow.
9. The technician repaired the faulty hardware component.
10. The software engineer is developing a new algorithm.

Exercise 3. Rewrite the following sentences in the passive voice. Then, make up sentences by using special question words.

1. Did the team develop the new software application?

Ex. Was the new software application developed by the team?

Ex. Who developed the new software application?

2. Are they designing a prototype for the new computer hardware?
3. Has the company implemented the latest security measures?

4. Can you fix the software bug quickly?
5. Has anyone tested the new network configuration?
6. Will they release the updated version of the app next week?
7. Did the technician install the new graphics card?
8. Has the IT department resolved the system outage yet?
9. Are they developing a new algorithm for data analysis?
10. Can the programmer fix the coding error before the deadline?
11. Can the coding error be fixed before the deadline by the programmer?
12. Question: What can be fixed before the deadline by the programmer?

Exercise 5. Rewrite sentences into the Active Voice.

1. These books need to be put away.

_____

2. Some flowers were sent to me by Tim.

_____

3. The emails have to be sent by the secretary.

_____

4. A diamond ring was given to Sue by Joe.

_____

5. A new camera is going to be bought by Mr Black.

_____

6. The computer is being used now by the students.

_____

7. Our flat was broken into last week.

_____

8. A butterfly was being chased by our cat.

_____

9. A meeting will be organized by my boss.

_____

10. Delicious dinner has been cooked by mum.

_____

Exercise 6. Choose the correct variant of the Passive voice (A, B, C, or D) that best completes each sentence.

1. The software _____ by the development team last week.

A) was developed C) has developed
B) will develop D) developed

2. The new meeting _____ by the IT department.

A) has organized B) is organized

C) is being organized D) was organized

3. The network issues _____ by the technicians this morning.

A) was resolving C) will resolve

B) are resolved D) were resolved

4. The website _____ by the web designer on Monday.

A) is designing C) has designed

B) will be designed D) was designed

5. The hardware components _____ by the manufacturer.

A) will manufacture C) are being manufactured

B) is manufacturing D) manufactured

6. The data _____ by the server administrator.

A) is managing C) has managed

B) will manage D) is being managed

7. The security measures _____ by the cybersecurity team.

A) are being implemented C) implemented

B) will implement D) have implemented

7. The coding error _____ by the software engineer.

A) is fixing C) has fixed

B) will fix D) is being fixed

9. The project timeline _____ by the project manager.

A) is setting C) has set

B) will set D) is being set

10. The software update _____ by the users.

A) will install C) is being installed

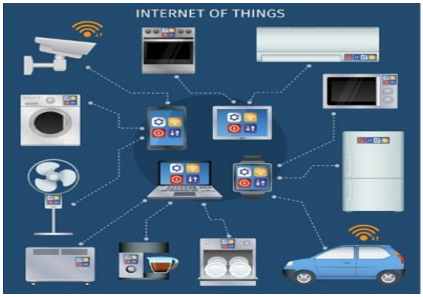
B) is installing D) installed

TOPIC 7. TECHNOLOGIES OF THE 21ST CENTURY

Exercise 1. Explain the following proverbs, express your opinion.

«Technology is a double-edged sword, for it can illuminate our path or darken our future».
«With great innovation comes great responsibility».
«The power of technology is not in its existence, but in its ability to empower others».

Exercise 2. Name items on the image and make up sentences with them.



Exercise 3. Read and translate the text.

In the 21st century, technological advancements have been on an exponential rise, reshaping various aspects of our lives. Among these remarkable innovations is nanotechnology, a field that operates at the nanoscale, manipulating and controlling matter at the atomic and molecular level. Nanotechnology has a great impact on society, revolutionizing industries and unlocking new possibilities for scientific exploration and technological development.

Nanotechnology involves the manipulation of materials and devices at the nanoscale, typically between 1 and 100 nanometers. At this scale, the properties and behavior of materials can differ significantly from their bulk counterparts, opening up unique opportunities for scientific discovery and technological breakthroughs.

Nanomaterials are at the core of nanotechnology. These materials possess distinct properties due to their nanoscale dimensions, such as increased strength, enhanced conductivity, and improved reactivity. Carbon nanotubes, for example, are incredibly strong and lightweight, making them ideal for applications in industries like aerospace and electronics.

Medicine and Healthcare:

Nanotechnology has the potential to revolutionize medicine and healthcare. Nanomedicine, the application of nanotechnology in healthcare, offers precise drug delivery systems, targeted cancer treatments, and diagnostic tools with enhanced sensitivity. Nanoparticles can be designed to selectively target cancer cells, delivering medication directly to the affected area while minimizing side effects.

Electronics and Computing:

Nanotechnology has played a crucial role in advancing electronics and computing. As the size of transistors and electronic components shrinks, nanotechnology enables the production of smaller, faster, and more efficient devices. Nanoelectronics and nanocomputing hold promise for developing faster processors, high-density data storage, and flexible electronic displays.

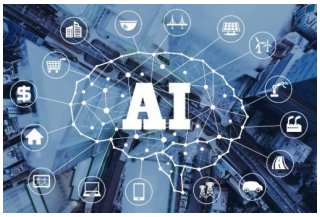
Mobile Technology:

The rise of smartphones has been a game-changer in the modern world. These pocket-sized devices combine computing power, communication capabilities, and access to a wide range of applications. With smartphones, we can stay connected, manage our schedules, capture memories through high-resolution cameras, and access countless apps that enhance productivity, entertainment, and lifestyle.

Smart Appliances for the Kitchen:

Smart technology has made its way into the kitchen, with appliances like smart refrigerators, ovens, and coffee makers. Smart refrigerators can monitor inventory, suggest recipes based on available ingredients, and send notifications for expiration dates. Smart ovens offer precise temperature control and can be controlled remotely, while smart coffee makers can be programmed to brew coffee automatically at specific times.

Artificial Intelligence (AI):



Artificial Intelligence has made significant strides in the 21st century, enabling machines to mimic human intelligence and perform complex tasks. AI is now integrated into various applications, from voice assistants like Siri and Alexa to recommendation systems that personalize our online experiences. AI has also found applications in fields such as healthcare, finance, and transportation, improving efficiency and decision-making processes.

Energy and Environment:

Nanotechnology offers innovative solutions for clean energy generation and

environmental conservation. Nanomaterials can improve the efficiency of solar cells, making renewable energy more affordable and accessible. Additionally, nanotechnology is used in environmental remediation processes, such as water purification and air filtration, helping mitigate pollution and preserve natural resources.

Future Prospects and Challenges:

While nanotechnology holds immense potential, it also presents challenges. Safety and ethical considerations are crucial in ensuring responsible development and deployment.

The technologies of the 21st century have transformed our lives and continue to shape our future. From the internet and mobile technology to AI, renewable energy, and blockchain, these innovations have revolutionized the way we communicate, work, and interact with the world. Nanotechnology stands as one of the most transformative technologies of the modern world. Its applications across various industries, from medicine and electronics to energy and the environment, have the potential to reshape our future. As scientists and engineers continue to explore the possibilities offered by nanotechnology, it is vital to maintain a balance between innovation, safety, and ethical considerations. By responsibly harnessing the power of nanotechnology, we can unlock unprecedented advancements, improving healthcare, energy efficiency, and the overall well-being of society.

Exercise 4. Say whether the following sentences are true or false. Correct the false ones.

1. Technological advancements in the 21st century have reshaped various aspects of our lives.
2. Nanotechnology operates at the atomic and molecular level, manipulating matter at the nanoscale.
3. Nanotechnology has had a minimal impact on society and has not influenced industries.
4. Nanomedicine, the application of nanotechnology in healthcare, offers precise drug delivery systems and targeted cancer treatments.
5. Nanoparticles cannot be designed to selectively target cancer cells.
6. Nanoelectronics and nanocomputing have the potential to develop faster processors and high-density data storage.
7. Smart refrigerators can monitor inventory, suggest recipes based on available ingredients, and send notifications for expiration dates.
8. Smart coffee makers can be programmed to brew coffee automatically at specific times.
9. Mobile technology is an example of a technology that has been greatly impacted by nanotechnology.

10. Artificial Intelligence (AI) has found applications in fields such as healthcare, finance, and transportation.
11. Nanotechnology does not offer innovative solutions for clean energy generation and environmental conservation.
12. Nanomaterials cannot improve the efficiency of solar cells.

Exercise 5. Translate sentences into English.

1. У технологічному світі 21-го століття наша реальність змінюється завдяки розробці та впровадженню інноваційних технологій.
2. Інтернет став невід'ємною частиною нашого життя, забезпечуючи нам безмежний доступ до інформації та зв'язку з усім світом.
3. Смартфони стали незамінними помічниками, поєднуючи в собі обчислювальну потужність, можливості зв'язку та доступ до різноманітних додатків.
4. Штучний інтелект здатний моделювати людський інтелект і виконувати складні завдання, знайшовши застосування в різних сферах, включаючи медицину, фінанси та автотранспорт.
5. «Розумні» домашні пристрої, такі як розумний холодильник, дозволяють контролювати запаси, рекомендують рецепти на основі наявних продуктів та повідомляють про строк придатності.
6. 3D-друкування стало доступним для виготовлення виробів з різних матеріалів, включаючи пластик, метал, бетон та навіть біологічні тканини.
7. Розумні енергетичні системи дозволяють ефективно використовувати відновлювальні джерела енергії, такі як сонячні панелі та вітрові турбіни.
8. Гідроенергетика представляє собою перспективний напрямок розвитку, що може забезпечити чисту та стійку енергію для різних галузей.
9. Досягнення в галузі генетики та біотехнологій відкривають нові можливості в медицині та сільському господарстві, дозволяючи розробляти більш ефективні методи лікування та вирощування продуктів.
10. Розробка інтерактивних віртуальних реальностей дозволяє людям досліджувати нові світи, надаючи унікальні можливості для освіти, розваг та тренувань.

Exercise 6. Pair work: Listen to the video carefully *https://www.youtube.com/watch?v=4UuvwY6CdLo "Why can't robots check the box…".* 1st student must prepare questions according to the video, 2nd student must write answers to those questions.

Exercise 7. Choose the correct word that best completes each sentence:

1. Nanotechnology operates at the _____, manipulating matter at the atomic and molecular level.
a) microscale c) macroscale
b) nanoscale d) gigascale

2. Nanomaterials possess _____ properties due to their nanoscale dimensions.
a) extraordinary c) conventional
b) mundane d) standard

3. Carbon _____ are known for their exceptional strength and conductivity.
a) nanotubes c) nanoparticles
b) microwaves d) polymers

4. Nanomedicine aims to deliver drugs with _____ precision to specific target sites in the body.
a) utmost c) arbitrary
b) negligible d) inherent

5. Nanoparticles can be engineered to _____ target cancer cells, improving the effectiveness of treatments.
a) selectively c) uniformly
b) randomly d) collectively

6. Nanotechnology has played a _____ role in revolutionizing the field of electronics and computing.
a) marginal c) negligible
b) pivotal d) trivial

7. The development of nanoelectronics has paved the way for _____ processors and high-density data storage.
a) faster c) conventional
b) slower d) static

8. Artificial Intelligence (AI) has made significant _____ in various fields, transforming how we interact with technology.
a) strides c) regressions
b) stagnations d) detours

9. Nanotechnology offers innovative solutions for clean energy _____, such as solar and wind power.
a) generation c) consumption
b) depletion d) stagnation

10. Safety and ethical _____ are paramount when working with nanomaterials and deploying nanotechnology.
a) considerations c) contemplations
b) dismissals d) appreciations

11. The technologies of the 21st century have _____ our lives, revolutionizing how we work, communicate, and interact.

a) transformed
c) trivialized
b) stagnated
d) inhibited

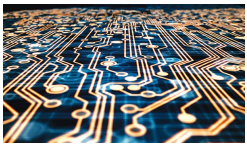
12. Nanotechnology stands as one of the most _____ technologies of our time, with applications in various industries.

a) transformative
c) obsolete
b) conventional
d) stagnant

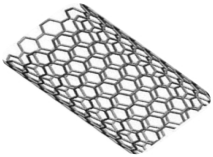
Exercise 8. Match the following words and phrases with their corresponding pictures.

a) nanotechnology	**b) smart thermostat**	**c) Artificial Intelligence (AI)**	**d) smart refrigerator**
e) renewable energy	**f) nanomedicine**	**g) smart home security system**	**h) nanomaterials**
i) voice-activated assistant			

1._____



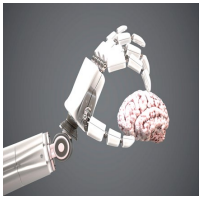
2._____



3._____

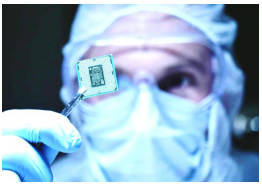
4._____

5. _____



6._____

7._____ **8.** _____ **9.**_____



Exercise 9. Match the devices with the places where you can find them.

1. cash dispenser / cash machine	a. at a supermarket checkout
2. barcode reader	b. connected to a pair of headphones
3. magnetic strip	c. in an office in 1975
4. MP3 player	d. in an office, school or copy shop
5. photocopier	f. in the headquarters of a large company
6. fax machine	e. in the hands of a tourist
7. video camera	h. outside a bank
8. mainframe computer	g. on the back of a credit card

Exercise 10. Prepare a project on the topic «Innovations of the 21st century». Follow the plan:

1. History
2. Description
3. Functions
4. Usage
5. Advantages
6. Disadvantages
7. Find images

TOPIC 8. INSIDE THE COMPUTER SYSTEM

What is the primary function of the CPU (Central Processing Unit) in a computer? How does it affect the performance of the computer system??

