

Syllabus of English course for first year Mathematics and Computer sciences

UNIT ONE: An Introduction to **Grammar**

In this unit you will be introduced to some grammatical rules of English language. The aim of grammar is to make you know the way the language works.

1/ English tenses: * Present simple

*Present continuous

*Present perfect

* Present perfect continuous

*Past simple

*Past continuous

*Past perfect

*Past perfect continuous

*Future simple

*Future continuous

*Future perfect

*Future perfect continuous

2/ **Adjectives and Adverbs**

3/ **Active and Passive Voice**

4/**Sentence types:*** Simple sentence

*Complex Sentence

*Compound Sentence

*Compound Complex Sentence

UNIT TWO: An Introduction to English for Computer Sciences:

This unit aims to introduce you to the English vocabulary of computer. In this unite, you will learn as much vocabulary as possible of your specialty.

1/ the Computer: * History

*Types of computers

*Components of a computer

2/ Software and Hardware

3/ Internet

Lecture one : English Tenses

Tense	Forms	Examples	Time Markets
Present Simple	Base+S	*Water <u>boils</u> at 100°c *Every morning I <u>practice</u> yoga She never <u>uses</u> a computer	Always, never, sometimes, often, generally, every day, usually, every day, every morning, ect.
Present continuous	To be (am, is, are) + base+ ing	*I am <u>writing</u> an email now. *The students are <u>listening</u> to their teacher. * He is <u>using</u> his computer	Now, right now, today, currently.
Present perfect	Have } has } +base+ed	*I <u>have</u> already <u>finished</u> . *The teacher <u>has</u> <u>explained</u> us the lesson. *We <u>have</u> not <u>used</u> our computer yet	Already, yet, ever, never
Present perfect continuous	Have } +been+base Has } +ing	*The teacher <u>has</u> <u>been</u> <u>speaking</u> for 2 hours. *We <u>have</u> <u>been</u> <u>waiting</u> since this morning.	For, since
Past simple	Base+ed	*I <u>wanted</u> to know about it last week. *Yesterday, we <u>watched</u> a movie.	Yesterday, last week; last month, year ago, month ago, etc.
Past simple continuous	Was } were } +base+ing	*I <u>was</u> <u>going</u> to the supermarket when I saw him. *While we <u>were</u> <u>walking</u> in the garden, we called him	When, while, as

Past perfect	Had+ base+ed	*I <u>had finished</u> before he came.	Before, after
Past perfect continuous	Had been+base+ing	* I wanted to do the job but I found <u>he had done</u> it before me. I <u>had been walking</u> for 2 hours before I met him.	For, before
Future simple	Will+base	*Tomorrow, I <u>will go</u> to Paris.	Tomorrow, next week, next month,ect.
Future simple continuous	Will+ be+base+ing	Tomorrow morning at this time I <u>will be doing</u> my repetitions	Tomorrow, at this time, etc
Future perfect	Will+have+base+ed	She <u>will have lost</u> all her emails tomorrow	Tomorrow, next week, next month,ect.
Future perfect continuous	Will+have been+base+ing	*I <u>will have been waiting</u> here for 4 hours by 6 o'clock. *By the year 2050, the Japanese <u>will have been making</u> millions of computers	by

English Tenses

Simple tenses:

1. **Present simple** : is the tense verb by which we express:
 - a. General truth: - Honey is sweet.
-The sun rises in the east.
 - b. Habit in the present: - I practice sport every day.
- I take my shower every evening.
 - c. Future events that take part of a time table: - The course finishes at midday.
- The match starts at 9 o'clock.
 - d. Exclamatory sentence with "Here" and "There" to express what is actually happening in the present: - Here comes the bus.
-There goes the teacher.
 - e. Introducing a quotation: - the writer says: "writing is expressing once thoughts and feelings".

2. **Past simple**: is the verb tense by which we express:
 - a. Acompleted action in the past: - I saw a movie yesterday.
- They went to the beach last summer.
 - b. Series of completed actions: - I prepared diner, washed the dishes and got to bed.
- She typed the text, saved it and switched off the computer.
 - c. Habit in the past: - She used to practice sport.
-We played football when we were children.

3. **Future simple**: is the verb tense which is indicated by the modals "will", "shall" and "is going to". Future expresses actions and events that will happen in the coming time, make predictions, intentions and plans.
 - a. Predictions and Statements of fact: - the sun will rises tomorrow at 6.30.
-You will not pass your exam if you don't study hard.

 - b. Intentions: - I am going to work in the bank when I leave school.
-She is going to have lunch at the restaurant next Sunday.

 - c. Arrangements and Schedule: here we use three tenses to express actions in future.
-Tomorrow I will be meeting with my friend (future continuous)
-We are camping in the mountain next holiday (present continuous)
-The plane flies at 7 o'clock (present simple)

 - d. Decisions in the moment of speaking, promises and offers:
- I will take French pasta, please.
- I will help you in your homework.
- I will call you tonight.

- e. Events that will be completed before a specific time in the Future:
-By 5 PM, I will have finished the project.

Subject + will have+ Past participle of the main verb

Progressive tenses:

1. **Present continuous:** is the verb tense by which we express actions that occur when we are speaking (long actions).

-My phone is ringing.

- I am writing a letter.

Subject + to be (present) + base verb + ing

N.B: Verbs with one syllable ending with: “t” “d” “g” “b” “p” “m”, have to double the last letter before adding the “ing”:

* Swim.....swimming

*Jog.....jogging

*Getgetting

*Stop.....stopping

*Rob.....robbing

*Nod.....nodding

Verbs that end with the “e” usually lose the “e” with the “ing” form:

*Chase chasing

*Smile..... smiling

*drive..... driving .

2. **Past continuous:** is the verb tense by which we express actions that were going on in a certain period in the past (long actions in the past).