Active vocabulary

BIOS (Basic Input/Output System) – базова система введення-виведення
Circuits – логічні схеми
Clock speed – тактова частота процесора
Computational workload – обчислювальне навантаження
Control unit – блок управління
Controllers – контролери
CPU FAN – вентилятор процесора
Expansion cards – розширювальні карти
Expansions slots – слоти для розширень
Gigahertz (GHz) – гігагерц
Graphics Processing Unit (GPU) – графічний процесор
Instruction register (IR) – реєстр інструкцій
Integrated circuit – інтегральна схема
Main memory – основна пам'ять
Non-volatile – енергнеозалежна пам'ять
Program counter (PC) – лічильник команд
RAM (Random Access Memory) – оперативна пам'ять
Registers – регістри процесора
ROM (Read Only Memory) – постійна пам'ять
SYS FAN – вентилятор системного блоку
Volatile – енергозалежна пам'ять

Exercise 1. Read and translate the text.

Processing

The nerve centre of a PC is **the processor**, also called **the CPU**, or **central processing unit**. This is built into a single **chip** that executes program instructions and coordinates the activities that take place within the computer system. The chip itself is a small piece of silicon with a complex electrical circuit called an **integrated circuit.**

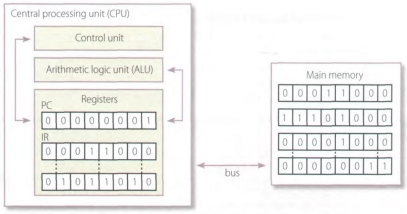


Fig. 1: Organization of a simple computer; the CPU is built into a single microprocessor chip

The processor consists of three main parts: **The control unit** examines the instructions in the user's program, interprets each instruction and causes the circuits and the rest of the components – monitor, disk drives, etc – to execute the functions specified. **The arithmetic logic unit (ALU)** performs mathematical calculations (+, -, etc.) logical operations (AND, OR, NOT). **The registers** are high-speed units of memory used to store and control data. One of the registers (the program counter, or PC) keeps track of the next instruction to be performed in the main memory. The other (the instruction register or IR) holds the instruction that is being executed. The power and performance of a computer is partly determined by the speed of its processor.

A system clock sends out signals at fixed intervals to measure and synchronize the flow of data. **Clock speed** is measured in **gigahertz (GHz)**. For example, a CPU running at 4GHz (four thousand million hertz, or cycles, per second) will enable your PC to handle the most demanding applications.

RAM and ROM. The programs and data which pass through the processor must be loaded into the main memory in order to be processed. Therefore, when the user runs a program, the CPU looks for it on the hard disk and transfers a copy into the RAM chips. **RAM (random access memory)** is volatile – that is, its information is lost when the computer is turned off. However, **ROM (read only memory)** is non-volatile, containing instructions and routines for the basic operations of the CPU. **The BIOS (basic input/output system)** uses ROM to control communication with peripherals.

RAM capacity can be expanded by adding extra chips, usually contained in small circuit boards called **dual in-line memory modules (DIMMs).**

Buses and cards. The main circuit board inside your system is called **the motherboard** and contains the processor, the memory chips, expansions slots, and controllers for peripherals, connected by **buses** – electrical channels which allow devices inside the computer to communicate with each other. For example, the front side bus carries all data that passes from the CPU to other devices.

The cooling fan circulates air through the radiator so it can release engine heat into the surrounding air. With the introduction of fan clutches and electric cooling fans, fans have become more efficient by operating only when they need to **SYS FAN** and **CPU FAN** are technically the same connector, but SYSFAN is used to connect PC case fans, while CPUFAN is used for the fan attached to the CPU heat sink.

The size of a bus, called **bus width**, determines how much data can be transmitted. It can be compared to the number of lanes on a motorway – the larger the

width, the more data can travel along the bus. For example, a 64-bit bus can transmit 64 bits of data.

Expansion slots allow users to install **expansion cards**, adding features like sound, memory and network capabilities.

Graphics Processing Unit (GPU) – processes vast amounts of graphical data. A dedicated graphics card connects with the motherboard via an expansion slot, so you can upgrade your graphics card if you want to improve gaming, video, or visual performance from your PC. Modern GPUs also provide additional computational workload beyond just rendering, making them an extension of the central processing unit.

A Power Supply Unit (PSU) takes electricity from an external power source or laptop battery and passes it to the motherboard to power individual hardware components. This makes it essential to use a power supply with suitable wattage.

Exercise 2. Say whether the following sentences are true or false. Correct the false ones.

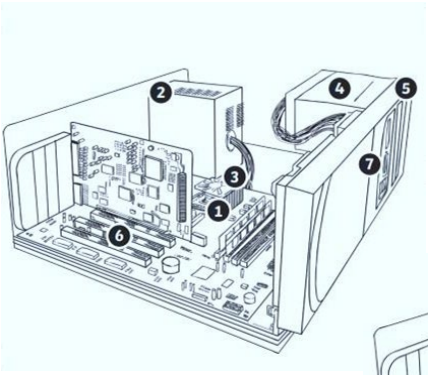
1. The processor is also known as the CPU.
2. RAM is a type of non-volatile memory.
3. The control unit of the processor interprets program instructions.
4. Buses are electrical channels that allow communication between devices inside a computer.
5. The CPU is responsible for executing arithmetic and logical operations.
6. ROM stores data temporarily and is volatile in nature.
7. Clock speed is measured in megahertz (MHz).
8. Expansion slots allow users to add features like sound and memory to a computer.
9. The motherboard contains the graphics processing unit (GPU).
10. The cooling fan in a computer operates continuously to keep the system cool.

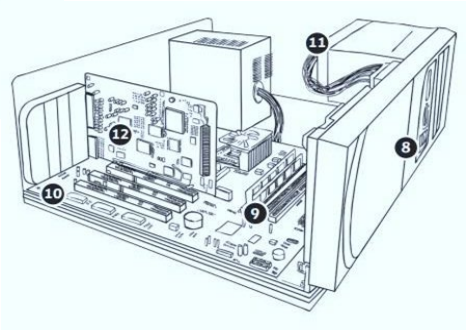
Exercise 3. Watch the video and answer questions. Inside computer ***https://www.youtube.com/watch?v=HB4I2CgkcCo***

1. How is the large circuit board called?
2. What does it contain?
3. What is considered as a brain of the computer? Why?
4. What is a function of heatsink?
5. What are other parts of the motherboard?
6. Where can you store your data?
7. What do you know about solid-state drive?
8. What can be added on expansion slots?
9. What is a power supply?

Exercise 4. Name parts inside the computer system.

1. C_____ _____ _____
2. P_____ _____
3. F_____
4. D_____ b_____
5. D_____ d_____
6. E_____ s_____
7. M_____ c_____ r_____
8. U_____p_____
9. M_____ s____ and R____
10. M_____
11. H_____ d_____
12. E_____c_____





Exercise 5. Match names of items with correct meanings. 1 name of the item is missing.

1_____

A port is just a plug hole for plugging in devices. A USB connector is found on many devices, from charging a mobile phone to a camera or a memory stick. The USB port these devices to be connected to the computer.

2_____

This is basically the brain of the computer. If you ask the computer to do something, it goes to the CPU. Then, it sends the message to where it needs to go enabling your action to happen.

3_____

These are like parking spaces for things like DVD or CD drives or other floppy disc drives. Can you see some blank spaces on the outside of the computer where an extra DVD drive could go?

4_____

The part that takes the electricity from the plug in the wall via a cable and converts it so it can be used by the computer. A power supply for a laptop will do the same but also uses a battery.

5_____

The fan basically keeps the inside of the computer cool. The inside of a computer can become very hot when all the electrical parts are working. If it gets too hot, it can stop working due to overheating or, in the worst case, even set on fire! So, the fan keeps it cool.

6_____

These cards slot into the expansion slots and connect to the motherboard to make your computer do extra things. For example, a network card will let a computer talk to other computers and a sound card will let your computer produce sound through extra speakers or headphones.

7_____

Some computers have a small, thin slot for putting a memory card straight in. This could be from a device, such as a camera. It enables your computer to show photos or videos you have taken.

8_____

This is where everything is stored. Every picture you save, every word document you write, every setting you save, even Windows itself, is all stored here. It's like a massive filing cabinet.

9_____

These are parking spaces for extra things you might want to add to your computer to make it do more things.

10_____

The device where you put in a DVD so the computer can read what's on it or play a film.

Expansion Cards	USB Ports	Expansion Slots
The Fan	Central Processing Unit (CPU)	Memory Card Reader
Drive Bays	Power Supply	Hard Drive

Exercise 6. Translate into English.

1) Системний блок складається з декількох ключових частин, без яких комп'ютер не може функціонувати – це материнська плата, процесор, оперативна пам'ять, постійний запам'ятовуючий пристрій і блок живлення. 2) До материнської плати приєднуються центральний процесор, оперативна пам'ять, відеокарта, запам'ятовуючі пристрої та ін. 3) Головне завдання материнської плати – з'єднати всі ці компоненти і змусити їх працювати як єдине ціле. 4) Сучасні материнські плати оснащуються вбудованою звуковою картою, яка видає цілком пристойний звук. 5) Важливим є також наявність відеокарти, без якої неможливо вивести графічну інформацію із комп'ютера на монітор. 6) До складу комп'ютера обов'язково входить оперативна пам'ять. 7) Блок живлення встановлюється в спеціальний відсік системного блоку і підключається до материнської плати, відеокарти та деяких інших внутрішніх пристроїв за допомогою кабелів.

Exercise 7. Choose the correct answer to complete the sentences in Present Perfect.

a) The IT team _____ (has/have) successfully (resolve) the technical issue.
b) I _____ (has/have) just (download) the latest software update.
c) The computer _____ (has/have, be) running slowly for a while.
d) She _____ (has/have) not yet (install) the new drivers.
e) We _____ (has/have, use) cloud storage for our files.

Exercise 8. Use the Present Perfect tense to talk about your computer experience:
Example: I have used various operating systems over the years.

a) _____
b) _____
c) _____
d) _____
e) _____
f)_____
g)_____

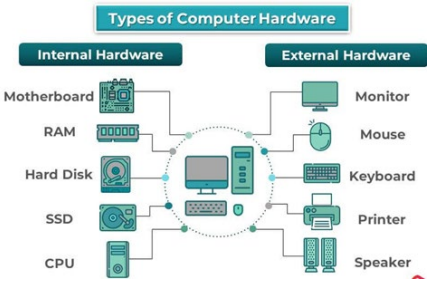
TOPIC 9. COMPUTER ESSENTIALS. HARDWARE

What is computer hardware?
What can you tell about software?
What is the difference between them?

Active vocabulary

Central Processing Unit (CPU) – центральний процесор (ЦП)
Computer case – корпус комп'ютера
Expansion cards – карти розширення
Graphics Processing Unit (GPU) – графічний процесор (ГП)
Hardware – апаратне забезпечення
Keyboard – клавіатура
Motherboard – материнська плата
Mulfunction – несправність
Network interface card (NIC) – мережева карта
Onboard video GPU – вбудований відеопроцесор на материнській платі
Optical drive – оптичний привід
Power supply – блок живлення
Random Access Memory (RAM) – оперативна пам'ять (ОЗП)
Software – програмне забезпечення
Storage drive (HDD or SSD) – пристрій зберігання

Exercise 1. Read and translate the text.



Hardware is «any physical parts or components that contribute to a computer system». These are the tangible components that are likely fitted together inside your computer case and installed with a screwdriver. Computer **software**, on the other hand, is not something you can touch, but is defined as the programs you install on your computer, providing a set of instructions that tell your PC how to work. A computer will only function when both hardware and software are working together. Modern computer has a:

- a computer case
- a motherboard
- expansion cards
- a central processing unit (CPU)
- a random access memory (RAM)
- a storage drive (HDD or SSD)
- graphics processing unit (GPU)
- an optical drive

- a power supply speakers
- a keyboard, a mouse, a monitor,

The computer case or system unit is the component that holds all of the parts to make up the computer system. It is usually designed in such a manner to make fitting a motherboard, wiring, and drives as easy as possible. Computer cases rely on computer fans inside them to create proper airflow to keep all the internals cool and working reliably.

There are several reasons why we use computer cases:

1) One is for protection: dust, animals, toys, liquids, etc. can all damage the internal parts of a computer if the hard shell of a computer case doesn't enclose them and keep them away from the outside environment.

2) Another good reason to use a case is to keep the computer cool. Proper airflow over the internal components is one more benefit to using a computer case. While the case has special vents to allow some of the fan air to escape, the rest of it can be used to cool down the hardware, which would otherwise get pretty hot and possibly overheat to the point of malfunction.

3) Keeping noisy computer parts, like the fans, in a closed space within the computer case is one way to reduce the noise they make.

4) The different parts can fit together and become easily accessible to the user by being compacted in a case to hold it all together. For example, USB ports and the power button are easily accessible, and the disc drive can be opened at any time.

The keyboard is the piece of computer hardware used to input text, characters, and other commands into a computer or similar device. It's an external peripheral device in a desktop system (it sits outside the computer case), or is "virtual" in a tablet PC. Most keyboards have numbers, letters, symbols, arrow keys, etc., but some also have a separate numeric keypad, and additional functions like volume control, buttons to power down or sleep the device, or dedicated programmable shortcut keys.

Others have keys that light up when pressed, or even a built-in trackball mouse that's intended to provide an easy way to use both the keyboard and the mouse without having to lift your hand off the keyboard.

A monitor is a piece of computer hardware that displays the video and graphics information generated by a connected computer through the computer's video card. Monitors are similar to TVs, but usually display information at a much higher resolution. A monitor is sometimes referred to as a screen, display.

Most monitors are considered output devices since they usually only serve the purpose of outputting information to the screen, but some of them are touch screens as well. This type of monitor is considered an input/output device, or an I/O device. Some monitors have integrated accessories like a microphone, speakers, a camera, or a USB hub.

The mouse, sometimes called a pointer, is a hand-operated input device used to manipulate objects on a computer screen. Whether it uses a laser or ball, or the mouse is wired or wireless, a movement detected from the mouse sends instructions to the computer to move the cursor on the screen to interact with files, windows, and other software elements.

Even though the mouse is a peripheral device that sits outside the main computer housing, it's an essential piece of computer hardware in most systems, at least non-touch ones. The standard mouse has two buttons toward the front (to left-click and right-click) and a scroll wheel in the center (to quickly move the screen up and down). However, a computer mouse can have anywhere from one to several more buttons to provide a wide variety of other functions. Some computer mice instead have a large ball on the top so that instead of moving the mouse across a surface to interact with the computer, the user keeps the mouse stationary and instead moves the ball with a finger.

A loudspeaker (a speaker or speaker driver) is an electroacoustic transducer that converts an electrical audio signal into a corresponding sound. Speakers are necessary as transducers.

The hard disk drive is the main, and usually most substantial, data storage hardware device in a computer. The operating system, software titles, and most other files are stored on the hard disk drive. The hard drive is sometimes referred to as the "C drive" because Microsoft Windows, by default, designates the "C" drive letter to the primary partition on the primary hard drive in a computer.

The hard disk drive also goes by the name HDD (its abbreviation), hard drive, hard disk, magnetic hard drive, mechanical hard drive, fixed drive, fixed disk, and fixed disk drive.

An optical drive is a piece of computer hardware about the size of a thick softcover book. Optical drives retrieve or store data on optical discs like CDs, DVDs, and BDs (Blu-ray discs), any of which hold much more information than previously available portable media options like the floppy disk. Most optical drives can play and/or record numerous disc formats. Popular ones include CD-ROM, CD-R, CD-RW, DVD, DVD-RAM and so on.

The sound card is an expansion card that allows the computer to send audio information to an audio device, like speakers, a pair of headphones, etc.

A network interface card (NIC) is a hardware component without which a computer cannot be connected over a network. It is a circuit board installed in a computer that provides a dedicated network connection to the computer. It is also called network interface controller, network adapter or LAN adapter

The video card is an expansion card that allows the computer to send graphical information to a video display device such as a monitor, TV, or projector. Many modern computers don't have video expansion cards but, instead, have onboard video GPUs

integrated directly onto the motherboard. This allows for a less expensive computer, but also for a less powerful graphics system.

Exercise 2. Answer questions.

1. Define computer hardware and computer software and explain their respective roles in a computer system.
2. Name the key hardware components of a modern computer system, including both internal and external components.
3. What is the function of the Central Processing Unit (CPU) in a computer? How does it coordinate the activities of other hardware components?
4. Explain the purpose of computer cases or system units.
5. What are some additional functions that modern keyboards may have?
6. What is the primary function of a monitor in a computer system? How is it different from a touch screen monitor?
7. How does a mouse interact with the computer to perform various tasks?
8. What type of data is usually stored on the primary hard drive (often referred to as the "C drive")?
9. What is the purpose of an optical drive in a computer system?
10. What is the role of a video card and sound card in a computer?
11. Why is a network interface card (NIC) essential for computer networking?
12. What other hardware parts do you know?

Exercise 3. Choose and write the correct names from the box below the pictures.

Mouse	***Printer***	***Motherboard***	***Power supply***
Speakers	***Videocard***	***USB port***	***Computer case***
Mousemat	***CPU***	***Sound card***	***Keyboard***
Router	***RAM***	***Hard drive***	***Monitor***

Exercise 4. Read the meaning and write a correct name of the item.

Used for entering information into the computer. This object contains many letters, numbers and symbols.	This is the pad that the mouse sits on. It is used to make the motion of the mouse smoother and to stop it getting dirty.	This part is like the skeleton of the computer. It provides the basis for where the other parts go and connects them to each other and the C.P.U	This part is a data storage device which stores information and files on a computer.
Used for navigating and clicking on the computer screen. Single and double clicks are used for different functions.	A machine that copies the information from your computer onto paper. May also include photocopying and scanning functions.	This part is the information storage in a computer that is used to store data for programs and running programs.	This part allows a person to connect an electronic device to a computer. It can also be used for saving data onto a flash drive.
This part looks like a TV screen and shows you what you are doing on your computer.	A networking device that directs data between computers on a network, such as on the internet.	This part controls what is shown on the computer monitor and helps to display images on the screen, such as computer games.	This part is the hard casing which all the elements are housed inside to keep them secure.
These connect to the computer to make it possible for us to hear the sounds it makes.	This part sends signals to control the other parts of the computer and runs computer programs.	This part provides power to the computer's different elements.	This part controls the input and output of sound signals. It processed the sounds on the computer and sends them to the speakers or headphones.

1_____ 5_____ 9_____ 13_____
2_____ 6_____ 10_____ 14_____
3_____ 7_____ 11_____ 15_____
4_____ 8_____ 12_____ 16_____

Exercise 5. Select the correct word to complete each sentence.

1. The ____(components / peripherals) of a modern computer system include the computer case, motherboard, and expansion cards.
2. The CPU acts as the brain of the computer, executing instructions and coordinating the activities of other ____(hardware / software) components.
3. Memory is another critical component of computer ____(software / architecture), where data and instructions are stored temporarily for processing.
4. Most modern computers have both HDD and SSD storage drives to store data and ____(applications / devices).
5. The video card allows the computer to send graphical information to a video ____(display / interface) device such as a monitor or TV.
6. Proper airflow keeps all the internals cool and working reliably inside the computer ____(case / monitor).
7. The keyboard is used to input text, characters, and other commands into a computer or similar ____(system / device).

8. A monitor displays the video and graphics information generated by a connected computer through the computer's ____(video / sound) card.
9. The mouse is a hand-operated input device used to manipulate objects on a computer ____(screen / keyboard).
10. An optical drive retrieves or stores data on optical discs like CDs, DVDs, and ____(ROM / HDD).
11. A sound card allows the computer to send audio information to an audio ____(device / network), like speakers or headphones.
12. The network interface card provides a dedicated ____(connection / expansion) to the computer, allowing it to be connected over a network.

Exercise 6. Find all words in the box.

a	b	o	o	e	b	t	a	w	s	t	a	z	d
n	n	y	c	r	s	j	j	p	j	a	v	p	r
e	f	y	m	o	i	u	e	l	z	n	n	g	a
t	q	l	m	d	r	a	o	b	y	e	k	d	c
w	u	p	i	q	k	q	r	m	p	i	v	r	s
o	j	p	c	e	i	v	n	a	s	v	e	a	c
r	r	u	r	t	n	f	v	k	m	t	v	o	i
k	o	s	o	t	p	q	k	j	n	p	i	b	h
c	t	r	p	u	u	n	h	i	r	f	r	r	p
a	i	e	h	x	t	w	r	y	v	i	d	e	a
r	n	w	o	c	o	p	e	q	l	l	d	h	r
d	o	o	n	o	u	u	u	n	l	z	r	t	g
c	m	p	e	m	c	p	o	t	n	d	a	o	r
r	o	u	t	e	r	c	w	v	i	i	h	m	y

1. k_____
2. m_____
3. m_____
4. i_____
5. o_____
6. p_____ s____
7. s_____
8. p_____
9. h____ d_____
10. m_____
11. r_____
12. m_____
13. C_____
14. g_____ c____
15. R_____
16. n_____ c____

Exercise 7. Fill in the blanks with the appropriate modal verb.
a) You _____ install the latest updates to ensure your computer's security. (should/may)
b) Users _____ carefully read the terms and conditions before installing any software. (should/must)
c) The technician said he _____ fix the issue by tomorrow. (could/will)
d) You _____ backup your important files regularly to prevent data loss. (can/must)

e) The software _____ be compatible with most operating systems. (should/could)
f) Users _____ be cautious while downloading files from unknown sources. (should/might)
g) The company _____ invest in better cybersecurity measures. (should/could)
h) Users _____ consider upgrading their hardware for better performance. (should/could)
i) The IT department _____ provide assistance with technical issues. (can/must)
j) The computer _____ be infected with a virus; we need to run a scan. (could/might)

Exercise 8. Group work. Discuss with a partner how to choose essential computer parts?

TOPIC 10. COMPUTER MEMORY

How do we measure computer memory?
What devices can be used to store information?

Active vocabulary

Backup memory – Резервна пам'ять
Bits – Біти
Bytes – Байти
Cache Memory – Кеш-пам'ять
Divided into – Розділений на
External memory – Зовнішня пам'ять
Memory Measurement – Вимірювання пам'яті
Memory size – Розмір пам'яті
Non-volatile – Не волатильний (зберігає дані при вимкненні)
Primary Memory/Main Memory – Основна пам'ять
Read/Write memory – Пам'ять з можливістю читання/запису
Secondary Memory – Вторинна пам'ять
Semiconductor memory – Напівпровідникова пам'ять
Storage space – Місце/простір для зберігання
Store data – Зберігати дані
Uninterruptible Power System (UPS) – Джерело безперебійного живлення
Volatile – Волатильний (втрачає дані при вимкненні)
Working memory – Робоча пам'ять

Exercise 1. Read and translate a text.

A memory is just like a human brain. It is used to store data and instructions. ***Computer memor***y is the storage space in the computer, where data is to be processed and instructions required for processing are stored. The memory is divided into a large number of small parts called cells. Each location or cell has a unique address, which varies from zero to memory size minus one. For example, if the computer has 64k words, then this memory unit has 64 * 1024 = 65536 memory locations. The address of these locations varies from 0 to 65535. Memory is primarily of three types:

- *Cache Memory*
- *Primary Memory/Main Memory*
- *Secondary Memory*

Cache Memory is a very high-speed semiconductor memory that can speed up the CPU. It acts as a buffer between the CPU and the main memory. It is used to hold those parts of data and programs which are most frequently used by the CPU. The parts of data and programs are transferred from the disk to cache memory by the operating system, from where the CPU can access them.

Advantages of cache memory:

Cache memory is faster than main memory.
It consumes less access time as compared to main memory.
It stores the program that can be executed within a short period of time.
It stores data for temporary use.

Disadvantages:

Cache memory has limited capacity.
It is very expensive.

Primary Memory (Main Memory) holds only those data and instructions on which the computer is currently working. It has a limited capacity and data is lost when power is switched off. It is generally made up of semiconductor devices. These memories are not as fast as registers. The data and instructions required to be processed reside in the main memory. It is divided into two subcategories *RAM and ROM.*

Characteristics of Main Memory:

These are semiconductor memories.
It is known as the main memory.
Usually volatile memory.
Data is lost in case power is switched off.
It is the working memory of the computer.
Faster than secondary memories.
A computer cannot run without primary memory.

Random Access Memory (RAM) is the internal memory of the CPU for storing data, programs, and program results. It is a read/write memory that stores data until the machine is working. As soon as the machine is switched off, data is erased. Access time in RAM is independent of the address, that is, each storage location inside the memory is as easy to reach as other locations and takes the same amount of time. Data in the RAM can be accessed randomly but it is very expensive. RAM is volatile, i.e. data stored in it is lost when we switch off the computer or if there is a power failure. Hence, a backup Uninterruptible Power System (UPS) is often used with computers. RAM is small, both in terms of its physical size and in the amount of data it can hold. RAM is of two types: Static RAM (SRAM), Dynamic RAM (DRAM).

ROM stands for Read Only Memory – the memory from which we can only read but cannot write on it. This type of memory is non-volatile. The information is stored permanently in such memories during manufacture. A ROM stores such instructions that are required to start a computer. This operation is referred to as bootstrap. ROM chips are not only used in the computer but also in other electronic items like washing machine and microwave oven.

Advantages of ROM:

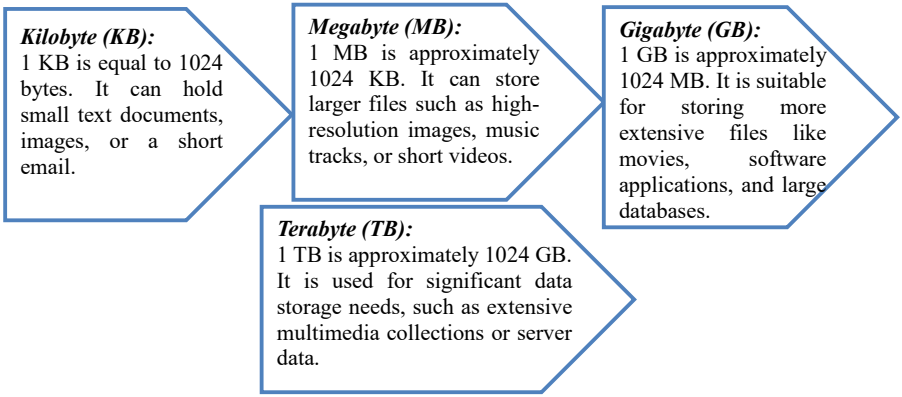
Non-volatile in nature
Cannot be accidentally changed
Cheaper than RAMs
Easy to test
More reliable than RAMs
Static and do not require refreshing

Secondary Memory. This type of memory is also known as *external memory* or *non-volatile.* It is slower than the main memory. These are used for storing data/information permanently. CPU directly does not access these memories, instead they are accessed via input-output routines. The contents of secondary memories are first transferred to the main memory, and then the CPU can access it. For example, disk, CD-ROM, DVD, etc.

Characteristics of Secondary Memory:

These are magnetic and optical memories.
It is known as the backup memory.
It is a non-volatile memory.
Data is permanently stored even if power is switched off.
It is used for storage of data in a computer.
Computer may run without secondary memory.
Slower than primary memories.

Memory Measurement. Memory measurement is typically expressed in bytes and bits. A ***byte*** is the basic unit of digital information and consists of 8 bits. ***A bit,*** on the other hand, is the smallest unit of data and can represent a 0 or a 1. When we talk about memory capacity, we often refer to kilobytes (KB), megabytes (MB), gigabytes (GB), terabytes (TB), and beyond.



Measuring Storage Devices: Storage devices, such as hard drives and solid-state drives (SSD), are used to store data even when the computer is turned off. These devices come in various sizes, typically ranging from a few hundred gigabytes to several terabytes, depending on the model and purpose.

As technology continues to advance, memory capacities will keep growing, enabling computers and devices to handle more significant amounts of data and perform increasingly complex tasks.

Exercise 2. Answer questions.

1. What is computer memory?
2. How is computer memory divided?
3. Name and describe three primary types of memory mentioned in the text.
4. How does Cache Memory contribute to improving CPU performance?
5. List some advantages of Cache Memory over the main memory.
6. What happens to the data stored in RAM when the computer is switched off?
7. What is the purpose of using a backup Uninterruptible Power System (UPS) with computers that have RAM?
8. What are the two main types of RAM mentioned in the text, and how do they differ?
9. Define ROM (Read Only Memory) and explain its significance.
10. Describe the characteristics of Secondary Memory and its role in the computer system.
11. How is Memory Measurement typically expressed, and what are the basic units mentioned in the text?
12. Provide the definitions for Kilobyte (KB), Megabyte (MB), Gigabyte (GB), and Terabyte (TB) based on the text.

Exercise 3. Listen to the video and say what is the difference between storage and memory.

https://www.youtube.com/watch?v=H_M--weEzpA

Exercise 4. Match the terms from the left column with their corresponding definitions or descriptions in the right column.

1. Cache memory	a. A type of memory that stores data and programs permanently and cannot be easily changed.
2. Primary memory	b. The temporary storage area that holds frequently used data to speed up the CPU's performance.
3. Secondary memory	c. The immediate working memory of a computer that holds data and instructions currently in use.
4. Volatile	d. The process of manipulating or transforming data into useful information.
5. RAM	e. A memory technology that uses semiconductors to store and retrieve data.
6. ROM	f. A unit of digital information equal to 1024 bytes.
7. Gigabyte (GB)	g. A unit of digital information equal to 1024 megabytes
8. Data processing	h. A type of memory that retains data only when power is supplied to the system.
9. Semiconductor memory	i. The main memory of a computer system where data is stored and retrieved for processing.
10. Kilobyte (KB)	j. Long-term storage devices used to store data permanently.

Exercise 5. Choose the most suitable option from the provided choices to complete each sentence.

1. Cache Memory is used to:
a) Store data permanently b) Speed up the CPU's performance
c) Act as long-term storage
2. Primary Memory is also known as:

a) Secondary Memory b) RAM c) Cache Memory

3. RAM stands for:

a) Read-Access Memory c) Read-Write Memory

b) Random Access Memory

4. ROM is an example of memory that is:

a) Volatile b) Non-volatile c) Dynamic

5. Secondary Memory is used for:

a) Temporary data storage b) Storing frequently used data c) Long-term data storage

6. The function of Cache Memory is to:

a) Hold data for temporary use b) Store all data permanently c) Store data that is lost during power outages

7. The main difference between RAM and ROM is:

a) RAM is slower than ROM c) RAM can be both read from and written to, while ROM is read-only

b) RAM is non-volatile, while ROM is volatile

8.Gigabyte (GB) is commonly used to measure:

a) Processor speed b) Memory capacity c) Display resolution

9. Semiconductor memory technology is used in:

a) Hard drives c) RAM and ROM

b) Optical drives

Exercise 6. Complete the following sentences by selecting the appropriate word from the provided list.

volatile	*cache*	*semiconductor*	*CPU*
secondary	*gigabyte*	*instructions*	*megabyte*
terabyte		*RAM*	

1. _____ is a type of memory technology used in modern computers, known for its efficiency and speed.
2. Computer memory is used to store data and _____ that guide the operations of a program.
3. Some types of memory are _____, meaning they lose their stored data when the power is turned off.

4. The _____ memory acts as a buffer between the main memory and the CPU, helping to enhance processing speed.
5. _____ memory is slower than Primary memory but is used for long-term storage.
6. One _____ is equal to 1024 GB, providing enough space for measuring digital information of large size.
7. A typical music album in digital format might be around 100 _____ in size.
8. An external hard drive can store several _____ of data, making it suitable for backup and storage purposes.
9. _____ is a type of memory that provides temporary storage for data that the computer is actively using.
10. The _____ is the central processing unit of the computer, responsible for executing instructions and performing calculations.

Exercise 7. Translate into English.

1. Без оперативної пам'яті, яку розробники перших обчислювальних машин називали «складом інформації», сьогодні неможливе функціонування жодного комп'ютера. 2. За період існування настільних ПК вона виконала складний шлях від найпростіших мікросхем, розпаяних по материнській платі, до високотехнологічного знімного модуля. 3. В даний час встановлюються переважно ОЗУ стандартів DDR2, DDR3 і DDR4. 4. Крім частоти, найважливішим показником RAM-пам'яті є її ємність. Вона вимірюється в гігабайтах і лежить, як правило, в межах 2-16 Гб. 5. Модулі «оперативки» встановлюються у відповідні роз'єми на материнській платі, яких зазвичай два або чотири. 6. У ноутбуків і повнорозмірних комп'ютерів розміри і конфігурація роз'ємів відрізняються — це необхідно враховувати при заміні або збільшенні обсягу ОЗУ.

Exercise 8. Complete the following text by filling in the blanks with the appropriate articles (a, an, the, zero) where it is necessary.

1. Computers have become ____integral part of modern society. They have transformed ___ way people work, communicate, and access information. In today's world, _____computer is no longer considered ____luxury, but rather_____ essential tool for daily tasks.
2. One of _____ key components of ___computer is ___central processing unit, or CPU. It is _____ brain of _____ computer, responsible for executing _____wide

range of tasks. ___CPU interacts with various ____hardware components, such as memory, storage devices, and input/output devices.

3. When it comes to software, ____ operating system plays _____ crucial role. It manages hardware resources and provides_____ platform for users to run____applications. ___ operating system like Windows or macOS allows users to perform tasks, browse ____ internet, and run _____software programs.

4. To input data into _____ computer, users rely on various devices. _____keyboard and _____ mouse are common input devices that allow users to interact with _____ computer. Additionally, touchscreens and stylus pens have become more popular, especially on ____ mobile devices.

5. Once data is processed, _____ computer produces output through _____ various output devices. _____ monitor displays visual information, _____ printer produces hard copies of documents, and _____ speakers provide audio output.

6. In ____ recent years, cloud computing has gained significant attention. It allows users to store and access data and applications over _____ internet, eliminating _____ need for physical storage devices. Cloud computing offers flexibility and scalability, making it _____ attractive option for both individuals and businesses.

7. In conclusion, computers have revolutionized ____ way people live and work. ____ advancements in technology continue to shape _____future of computing, enabling more efficient and innovative solutions.

Exercise 9. Role play: Read and translate a dialogue, select the best missing word from the box. Prepare a similar dialogue with your partner.

off, Cache Memory, Secondary, technology, using, the brain, memory, access, store, Primary Memory, non-volatile, advance , same, hard, bytes, in, measure

Alex: Hey Emma, I've been reading about computer [1]_____and it's quite fascinating how it works.

Emma: Absolutely. Computer memory is like [2]_____of the computer, right?

Alex: Exactly! It's used to [3]___ data and instructions that the computer needs to operate. There are different types of memory, like Cache Memory, [4]_____, and Secondary Memory.

Emma: Oh, I've heard about those. [5]_____is like a high-speed memory that helps the CPU, right?

Alex: Yes, that's correct. It acts as a buffer between the CPU and the main memory. It stores frequently used data, so the CPU can [6]_____it quickly and improve performance.

Emma: And what about Primary Memory? Is that the [7]_____as RAM?

Alex: Yes, you got it! Primary Memory, also known as RAM (Random Access

Memory), holds data that the computer is currently [8]_____. It's like the computer's short-term memory, and it's much faster than secondary memory.

Emma: But I've heard that data in RAM is volatile, meaning it gets lost when the power is [9]_____.

Alex: That's right. It's volatile memory. Once the power goes off, the data is gone. That's why computers have to save important data to secondary memory, like [10]_____drives or SSDs.

Emma: So, what's the deal with Secondary Memory?

Alex: [11]_____Memory is used for long-term storage. It's [12]_____, so data remains even when the power is off. It's a bit slower than Primary Memory, but it's essential for storing files and programs that you want to keep.

Emma: Got it. And how do they [13]_____memory?

Alex: Memory capacity is usually measured in [14]_____. There are terms like kilobytes (KB), megabytes (MB), gigabytes (GB), and even terabytes (TB) for larger amounts of data.

Emma: It's amazing how much technology has evolved, allowing us to store and access so much data.

Alex: Absolutely, and as technology continues to [15]_____, we're likely to see even more improvements in computer memory and storage.

Emma: Thanks for explaining, Alex. Now I have a clearer picture of how computer memory works.

Alex: You're welcome, Emma. It's a fascinating topic, and it's great that you're interested [16]_____learning about it.

Emma: Definitely, and who knows what exciting developments await us in the future!

Alex: Absolutely. The world of computer memory is always evolving, just like [17]_____itself.

TOPIC 11. THE SEQUENCE OF TENSES

Tense in Independent Clause	Purpose of Dependent Clause/ Tense in Dependent Clause	Example(s)
Simple Present	To show same-time action, use the present tense	I *am* eager to go to the concert because I *love* the Wallflowers.
	To show earlier action, use past tense	I *know* that I *made* the right choice.
	To show a period of time extending from some point in the past to the present, use the present perfect tense.	They *believe* that *they have elected* the right candidate.
	To show action to come, use the future tense.	The President *says* that he *will veto* the bill.
Simple Past	To show another completed past action, use the past tense.	I *wanted* to go home because I *missed* my parents.
	To show an earlier action, use the past perfect tense.	She *knew* she *had made* the right choice.
	To state a general truth, use the present tense.	The Deists *believed* that the universe *is* like a giant clock.
Present Perfect or Past Perfect	For any purpose, use the past tense.	She *has grown* a foot since she *turned* nine. The crowd *had turned* nasty before the sheriff *returned*.
Future	To show action happening at the same time, use the present tense.	I *will be* so happy if they *fix* my car today.
	To show an earlier action, use the past tense.	You *will* surely *pass* this exam if you *studied* hard.
	To show future action *earlier than* the action of the independent clause, use the present perfect tense.	The college *will* probably *close* its doors next summer if enrollments *have* not *increased*.

Exercise 1. All sentences contain one mistake, find and correct them.

1. When I asked Joan about her work she said she had lost her job and is short of money.
2. Michael explained that he couldn't come to the party because he is working that evening.
3. We had a great evening with Janet. She is telling about her fascinating trip to Kenya.
4. I'm sorry to bother you, but you did say to call if I was worried.
5. We were disappointed when the receptionist told that the hotel was fully booked that week.
6. The museum guard asked the visitors to not touch the exhibits.

7. The tour guide explained that the castle is only open on Tuesdays.
8. I thought that he is coming home.
9. A research scientist at State University reported that he finds a blood test to diagnose cancer.
10. When she told us that everything was ready, we went into the dining room and seated ourselves.
11. They asked him if he will help us.
12. Professor Baker told his class that there 10,000 species of ferns.
13. They asked me what did happen last night, but I was unable to tell them.
14. I do not know where he could have gone so early in the morning.

Exercise 2. Use the correct form of the verb from brackets.

1. They noticed they _____(fly) for three hours already.
2. Tom said that it _____(take) him an hour to get to the station.
3. She asked them if they _____(play) tennis in the afternoon.
4. Mary asked her brother if he _____(can) tell her the way to the shop.
5. Peter and John told me they _____(go) to the Kremlin the day before yesterday.
6. Mother said she _____(have) a bad headache. Don't bother her.
7. Dorothy asked Margaret if she _____(be) going to buy a new dress in the nearest future.
8. They told us they _____(visit) the Tretyakov gallery next Sunday.
9. Jack said that he already _____write) the letter.
10. They asked if the work _____(finish) by tomorrow.

Exercise 3. Fill in the blanks with an appropriate tense form.

1. She noticed she ..... already late.

a) is b) was c) had been

2. She said that it ..... her an hour to finish the report.

a)takes b)took c)has taken

3. She asked him if he ..... her name.

a)knows b)knew c)had known

4. What did you do with the money you ..... from me?

a)borrowed b)have borrowed c)borrow

5. When I opened the door, the cat ..... out.

a)jump b)jumped c)had jumped

6. When I was ten I already ..... I wanted to be a scientist.

a)know b)knew c)had know

7. I went to see if she ..... up yet.

a)woke b)has woken c)had woken

8. I ..... 80 kilos three months ago.
a)was weighing b)have weighed c)weighed
9. As soon as I ..... the phone down, it rang again. *2 correct answers are possible.
a)put b)have put c)had put
10. I ..... that I would get the promotion but it is beginning to look difficult now.
a)hoped b)have hoped c)had hoped
11. When I arrived at the party, they ..... home.
a)already went b)have already gone c)had already gone
12. I was hot because I ..... in the sun for a long time.
a)was walking b)walked c)had been walkin

Exercise 4. Complete the following sentences by choosing the correct verb tense.

1. Yesterday, while I _____(work) on a programming project, the power suddenly went out.
2. By the time I _____(graduate) from university, I_____ (already, gain) significant experience in software development.
3. She ____(usually, write) clean and efficient code, but yesterday she _____(struggle) with a complex algorithm.
4. By next year, they ____(develop) a new app that ____(completely change) the way we manage our tasks.
5. The software update, which _____(release) last month, ____(already, receive) positive feedback from users.
6. While the team members_____ (discuss) the new project, one of the developers suddenly _____(come) up with a brilliant idea.
7. Our company _____(use) the same IT infrastructure for years, but next month we _____(finally, upgrade) to a more advanced system.
8. As soon as you _____(finish) the design, please send it to me so that I _____(start) the coding process.
9. He _____(work) as an IT consultant for five years before he ____(decide) to start his own business.
10. I'm sorry, but I can't help you right now. I _____(meet) with our IT team to discuss an ongoing issue.
11. By the time you _____(arrive) at the conference, the keynote speaker _____(already, begin) the presentation.
12. Our company _____(invest) heavily in cybersecurity measures because we understand the importance of protecting our data.

Exercise 5. Match each sentence in Part A with the appropriate sentence in Part B. Make sure the sentences maintain the correct sequence of tenses.

Part A: Sentences	**Part B: Sentence Completions**
1. She had finished her coding assignment by the time...	A. ...the network issue had been resolved.
2. While the system was being upgraded, users...	B. ...had already presented the preliminary findings.
3. By the end of this week, the IT team...	C. ...the users started reporting improved performance.
4. When I arrived at the office, the programmers...	D. ...the deadline for submitting project proposals.
5. After he had tested the new software, he...	E. ...they will initiate testing procedures.
6. As soon as they complete the software development, they...	F …I had already left for the client meeting.
7. Our company will introduce a new cybersecurity policy before...	G. ...the new server configuration.
8. He will have gained valuable experience in network administration by...	H. ...a year in the field.
9. By the time you read this email, the IT department…	I. ...the end of next month.
10. Before the conference call, the tech lead...	J. ...she realized a minor bug in the code.

Exercise 6. Choose the correct verb tense for each sentence to maintain the proper sequence of tenses.

1. Yesterday, while I _____ a video game, the computer suddenly froze.
a) play
b) was playing
c) played
d) have played

2.By the time he _____ the software glitch, he _____ the solution.
a) identifies / finds
b) identified / was finding
c) has identified / is finding
d) had identified / found

3. The technician _____ the motherboard when he realized it _____ damaged.

a) examines / was
c) has examined / is
b) examined / is
d) was examining / had been

4. Our team _____ on this project for two weeks when we _____ a major breakthrough.
a) works / will achieve
c) has been working / achieved
b) worked / achieve
d) were working / have achieved

5. As soon as you _____ the data, please _____ the backup process.
a) finish / start
c) finished / started
b) will finish / will start
d) have finished / start

6. The software engineer _____ on the new algorithm all morning, and she _____ great progress.
a) works / is making
c) has been working / is making
b) worked / makes
d) was working / has made

7. Before the update, the system _____ properly, but now it _____ errors.
a) works / shows
c) has worked / is showing
b) worked / shows
d) had worked / was showing

8. By this time next year, we _____ a quantum computer that _____ new possibilities.
a) will develop / unlocks
c) develop / unlocked
b) will have developed / will unlock
d) will have developed / unlocks

9. She _____ in the IT department for five years before she _____ promoted to manager.
a) works / is
c) has worked / was
b) worked / was
d) had worked / is

10. When I _____ my programming degree, I _____ already _____ job offers.
a) will complete / will have / received
c) completed / will have / received
b) completed / have / received
d) complete / have / received

Exercise 7. Fill in the blanks with the appropriate verb form to maintain the correct sequence of tenses.

1. Last week, our team of developers _____(work) diligently on a new software update. They _____(code) for hours every day to ensure its functionality.

2. By the time I _____(join) the company three years ago, they ____(already, develop) their flagship application.

3. The system crashed while they _____(perform) routine maintenance on the servers. Unfortunately, they _____(not/save) their work before the crash.

4. By this time next year, our IT department (implement) a new cybersecurity protocol. They believe it _____(greatly improve) our data protection.

5. We couldn't access the database because someone_____ (change) the password without informing the team. Luckily, I _____(manage) to restore access.
6. Currently, our lead programmer_____ (research) AI algorithms to integrate into the software. She_____ (learn) a lot about machine learning lately.
7. Before the training session yesterday, our IT manager _____(prepare) a comprehensive presentation on cloud computing.
8. As soon as the new servers arrive, we_____ (begin) the process of migrating our data to the cloud. This _____(reduce) our maintenance costs in the long run.
9. By the time you _____(receive) this email, I _____(already, send) you the updated project proposal.
10. He _____(work) on this project for several months when he realized that the initial concept (not/be) feasible.
11. Next week, we _____(conduct) a workshop on data analytics. Our expert guest speaker ____(share) valuable insights into the latest trends.
12. The software _____(not/update) for over a year, but the developers _____(promise) that a new version _____(release) by the end of this month.

TOPIC 12. HOW TO SELECT A COMPUTER?

Exercise 1. Imagine you are in a computer shop. Think about 3 things you would like to change in your computer. Compare your answers with a partner.

Exercise 2. Match phrases with the meanings. Make up your own sentences.

1. In cash/ by card	a. Get money back after returning an item
2. Spend money on something	b. Paper proof of a purchase
3. On sale	c. Spend a lot of money on something
4. Take something back	d. Use cash or credit card to purchase something
5. A receipt	e. Return an unwanted item to a shop
6. Get a refund	f. Use the money to buy something or pay something
7. Shop around	g. Available to buy
8. A bargain	h. Searching for bargains
9. For sale	i. Excellent value for an item or purchase
10. Splash out on something	j. Compare prices in different shops before buying
11. Bargain hunting	k. At a reduced price

Exercise 3. Complete a dialogue with correct words from the box;

operate, free, suggest, amount, warranty, model, power, configuration, bill, discount, assembled

Buying A Computer

Mike: Excuse me! Could you [1]_____me a good computer?

Sales girl: Please have a seat. Would you tell me the [2]_____?

Mike: I exactly don't know what the configuration should be. It must have enough [3]_____to help me [4]_____Internet easily and do my

graphic works comfortably.
Sales girl: You can go for 2GB MHz with 15 color monitor. Would you like to get a computer [5]_____?
Mike: No, I want HCL. I think it is the best one.
Sales girl: Certainly. It is HCL latest [6]_____.
Mike: It is a great computer. What's its price?
Sales girl: 1.200 USD – only.
Mike: Is there any discount?
Sales girl: There is no [7]_____. Prices are fixed. But under the company's scheme you will get one HP printer [8]_____with this computer.
Mike: How much [9]_____ is there on computer?
Sales girl: It has one year onsite warranty. But, this is a good computer. It won't give any problem.
Mike: Please get it packed and help me to keep it in my car.
Sales girl: Sure. This is your [10]_____.
Mike: Here is the [11]_____. Kindly check.
Sales girl: Thanks.

Exercise 4. Work in pairs. One of you wants to buy a computer; the other is the shop assistant.
a) Put sentences into the correct order in each column.
b) Use the prompts and product descriptions below to role play the conversation.

a) task

Shop assistant	*Customer*
1) Answer, and mention any final details that might persuade the customer to buy the computer.	1) Ask the price.
2) Give the information required. Compare the two models.	2) Decide which computer to buy or leave the shop.
3) Show the customer two possible models.	3) Explain what you are looking for.
4) Give technical specs (describe the processor, RAM and storage capacity). Compare the two different models.	4) Ask for some technical specs.
5) Greet the customer and offer help.	5) Ask about any further technical specs (DVD drive, monitor, communications, etc).

b) task

Exercise 5. Match words with their meanings and make up your own sentence.

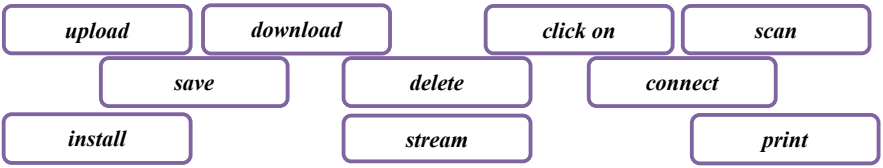
1) browser	a) a small file installed by a website on a visitor's computer to record the visitor's activity
2) operating system	b) a program that lets you browse the Internet and access web pages
3) modem	c) to send copied data to a secure location in case the original data is lost or corrupted
4) program	d) a program that can infect a computer, replicate itself, and damage or destroy data
5) cookie	e) software that manages basic functions of computers, smartphones etc, such as running programs and linking with peripherals
6) software	f) device that converts data to a form that allows a computer to connect to the Internet
7) virus	g) coded software instructions designed for a specific task
8) data	h) the basic binary unit for storing data in a computer, either 0 or 1
9) back up	i) the programs that allow a computer to operate and perform specific tasks
10) bit	j) information in digital form that a computer can process, store or use in some other way

Exercise 6. Choose the correct answer.

1. Software that keeps track of what you buy on a site is called
soft tracking shopping cart virtual salesman e-wallet

2. You can buy this online.
A motorbike A music CD An insurance policy All of these
3. On a secure website the address should start with ...
telnet:// www. //277.13.12.0 https://
4. What are Paypal and Worldpay?
Credit card companies Online banks Payment systems Virtual auctions
5. Making a fake website to steal credit cards is called ...
hacking breaking phishing card hooking
6. A site which advertises goods but does not sell them online is a ...
magazine site shop window hollow site retro page
7. Delivery through the post is sometimes called ...
snail mail physical delivery lag factor houseware
8. One of the best places to buy second-hand goods is at a ...
virtual auction seabay discount e-tailer virtual newspaper
9. What symbol on your browser shows a site has security protection?
A police helmet A stop sign A thumbs-up A locked padlock

Exercise 7. Use words from a word bank.



1. You need a router to _____ to the Internet.
2. To choose an item, you must_____ it with your mouse.
3. You need a good Internet connection to _____ live shows on a laptop.
4. You need a printer to _____ documents or pictures.
5. Always _____your important files on a back-up hard drive.
6. A lot of people_____ videos onto video-sharing websites so that everyone can watch them.
7. Before you_____ the new software, you should _____any unused programs from your computer.
8. You can _____pictures and documents with a scanner.
9. You shouldn't _____ music or films without paying for them.

Exercise 8. Find logo words in the puzzle.

C	O	M	P	U	T	E	R	A	B	I	T
D	A	M	E	S	S	E	N	G	E	R	Z
C	R	O	Y	P	U	Z	Z	L	E	L	O
D	B	W	C	H	R	O	M	E	L	O	O
C	L	A	S	S	R	O	O	M	O	O	N
H	A	P	P	L	E	M	P	E	N	U	P
R	A	B	B	I	T	H	E	A	H	L	E
O	W	D	V	I	B	E	R	O	S	E	E
M	O	N	D	A	G	M	A	I	L	S	Y

M_____r
C_____m
V_____r
Z_____m
O_____a
C_____m
G_____

Exercise 9. Match idioms with their meanings.

1) Couch-potato	a. the point when people realize they are threatened or challenged and have to redouble their efforts in work to catch up to a competitor
2) Mouse-potato	b. the term used when a company uses its own product to test and provide a new product
3) Music-freak	c. who keeps watching tv the whole day
4) Movie-buff	d. the problem was caused by the fault of the user (also seen as the acronym PICNIC: Problem In Chair Not In Computer)
5) Netizen	e. an error, defect, or malfunction within a computer system
6) Computer glitch	f. the way hackers access a system otherwise through to be safe
7) Back door	g. who loves to listen to music
8) Sputnik moment	h. who keep surfing on internet

9)Eat your own dog food	i. who keeps playing games in computer movies
10) The problem is between the keyboard and the chair	j. who loves to watch

Exercise 10. Prepare a project work and speak about «My ideal computer».

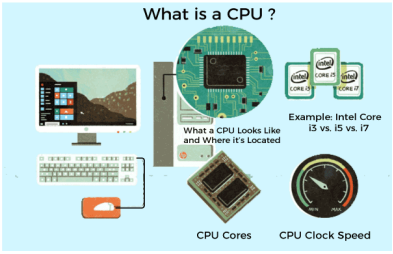
TOPIC 13. CENTRAL PROCESSING UNIT (CPU)

What do you know about CPU?
How does it work?

Active vocabulary

Apps – Додатки
Binary Signals – Двійкові сигнали
Cache – Кеш-пам'ять
Central Processing Unit (CPU) – Центральний процесор
Complete – Виконувати
Core – ядро
Dependent on – Залежить від
Execute – Виконує
Features – Особливості, характеристики
Fetch – Витягати
Graphics Card – Відеокарта
Instruction Pipelining – Конвеєр команд
Multicore Processor – Мультиядерний процесор
Multi-tasking – Багатозадачність
Multithreading – Багатопотоковість
Operating System – Операційна система
Out-of-Order Execution – Виконання не в порядку черги
Processes -Обробляє
RAM (Random Access Memory) – Оперативна пам'ять (ОЗП)
Three-step process – Трикроковий процес
Transform data – Перетворювати дані

The Central Processing Unit (CPU) is the primary component of a computer that acts as its "control center." The CPU, also referred to as the "central" or "main" processor, is a complex set of electronic circuitry that runs the machine's operating system and apps. The CPU interprets, processes and executes instructions, most often from the hardware and software programs running on the device.



The CPU performs arithmetic, logic, and other operations to transform data input into more usable information output. While the CPU must contain at least one processing core,

many contain multiple cores. A server with two hexa-core CPUs, for example, will have a total of 12 processors. Running multiple processor units simultaneously allows for multi-tasking and can dramatically improve performance. But while important, the number of cores and processors aren't the only factors that need to be taken into consideration. To determine the best CPU for a project, developers typically focus on the specific applications that will be dependent on the CPU and identify the most important features based on those apps' requirements.

CPU interprets binary signals to complete actions, calculations, and run applications in a three-step process:

Fetch: The CPU fetches instructions from the computer's memory and stores them in a part of its control unit called the Instruction Register (IR).

Decode: The CPU sends the instruction from the IR to its instruction decoder. This combinatorial circuit decodes the instruction into signals.

Execute: The decoded signals travel to relevant destinations in the CPU for the execution phase.

A CPU also works with other components. For example, it may take relevant data sent from a video game to a graphics card. The graphics card then processes the information to display on a monitor. Likewise, a CPU helps move data from a computer's hard drive to its memory for faster access.

CPU components are:

Control unit (CU): Circuits that direct the memory, logic units, and output of devices by sending out control signals that dictate what each component must do.

***Arithmetic logic unit (ALU)*:** A circuit that performs calculations while the address computation unit calculates where certain information is stored in the computer's main memory.

***Memory management unit (MMU)*:** A component that allocates memory for every program and manages the system's RAM, cache, and resources for objects and data structures.

Every CPU also has *a cache* of reserved memory built into the computer, enabling it to perform commands quickly without pulling memory from the main data storage area. Because the CPU cache is located next to the processor core, memory can be retrieved quickly – but only a limited amount is in the cache. This cache stores copies of information used during the current session to make tasks faster and simpler to complete.

T*he clock speed of a CPU i*s an important part of how it works and ensures the consistent operation of the computer. The clock signal tells the CPU to restart its sequence of processing operations. A computer with a faster clock rate restarts the sequence more often, making the CPU work faster and leading to faster operations. Still, the clock rate has to match the CPU's operations to work properly, so simply setting the clock signal to repeat often won't make it work faster. For the computer to function, the CPU must complete a cycle and send all the signals needed to complete an operation before the clock signal is sent again to restart the cycle. In more complex CPUs, multiple clock signals might be put in place. This ensures the CPU stays synchronized and completes the full sequence.

Modern computers have at least two cores operating together to keep up with the number of operations being run at the same time. Some have as many as 24 cores in high-speed processors. This is sometimes called a ***multicore processor***. These processors, along with the CPU, are capable of performing what's known as multithreading. This is where the CPU essentially creates two virtual cores that are capable of performing tasks and running operating systems separately, giving the same effect as a multicore processor.

While the CPU is a major player in the computer's processing speed, it's not the only factor. Another important factor is the amount of available RAM. RAM powers the applications that the computer uses by providing the short-term memory needed to run them.

RAM is much faster to access than other types of storage on your computer. The data saved is stored while the computer is in use and is erased when the computer is turned off.

In computers with insufficient RAM, when the CPU tries to send a command to be processed, the processing time is much slower as it has to retrieve available memory from another source.

Without a functioning CPU, a computer or smart device can't interpret and execute the commands a user inputs. So, understanding how this component and other key hardware pieces work is a fundamental part of learning about systems operations and computer programming.

Exercise 1. Answer questions.

1. What is the primary role of the Central Processing Unit (CPU) in a computer system?
2. How is the CPU commonly referred to in terms of its position within the computer architecture?
3. What are the main functions that the CPU performs with regard to instructions from hardware and software?
4. How does the CPU transform data input into more usable information output?
5. While the number of cores and processors are important, what else should developers consider when selecting the best CPU for a project?
6. Describe the three-step process through which the CPU interprets binary signals to complete actions and run applications.
7. What is the role of the Instruction Register (IR) during the fetch stage of the CPU's instruction execution process?
8. How does the CPU work in conjunction with other components like a graphics card and a computer's hard drive?
9. Explain the concept of a cache in a CPU and its role in enhancing performance.
10. How does the clock speed of a CPU contribute to its overall operation, and what purpose does the clock signal serve?
11. How does a multicore processor work, and what is the benefit of multithreading in modern CPUs?
12. What is the primary function of RAM, and how does it contribute to a computer's performance?

Exercise 2. Listen to the video *https://youtu.be/o5wodrkzoxo* and answer questions.

1. What is CPU?
2. How to protect CPU?

Exercise 3. Read each statement carefully and determine whether it is true or false. Mark your answer with «T» for True or «F» for False.

1. The CPU is responsible for managing the computer's hardware components.
2. The CPU's primary function is to physically assemble the computer's components.
3. The CPU processes instructions from both hardware and software programs.
4. A CPU can have multiple cores, allowing for efficient multitasking.
5. The number of cores and processors are the sole factors considered when selecting a CPU for a project.
6. The CPU interprets binary signals through a two-step process: fetch and execute.

7. During the fetch stage, instructions are stored in a section of the CPU called the Instruction Register (IR).
8. A CPU works independently without interacting with other computer components.
9. RAM is faster to access than other types of storage and is used for long-term storage.
10. In computers with insufficient RAM, the CPU's processing time is unaffected.
11. Without a functioning CPU, a computer cannot execute user commands.
12. Multithreading involves creating virtual cores within a CPU for improved performance.
13. The clock speed of a CPU does not impact its consistent operation.

Exercise 4. Select the correct word from the box.

chips, dual core, megabytes, megahertz, motherboard, processor, speed, upgraded

The «brain» of a computer is the 1_____. Most of these are made by Intel and AMD, and are sometimes referred to as « 2_____». The fastest processors are 3_____, which means that there are two processors working together. The 4 _____ of a processor is measured in 5_____, which is usually written as MHz. A computer's memory is measured in 6_____. If a computer has 1,024 megabytes of memory, and the memory type is SDRAM, this is written as 1,024 MB SDRAM, and is pronounced «a thousand and twenty-four megabytes ess-dee-dram». The processor and memory modules are located on the 7_____. Changing a computer's processor is not generally practical, but the memory can usually be 8_____.

Exercise 5. Translate into English.

1. Процесор, він же мікропроцесор, він же центральний процесор, він центральний процесорний (обробний) пристрій (ЦПУ) – основний елемент апаратного забезпечення обчислювального пристрою, за допомогою якого відбувається обробка інформації.
2. Саме на технічні характеристики процесора звертають увагу при виборі комп'ютера або сервера, адже для високої продуктивності потрібний достатньо потужний процесор. Процесор виготовляється найчастіше з кристала кремнію.
3. Обов'язкові складові: ядро процесора, що складається з арифметико-логічного пристрою, внутрішньої пам'яті (регістрів) та швидкої пам'яті (кеш), а також шини – пристрої управління всіма операціями та зовнішніми компонентами. Через шини до ЦПУ потрапляє інформація, яку потім

обробляє ядро.
4. Одноядерні процесори виконують кілька завдань не одночасно, а послідовно, при цьому виконання окремих операцій займає частки секунди. Двоядерний процесор здатний виконувати два завдання одночасно, чотириядерний – чотири і т.д., що дозволяє називати сучасні комп'ютери багатозадачними.

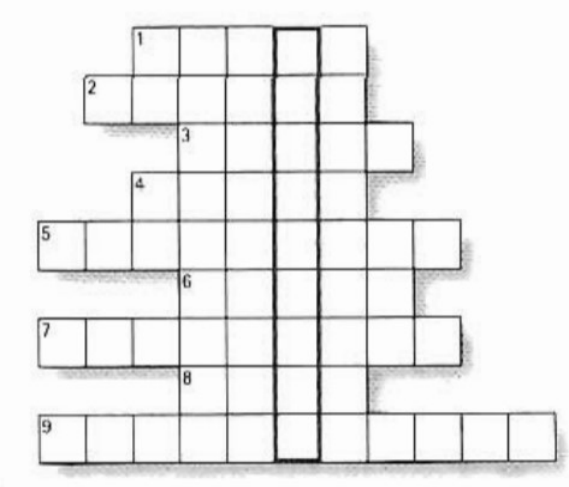
Exercise 6. Match the sentence beginnings with the correct endings.

1. The CPU processes data and	a) areas within the CPU.
2. The control unit is the part of the CPU that	b) you can't make changes to it.
3. The arithmetic and logic unit is able to make	c) controls the way instructions are executed.
4. The registers are high-speed storage	d) the computer is turned off.
5. Data contained in RAM is lost when	e) coordinates the other parts of the computer.
6. ROM memory can only be read	f) calculations: add, subtract, multiply and divide.

Exercise 7. Solve the clues and complete the crossword below.

1. Intel_____ are used in many computers.
2. Each 0 or 1 is called a bit, short for____digit.
3. Special cards can be inserted into expansion_____.
4. A_____ controls the timing within the PC by sending signals to synchronize its circuits and operations.
5. The processor speed is measured in _____.
6. _____carry signals between different parts of a PC.
7._____cards improve the computer's performance.
8. The _____uses ROM to control the input or output of data.
9. The main printed circuit board is called the_____.

Down: The brain of a computer is_____.



Exercise 8. Prepare a written dialogue «Recommendations for CPU selection» by using new words from Active vocabulary. Then discuss your ideas with a partner.

TOPIC 14. THE INTERNET

Exercise 1. Express your ideas about these sayings. How do you understand them?

1. «The internet is a window to the world, but it's up to us to open it».
2. «The internet is not a luxury; it's a necessity for learning, staying informed, and connecting with others around the world».
3. «The best thing about the internet is that it empowers people to do what they do best, but it also empowers them to do what the audience wants».

Exercise 2. Read and translate the text. Select the correct variant from the box.

1. figures/people, 2. soon/shortly, 3. data/information, 4. for/with, 5. tipe/type, 6. create/ creature, 7. originated/appeared, 8. skyspace/cyberspace, 9. sed/set, 10. usage/using, 11. formulated/formatted, 12. links/pages, 13. thing/think, 14. network/net, 15. over / through, 16. servers/services, 17. see / access, 18. port/provider, 19. discussion/talking

When did the internet appear? *Joseph Carl Robnett Licklider*, who is considered to be among the most prominent [1]____in computer science development and general computing history, popularized the idea of an "Intergalactic Network" of computers in the early 1960s. [2]_____ thereafter, computer scientists developed the concept of "packet switching," a method for effectively transmitting electronic [3]_____that would later become one of the major building blocks of the internet.

In 1965, *Lawrence Roberts* made two separate computers in different places 'talk' to each other for the first time. This experimental link used a telephone line [4]_____an acoustically coupled modem, and transferred digital data using packets. When the first packet-switching network was developed, *Leonard Kleinrock* was the first person to use it to send a message. He used a computer at UCLA to send a message to a computer at Stanford. L. Kleinrock tried to [5]_____ 'login' but the system crashed after the letters 'L' and 'O' had appeared on the Stanford monitor.

No one person invented the internet. When networking technology was first developed, a number of scientists and engineers brought their research together to [6]_____ the ARPANET in 1969 by the US Department of Defense. The internet [7]_____ in the early 1970s when the United States wanted to make sure that people could communicate after a nuclear war. This needed a free and independent communication network without a centre and it led to a network of computers that could send each

other email through [8]_____.

Great influence was maid by scientists *Robert Kahn and Vinton Cerf, who* developed Transmission Control Protocol and Internet Protocol, or TCP/IP, a communications model that [9]_____standards for how data could be transmitted between multiple networks. The invention of DNS, the common use of TCP/IP and the popularity of email caused an explosion of activity on the internet. Between 1986 and 1987, the network grew from 2,000 hosts to 30,000. People were now [10]_____the internet to send messages to each other, read news and swap files. However, advanced knowledge of computing was still needed to dial in to the system and use it effectively, and there was still no agreement on the way that documents on the network were [11]_____. January 1, 1983 is considered the official birthday of the Internet.

The online world then took on a more recognizable form in 1990, when computer scientist *Tim Berners-Lee* invented the World Wide Web. On the 6 August 1991 the code to create more web [12]_____and the software to view them was made freely available on the internet. Computer enthusiasts around the world began setting up their own websites. Berners-Lee's vision of a free, global and shared information space began to take shape.

Some people think that the internet and the Web are the same [13]_____, but in fact they are different. *The internet* is a global [14]_____ of interconnected computers. These computers communicate with each other [15]____existing telecommunications networks – principally, the telephone system. The *Word Wide Web* (usually known as just «the Web») is the billions of web pages that are stored on large computers called web [16]_____.

To [17]_____the web, you need a computer and a modem. You then connect over your telephone line to an internet service [18]_____, which sends your request to view a particular web page to the correct web server. Websites are not the only service available on the internet. It is also used for many other functions, including sending and receiving email, and connecting to newsgroups and [19]_____groups.

You could say that the internet is a system of roads, and web pages and emails are types of traffic that travel on those roads.

Exercise 3. Answer questions to the text.

1. When did the concept of an «Intergalactic Network» of computers become popular?
2. What is the significance of packet switching in the development of the internet?
3. How did Lawrence Roberts make two separate computers communicate for the first time?
4. What was the purpose of the first packet-switching network developed by Leonard Kleinrock?

5. Why did the United States want to create a communication network that could withstand a nuclear war?
6. Who were Robert Kahn and Vinton Cerf?
7. How did the invention of DNS and TCP/IP contribute to the growth of the internet?
8. What date is considered the official birthday of the Internet?
9. How did Tim Berners-Lee contribute to the evolution of the online world?
10. Explain the difference between the internet and the World Wide Web.

Exercise 4. Match words with their meanings and make up your own sentence.

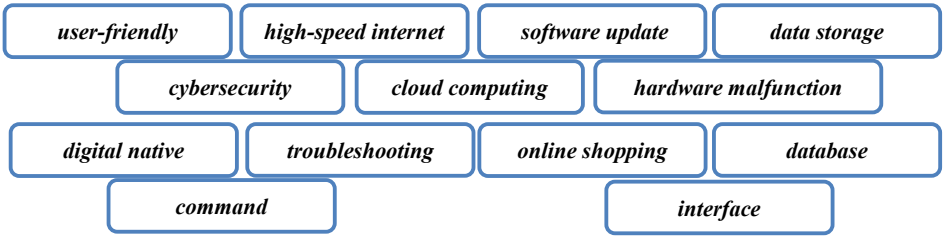
1. chat	a) temporary storage or memory from which high-speed retrieval is possible
2. domain name	b) a small file that a webserver installs on your computer or device to identify and track you
3. bookmarks	c) an informal online conversation using text messages in real time
4. browser	d) a computer network security system that restricts internet access within a private network
5. cache	e) a section on a website that lets users communicate with each other by posting public (and private) messages
6. cookie	f) go offline because of overload, attack or accident
7. firewall	g) a unique name that identifies a website
8. forum, web forum	h) highlighted word, words or image that you can click on to go to another section or to another page on the internet
9. go down (of a website or server)	i) an application on computer, smartphone and other devices for connecting to the internet and navigating between webpages
10. hyperlink	j) favourites; a record (usually in a browser) of preferred website links for easy access

Exercise 5. Translate into English.

1. Інтернет — це глобальна мережа, яка об'єднує велику кількість приладів у всьому світі, через які можна отримати доступ до інформаційних ресурсів. Всесвітня павутина зберігає в собі та передає дані від одного користувача до іншого. 2. Сьогодні Інтернет часто

використовується, щоб забезпечити простий у користуванні інтерфейс для численних програм, включаючи електронну пошту, передачу файлів, групи новин та повідомлення. 3. Веб-браузери зробили Інтернет досить простим для користування. 4. У 1969 році група вчених на чолі з Леонардом Клейнроком розмістила канал потоку інформації з одного комп'ютера на інший за допомогою кабелю. Саме ця подія вважається початком століття інтернету. 5. Об'єднати мережі різної архітектури та конфігурації (типології) вдалося за рахунок IP — інтернет-протоколів та маршрутизації даних у мережах зв'язку.

Exercise 6. Match the following useful phrases or collocations with their corresponding meanings. There are 3 extra words.



a. The process of fixing or resolving issues or problems that arise with computer systems or devices.
b. The act of purchasing goods or services over the internet.
c. A term used to describe individuals who have grown up using digital technology and are comfortable with it.
d. The practice of utilizing remote servers to store, manage, and process data over the internet.
e. The protection of computer systems and networks from digital attacks or unauthorized access.
f. A term used to describe internet connectivity with very fast data transmission rates.
g. Updates or upgrades to computer programs or applications to improve functionality, security, or performance.
h. The storage of information, files, or documents in a digital format on computer systems or external devices.
i. A term used to describe computer or electronic equipment not functioning correctly or experiencing problems.
j. Describing a system, device, or software that is easy to understand, operate, or navigate.

Exercise 7. Choose the best adjective.

1. Oh dear. I pressed the _____ button.
a. incorrect b. wrong c. false
2. I can't use my mobile phone. The battery's _____.
a. over b. flat c. exhausted
3. The battery isn't completely flat, but its very _____.
a. down b. short c. low
4. My video camera is very _____.
a. easy to use b. uncomplicated c. obvious
5. My new computer has a very _____ processor.
a. quick b. high speed c. fast
6. The X19 notebook computer features a very _____ design.
a. compact b. little c. small
7. Keeping files on paper is _____ solution.
a. an old-tech b. a past-tech c. a low-tech
8. Keeping files on a computer database is a _____ solution.
a. new-tech b. now-tech c. high-tech
9. My new PDA is the _____ model.
a. latest b. newest c. most modern
10. In our office, we've set up a _____ network.
a. wire-free b. no wires c. wireless
11. A call from New York to Toyko is _____ distance.
a. far b. long c. faraway
12. I don't think this printer is _____ with my computer.
a. compatible b. connectable c. suitable
13. My laptop is only 3 centimetres _____.
a. thick b. tall c. wide
14. In three or four years, my new computer will probably be _____.
a. old fashioned b. behind the times c. obsolete

Exercise 8. Match expressions with their corresponding meanings and make up your sentences.

1. *To have access to the Internet/to a computer.*	a. To do things on the Internet or on a computer.
2. *To spend time on the Internet/a computer.*	b. Computer has stopped working.

3. *To be addicted to the Internet/technology.*	c. Computer was broken, but now is working again.
4. *The computer doesn't seem to be responding.*	d. To be able to use the Internet or a computer.
5. *The computer is up and running.*	e. The Internet isn't working.
6. *The Internet is down.*	f. To use the Internet too much or to use technology too much.

Exercise 9. Put the correct word from the word bank into the sentence.

attachment, blog, delete, document, download, e-book, e-mail address, file, box, keyboard, laptop, link, online, password, sign in

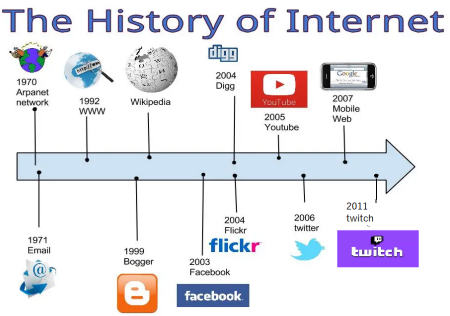
1. I can send you a message if you let me know your_____.
2. If you click on that_____ it will take you to a new website.
3. I_____sent you a message this morning. Did you check your_____.
4. How many hours a day are you_____.
5. I bring my_____ computer to work.
6. How do you upload and _____files?
7. Be careful when you decide to open a_____. It may have a virus!
8. I write about my travel experiences on my own personal_____.
9. You can _____any computer document or e-mail message that you don't want to keep.
10. Oh no! I just spilled my coffee on my computer_____. My boss will be really angry.
11. I almost never buy books at a book store anymore. I usually read_____.
12. My_____ is a secret. Only I know it.
13. You can _____to your e-mail account with your username and password.
14. Our teacher sent us an e-mail with an attachment called *homework.doc* 'doc' means_____.
15. I took a photo of our school, and sent it to you as an_____.

Exercise 10. Complete each sentence with the appropriate phrasal verb from the options provided.

bring up, back up, log in, run into, set up, break down, take down, figure out, update, carry out

1. Before we begin the meeting, make sure to _____ your computer so that we don't lose any important files.
2. The software engineer had to _____ the entire system to a previous version because of compatibility issues.
3. Can you help me _____ this problem? I can't seem to understand why the code isn't working as expected.
4. During the server migration, we unexpectedly _____ a few technical challenges that delayed the process.
5. Our IT team needs to _____ a new network infrastructure for the upcoming project.
6. The support team is available 24/7 to help you _____ if you encounter any technical difficulties.
7. Please _____ the notes from today's meeting and share them with the rest of the team.
8. It took some time, but we eventually _____ how to optimize the database queries for faster performance.
9. The software developers plan to _____ the application next month with improved security features.
10. Our team will _____ a thorough analysis of the system's vulnerabilities to ensure its security.

Exercise 11. Prepare a project by selecting one period from the history of the internet and expanding it to include other important periods.



SUPPLEMENTARY READING

Text 1.

The History of Computing

Laptops, smartphones, tablets, games consoles: these are all part of our day-to-day life. Have you ever wondered how and when they were invented? Although we can barely imagine the world without computers, it is only quite recently that they have become an integral part of our lives. However, mathematicians began to see the possibilities of computers hundreds of years ago.

The very first computers were actually human beings. The first recorded use of the word 'computer' was by Richard Braithwaite in 1613. In his book, he described a computer as a person who did very accurate calculations or 'computations'. Hundreds of years before that, in Babylon, the abacus was used as a calculation tool. A frame with beads to represent different numbers, the abacus was used to perform operations incredibly quickly. In countries such as Japan, children are still taught the art of the soroban, which is a type of abacus.

In 1837, a scientist called Charles Babbage designed the Analytical Engine. This huge machine would use cards with a series of punched holes to control a mechanical calculator. Many people consider Babbage to be the father of the computer because of this design, although it only performed single calculations. A few years later, in 1843, his colleague, Ada Lovelace, wrote a sequence of calculations, called an algorithm, for the Analytical Engine to perform. It was Ada who first identified the true potential of the machine

Cryptology. Things developed quite slowly until the middle of the twentieth century. The outbreak of the Second World War, in 1939, created a need for computers to be developed which could decipher messages sent in code. Bletchley Park in Buckinghamshire was established as a top secret codebreaking centre and the best mathematicians in Britain were employed there. It was here that Alan Turing designed and built the Bombe specifically to decipher the German Enigma code. At its peak, the Bombe could decipher over 4000 messages every day and the information gained from these is believed to have to have significantly shortened the war. Experts believe it could have continued for another two years were it not for the cryptologists (codebreakers) at Bletchley. S. So sensitive was the intelligence gained at Bletchley, that every one of the Bombes built (over 200 of them) was deconstructed after the war. Detail about the work done at Bletchley remained classified until the 1970s, 30 years after the end of the war.

Rapid Developments. After centuries of relatively slow progress, developments in computing began to gain pace in the 1970s. Some of the first widely available computer games, Pong and Space Invaders, were designed in this decade and PacMan

was born in 1980. Both Microsoft and Apple were founded in the 1970s. In 1975, Bill Gates dropped out of Harvard University to set up Microsoft, having identified the key role software would come to play in computing. In just over ten years, the company was so successful with its Windows operating system that he became the world's youngest billionaire at the age of only 31.

Apple took a little longer to become the market leader it is today but from 1997, when the company's cofounder, Steve Jobs returned as CEO, its reputation quickly spread. The first iPod was released in 2001, followed by the iPhone in 2007 and the iPad in 2010. The World Wide Web was invented in 1989. Whilst Tim Berners-Lee is credited with its invention, he says that most of the technology used, such as hypertext and the Internet, had already been invented and he just put them all together. As he worked at CERN (a Swiss research establishment) at the time, it was CERN that created the world's first website in 1991. It took time for the universally compatible hardware and software that we have today to be developed. In the 80s, computers such as the Commodore Amiga and ZX Spectrum competed for sales and used completely different operating systems. Computers were still quite expensive and many homes simply couldn't afford one. Today, hardware is much more affordable. The release of the Raspberry Pi, a small single-board computer, in 2012 (at a cost of only £35) introduced programming to school children all over the world. Now, there are many free online programs, such as Scratch, which have brought coding to the masses. Almost every aspect of our lives involves computers, from emailing and reading to gaming and texting. It's hard to imagine a time when we didn't have all this at our fingertips even though it was less than half a century ago!

Interesting facts:
Ada Lovelace was the world's first computer programmer.
Bletchley Park is now a codebreakers museum.
The first email was sent in 1971.

Check your understanding of the text.

Variant 1.

1. When did computers begin to be a key part of our lives?
   last year
   in 2001
   in the last few decades
2. When was the word computer first used and what did it mean?
3. Find and copy a word from the text that means a frame with beads used for calculating.

4. Who was the world's first computer programmer?
   Bill Gates
   Ava Lovelace
   Time Berners-Lee
5. Where did British codebreakers work in the Second World War?
6. Name three developments in computing from the 1970s and 1980s.
7. When was the world's first email sent?
   1975
   1987
   1971
8. What is a Raspberry Pi?

Variant 2.

1. Name two technological developments in the last fifty years.
2. When was the word computer first used and what did it mean?
3. What is a soroban?
4. Who was the world's first computer programmer?
   Bill Gates
   Ava Lovelace
   Time Berners-Lee
5. Find and copy a word from the text that means the same as cryptologist and explain what they do.
6. When did the public first learn about the work done at Bletchley Park during the Second World War?
   In the 1960's
   At the end of the war
   In the 1970's
7. Why were all the Bombes deconstructed after the war?
8. Which of these were created in the 1970s?
   Microsoft, Space Invaders and Apple
   Microsoft, Apple and the World Wide Web
   Apple, the World Wide Web and the Raspberry Pi

9. Number these statements 1-5 to show the order they happened.

The Raspberry Pi is invented.	
The first email is sent.	
Ada Lovelace programs the Analytical	

Engine.	
Microsoft is founded.	
Alan Turing develops the Bombe.	

Variant 3.

1. Find and copy a phrase that tells us computers are an integral part of life.
2. Name two technological developments which didn't exist in the 1950s.
3. Why is Charles Babbage sometimes known as the father of computing?
4. Tick to show if the statements are true or false.

School children in Japan use an abacus called a soroban.	True	False
Charles Babbage designed the Bombe.		
An algorithm is a type of computer.		
Bletchley Park was the home of Second World War codebreakers.		
Microsoft was founded by Steve Jobs.		

5. Why was the codebreaking work done at Bletchley Park so important in the Second World War?
6. When did the public first learn about the work done at Bletchley Park during the Second World War?
   In the 1960s
   At the end of the war
   In the 1970s
7. What are the advantages of universally compatible hardware and software?
8. Which of these were created in the 1970s?
   Microsoft, Space Invaders and Apple
   Microsoft, Apple and the World Wide Web
   Apple, the World Wide Web and the Raspberry Pi
9. Why is the development of affordable programming hardware and software important?
10. Name three things we use computers for today.

Text 2.

Gadgets in My Life

Gadgets have seamlessly woven themselves into the fabric of my daily routines, transforming the way I navigate the modern world. From the moment I wake up to the time I wind down at night, these technological marvels accompany me, making tasks easier, communication swifter, and experiences richer.

As I begin my day, the soft chime of my smartphone's alarm gently pulls me from slumber. With a swipe, I'm immersed in a world of possibilities – emails, news updates, and social media connections all at my fingertips. My smartphone isn't just a communication device; it's a portal to information and a companion that keeps me informed and entertained.

In the kitchen, my smart coffee maker springs to life, brewing my favorite blend to perfection, precisely as I like it. While I savor my morning cup, a voice-activated virtual assistant stands ready to assist. From weather forecasts to setting timers for cooking, it's like having a reliable personal helper, always attentive to my needs.

As I head out, my smartwatch buzzes with notifications, keeping me on track with appointments and reminding me to take a moment to breathe amidst the hustle. On my commute, the seamless connectivity of my wireless earbuds immerses me in podcasts and music, making the journey more enjoyable.

At work, my laptop becomes a canvas for creativity and productivity. Its sleek design houses a powerhouse of capabilities, enabling me to communicate, collaborate, and innovate. And when work calls for a break, my e-reader lets me escape into fictional worlds or expand my knowledge with a swipe of the screen.

Back home, the living room transforms into a cinema as I stream movies and shows on a smart TV that seems to understand my entertainment preferences. A few taps on my tablet adjust the lighting, temperature, and even the mood – creating an ambiance that suits the moment.

As the day winds down, I retreat to my bedroom where a sleep-tracking device ensures my rest is optimized, while dimming smart lights mimic the setting sun, gently guiding me into slumber.

Reflecting on my day, it's clear that gadgets have become indispensable companions. They infuse efficiency into tasks, bring loved ones closer despite distances, and offer avenues for exploration and growth. In this tech-enhanced world, these gadgets have truly become more than just tools; they are the threads that connect the diverse aspects of my life, weaving a tapestry of modern living that's both dynamic and comfortable.

Text 3.

Professions in the IT industry

The Information Technology (IT) industry is a dynamic and ever-evolving field that plays a pivotal role in shaping the modern world. From enabling seamless communication to revolutionizing business processes, the IT industry encompasses a wide range of professions, each contributing to the technological landscape in unique ways. Let's explore some of the key professions within this vast and exciting sector:

Software Developer/Engineer: Software developers are the architects behind the applications and systems we use daily. They design, create, and test software solutions, whether it's mobile apps, web applications, or complex software systems for industries like finance and healthcare.

Network Engineer: Network engineers are responsible for designing, implementing, and maintaining the complex networks that facilitate communication and data exchange across organizations and the internet. Their work ensures seamless connectivity and efficient data transfer.

Cybersecurity Analyst: With the growing threat of cyberattacks, cybersecurity analysts play a critical role in safeguarding digital assets. They design security protocols, monitor networks for vulnerabilities, and respond to security breaches to protect sensitive information.

Data Scientist: Data scientists analyze and interpret large sets of data to uncover insights and trends that inform business decisions. They use advanced statistical techniques and machine learning algorithms to extract valuable information from data.

IT Project Manager: IT project managers oversee the planning, execution, and completion of various IT projects. They ensure that projects are delivered on time, within scope, and on budget while coordinating teams and stakeholders.

Cloud Architect: Cloud architects design and manage cloud computing environments, enabling organizations to store, access, and manage data and applications remotely. They make use of platforms like Amazon Web Services (AWS) and Microsoft Azure to optimize infrastructure.

UX/UI Designer: User Experience (UX) and User Interface (UI) designers focus on creating user-friendly and visually appealing interfaces for software applications. They enhance the overall user experience by considering usability, accessibility, and aesthetics.

Database Administrator: Database administrators manage and maintain databases that store and organize vast amounts of information. They ensure data integrity, availability, and security while optimizing database performance.

Artificial Intelligence (AI) Engineer: AI engineers develop systems and algorithms that enable machines to perform tasks that typically require human

intelligence. They work on technologies like machine learning, natural language processing, and computer vision.

Systems Analyst: Systems analysts bridge the gap between business needs and IT solutions. They analyze existing systems, gather requirements, and recommend improvements or new solutions to enhance efficiency.

These are just a few examples of the diverse roles within the IT industry. As technology continues to advance, new professions emerge, and existing roles evolve. The IT industry offers a plethora of opportunities for individuals with a passion for innovation, problem-solving, and staying ahead of the curve in a rapidly changing digital landscape.

Text 4.

What is hacking?

Hacking is when someone accesses your computer or the data held on it without your permission or knowledge. Hacking not only happens to huge websites and corporations, but also to individual computers and other personal devices in our homes. Hacker – a person who hacks into computers. Hackers can do damage and use your computer in many ways. It is as if the hacker was actually sitting at your computer! Some things they can do are:

- Copy or delete all files, data and software on your computer.
- Find out personal information about you, like bank details or account details for things like games consoles, etc.
- Gain access to all your passwords.
- Upload dangerous files to your device or download (steal) important files from them.

A computer virus is a type of malicious software that is designed to replicate itself and spread from one computer to another. It can attach itself to legitimate programs or files and execute its code when those programs or files are run. The purpose of a computer virus can vary, but often it's intended to disrupt normal computer operations, steal sensitive information, or cause other forms of damage. The concept of a computer virus was first introduced in the early 1970s. One of the earliest known examples of a computer virus is the "Creeper" virus, which was created by Bob Thomas in 1971. The Creeper virus was not intended to cause harm but was more of an experiment to demonstrate the possibility of self-replicating code within a computer system. It displayed the message "I'm the creeper, catch me if you can!" on infected systems.

In response to the Creeper virus, another program called the "Reaper" was developed by Ray Tomlinson in 1972. The Reaper was essentially a cleaner program

that removed the Creeper virus from infected systems. It marked one of the first instances of a program designed to counteract the effects of a computer virus.

How can I tell if my computer has a virus? The common signs that your computer has been infected by a virus are:

- data has gone missing
- hard drive starts spinning for no reason

How can I protect my devices? You should install an antivirus software. This software will scan and monitor files on the computer looking for changes that may indicate a virus has infected them. The software can then select the infected files and safely remove them. Most antivirus software will also check new files being copied from portable devices or downloaded from the internet.

You could also install a firewall. This can be software or hardware, and protects your computer by controlling what data can be passed onto your computer network. Hardware – physical parts of a computer, i.e. monitor, keyboard, printer and also certain firewalls!

You could buy a security suite, which will combine antivirus and firewall software into one package to try to protect you from viruses and hackers. Reports suggest that as many as 10,000 new dangerous viruses are created every day.

Text 5.

Technologies: The History of Robotics

The history of robotics is a fascinating journey through human ingenuity, technological advancements, and the pursuit of automating tasks to enhance efficiency and innovation. The roots of robotics can be traced back to ancient civilizations, where early automatons and mechanical devices laid the groundwork for the complex robots we see today.

Ancient Beginnings: The earliest inklings of robotics can be found in ancient civilizations such as Egypt, Greece, and China. In ancient Egypt, water clocks and statues with moving parts showcased early engineering skills. The famous Antikythera mechanism from ancient Greece, often referred to as an ancient analog computer, demonstrated an understanding of complex mechanisms for astronomical calculations.

Medieval Marvels: During the medieval era, inventive minds continued to tinker with mechanical devices. Al-Jazari, a 13th-century engineer, designed a variety of automatons and mechanical devices that could serve tea, play musical instruments, and even serve as servants in royal courts.

Industrial Revolution and Beyond: The true leap in robotics occurred during the Industrial Revolution. The invention of the steam engine and the mechanization of

factories led to the development of machinery capable of performing repetitive tasks with precision. This era saw the birth of early programmable devices, known as "automata," which laid the foundation for the concept of robots.

Early Modern Robotics: The term "robot" was coined by Czech playwright Karel Čapek in his 1920 play "R.U.R." (Rossum's Universal Robots). These robots were human-like beings created through artificial means, sparking interest in the potential of creating intelligent machines. However, it wasn't until the mid-20th century that significant progress was made in robotics technology.

Digital Era: The digital age brought about a revolution in robotics. In 1954, George Devol and Joseph Engelberger introduced the first digitally operated and programmable robotic arm, known as the Unimate. It was employed in the automotive industry for tasks such as welding and material handling.

Advancements in AI: The integration of artificial intelligence (AI) into robotics marked a new chapter. Robots became more adaptive, capable of learning from their environment and making decisions based on data analysis. The development of sensors, actuators, and more sophisticated control systems further enhanced their capabilities.

Modern Applications: Today, robotics has expanded into various industries, from manufacturing and healthcare to space exploration and entertainment. Robots assist in surgeries, explore the depths of oceans, and even journey to distant planets. The concept of humanoid robots capable of interacting with humans is no longer confined to science fiction; it's a reality.

As technology continues to advance, the history of robotics remains a testament to human curiosity and innovation. From the mechanical wonders of ancient times to the AI-powered robots of today, each step in the evolution of robotics has shaped the way we interact with machines, pushing the boundaries of what's possible and opening doors to a future where robots are integral to our lives.

TASKS FOR SELF-CONTROL

Variant 1

Task I. Select the correct variant.

1) The ARPANET was the precursor to the modern internet and was developed by the_____.

a) United States Department of Finance in 1959
b) United States Department of Defense in 1969
c) United States in 1979

2) The Central Processing Unit (CPU) is often referred to as the "brain" of the computer, responsible for_____.

a) processing graphics and audio
b) managing network connections
c) executing instructions and performing calculations

Task II. True or False? Mark 'T' if the statement is true and 'F' if it's false:

1. Information technology refers to the use of computers and software to manage, process, and transmit information. (T/F)
2. Firewalls are security measures that protect computer networks from unauthorized access. (T/F)
3. The first commercially successful personal computer was the IBM 5150, released in 1981. (T/F)

Task III. Match the terms on the left with their corresponding descriptions on the righ.

1. **Solid State Drive (SSD)**	a. Input device used to move the cursor on a screen.
2. **Biometric Scanne**	b. Non-volatile storage device using NAND-based flash memory.
3. **Touchpad**	c. Technology for recognizing individuals based on unique characteristics.
4. **Graphics Processing Unit (GPU)**	d. Hardware that renders images, videos, and animations.
5. **QR Code**	e. Two-dimensional barcode for storing information.

Task IV. Answer questions:

1. Describe the significance of the ENIAC computer in the history of computer development.
2. What are some key factors to consider when selecting a computer for gaming purposes?

Task V. Think about computer's internal components and answer the following questions:

1. Which component is responsible for temporarily storing data that the CPU is currently using?
2. What is the main function of the motherboard in a computer system?

Task VI. Write a short essay (around 200 words) about the advancements in computer hardware and their impact on modern technology. Mention at least two hardware components and their role in enhancing user experiences.

Task VII. Choose the correct answer.

1. To open a particular folder, file or app, you just have to click on its
 pixel
 icon
 font
2. RAM, ROM and cache are different types of _____ that computers can use.
 Wi-Fi
 file
 memory
3. Which allows wireless data communication?
 a USB flash drive
 a Bluetooth connection
 an anti-virus app
4. What do people go to public hotspots for?
 Internet access
 software bugs
 free viruses
5. A computer's _____ is called its heart or "brains" because it's where data is processed.
 RAM
 USB
 CPU
6. Turn on your computer. It will usually take a few minutes to _____.

a. boot itself b. boot up c. get booted

7. Windows XP, Macintosh OSX and Linux are _____.
a. operating systems b. operating tools c. operators
8. On my computer, I have a picture of my cat as the _____.
a. desktop background b. desktop picture c. desktop scene
9. Microsoft Word, Adobe Acrobat and CorelDraw are programs or _____.
a. applicators b. appliers c. applications
10. To open Microsoft Word, click on the _____.
a. picture b. symbol c. icon
11. I keep all my digital photos in a _____ called "Photos".
a. folder b. packet c. box
12. Is it possible to open Microsoft Excel _____ in Word?
a. texts b. files c. pages

Variant 2

Task I. Choose the correct option for each question:

1.Which computer was considered the first programmable computer and was designed by Charles Babbage in the 19th century? a) ENIAC b) UNIVAC
c) Analytical Engine d) Altair 8800

2.When selecting a computer, which of the following factors should you consider?
a) Only the brand name b) Only the physical appearance c) Processing power, storage, and intended use d) Popularity among friends

Task II. Match the Computer Components

1. **Central Processing Unit (CPU)**	a) This component is responsible for long-term data storage, including the operating system, software, and user files.
2. **Random Access Memory (RAM)**	b) This component is the main circuit board that connects and allows communication between various hardware components of the computer.
3. **Hard Disk Drive (HDD)**	c) This component is often referred to as the "brain" of the computer and is responsible for executing instructions and calculations.
4. **Motherboard**	d) This component provides power to all other components of the computer and regulates the electrical flow.
5. **Power Supply Unit**	e) This component stores data and programs that are

(PSU)	currently being used by the computer's operating system and applications.

Task III. Complete the sentences using the correct words from the box.

trick, data, exploit, encryption, phishing, malware

1. _____is a general term for any software specifically designed to harm or_____ computers or networks.
2. _____ is a type of cyberattack where attackers pretend to be legitimate entities to_____ users into revealing sensitive information.
3. _____is the process of converting_____ into a code to prevent unauthorized access.

Task IV. Answer questions:

1. Explain the concept of a firewall in the context of cybersecurity.
2. How does two-factor authentication enhance security in online accounts?

Task V. Match the following computer architecture terms with their definitions.

1. **Cache Memory**	a) Part of the CPU that performs arithmetic operations.
2. **Clock Speed**	b) Small, high-speed memory located within or near the CPU
3. **ALU (Arithmetic Logic Unit)**	c) Small storage locations within the CPU used for quick data access.
4. **Registers**	d) Speed at which the CPU processes instructions.
5. **Instruction Pipeline**	e) Temporary storage for data that is frequently used.

Task VI. Write a short essay (around 200 words) discussing the evolution of the internet from its inception to the present day. Highlight key milestones and the impact of the internet on society.

Task VII. Choose the correct answer.

1. A computer program is a piece of
 hardware
 underwear
 software
2. Devices that are connected to computers, such as printers, scanners and modems, are called
 peripherals

formats
apps
3. What do we call a specific computer record containing data or a small program?
a file
a format
an icon
4. What do we call the part of a computer that stores programs and information?
the hotspot
the hard disk
the notebook
5. What do we call a program for exploring the Web and viewing websites?
a driver
a browser
a scanner
6. In Microsoft Word, to start typing a new letter, open a new _____.
a. document b. page c. paper
7. When you _____ a document, it's sent to the recycle bin.
a. destroy b. erase c. delete
8. Deleted documents stay in the recycle bin until you _____ it.
a. wash b. empty c. clean
9. In Windows, the icon is just a _____ to the application. If you delete the icon, the application will still be on your computer.
a. connector b. shortcut c. link
10. If the computer crashes, you can try pressing the _____ button.
a. restart b. recommence c. replay
11. When I've finished using my computer, I always _____.
a. close it down b. shut it down c. shut it off
12. If I leave my computer on without using it, after a while it goes into _____ mode.
a. stand down b. waiting c. standby

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