- The students were packing their books into their schoolbags.

- She was waiting the bus when I passed by.

Subject + was/were + present participle (base verb +ing)

3. **Future continuous:** is the verb tense by which we express actions that take place before a certain time in future.

- He will be sleeping by the night.

-I will be finishing by Sunday.

Subject + will be + present participle (base verb+ ing)

- Less: endless, motionless
- Eous, ious, ous: spontaneous, ambitious, anxious
- Y: windy, wealthy, busy

* Il: illegal, illegible, illogical.

II. Adverbs:

Adverbs are words that describe or qualify how, when, where, in what manner, and to what extent something is done.

Adverbs often respond to the following questions: When? Where? In which manner? To what extent?. So the adverbs give more explanation or a clear image of the action described.

- The dog runs.
- The dog runs excitedly.

Thus with the use of adverbs you can get a more interesting image of what you are speaking of or listening to.

Type of Adverbs:

- Adverbs of manner: explain how an action is carried out. Adverbs of manner generally are adjectives with the suffix “ly” added to the end: “slowly, clearly, clumsily”.
 - Some adverbs take the form of adjectives without adding the suffix “ly”: “hard, fast, well”.
- Adverbs of place: explain where the action is happened. They provide contexts for Directions, Distance and Positions.
 - They travel **down** the city. (direction)
 - My mate is sitting **close** to me. (distance)
 - Can you move forward to **the front** of the room, please? (position)
- Adverbs of frequency: explain how often something occurs.
 - Indefinite frequency: usually, generally.
 - I **usually** go to cinema.
 - Definite frequency: daily, yearly, once, twice.
 - We celebrate our birthday **yearly**.
- Adverbs of time: explain when the action is occurred. Adverbs of time are always placed at the end of the sentence.
 - We first met together **last year**.
 - I have to go **now**.

N.B: you can put adverbs of time in the beginning of the sentence to emphasis on them, or when the time is important in the context.

- **Last year** was the worst year of my life.
- **Next month** will be a very important month to us.

Lecture Three: Active and Passive Voice

Both active and passive voice **are used** in academic writing. There is a trend away from using the passive at present but in some science disciplines its use **is still encouraged**. (Note the use of the passive voice in this paragraph).

1/ Active voice

In the active voice the subject of the sentence performs the action, e.g., the student asked the lecturer for help.

2/ Passive voice

The passive is used for a number of reasons:

- if the protagonist of the action is not known, e.g., my laptop was stolen from the library; or
- is unimportant, e.g., I was advised to apply for a visa.

Form of passive verbs

Passive verbs are formed using the appropriate tense of the verb 'to be' + the past participle.

Tense 'to be'	Form
Present	is/are
Past	was/were
Present perfect	has/have been
Future	will be

Past participles often have the same form as the past tense, i.e., they usually end in 'ed', e.g., 'studied', 'experimented', 'argued'.

However, in English there are plenty of irregular verbs



Past tense	Past participle
ran	run
chose	chosen
made	made
knew	known

Sentences using the passive

- The site was chosen because it was very fertile.
- The decision about the site has been made already.
- The site is not known by many people.
- The event will be run again this year.

TENSE	Active	Passive
Present simple	The children eat the chocolate	The chocolate is eaten (by the children)
Present continuous	The children are eating the chocolate	The chocolate is being eaten (by the children)
Present Perfect	The children have eaten the chocolate	The chocolate has been eaten (by the children)
Past simple	The children ate the chocolate	The chocolate was eaten (by the children)
Past continuous	The children were eating the chocolate	The chocolate was being eaten (by the children)
Past perfect	The children had eaten the chocolate	The chocolate had been eaten (by the children)
Future simple	The children will eat the chocolate	The chocolate will be eaten (by the children)
Future continuous	The children will be eating the chocolate	The chocolate will be being eaten (by the children)
Future perfect	The children will have eaten the chocolate	The chocolate will have been eaten (by the children)
Present conditional	The children would eat the chocolate	The chocolate would be eaten (by the children)
Past conditional	The children would have eaten the chocolate	The chocolate would have been eaten (by the children)
Use with modals	The children should/could/must eat the chocolate	The chocolate should/could/must be eaten (by the children)

From the table above you can notice that to turn an active voice into passive voice you should take into consideration the tense in which the verb in the active voice is conjugated.

For example: The children eat the chocolate (active voice)

↓
Present simple

→ The chocolate is eaten by the child (Passive voice)

↓
 To be in Present simple (because the Verb in the active Voice is in present Simple)

↘
 Past participle of the verb to eat

General rules:

Active voice	Passive voice
Present simple	to be in present simple (is/are)+ past participle
Present continuous	to be (is/are)+being+past participle
PRESENT PERFECT	Have/has+been+past participle
Past simple	To be in past simple (was/were)+pastparticiple
Past continuous	To be in the past (was/were)+being+past participle
Past perfect	Had+been+past participle
Future simple	Will+be
Future continuous	Will+be+being+past participle
Future perfect	Will+ have+been+past participle
Present conditional	Would+be+past participle
Past conditional	Would+have+been+past participle
Use with modals	should/could/must+be+past participle

LECTURE FOUR: Sentence Types

San José State University Writing Center

www.sjsu.edu/writingcenter

Written by Sarah Andersen

Sentence Types

Choosing what types of sentences to use in an essay can be challenging for several reasons. The writer must consider the following questions: Are my ideas simple or complex? Do my ideas require shorter statements or longer explanations? How do I express my ideas clearly? This handout discusses the basic components of a sentence, the different types of sentences, and various functions of each type of sentence.

What Is a Sentence?

- A sentence is a complete set of words that conveys meaning. A sentence can communicate
 - a statement (I am studying.)
 - a command (Go away.)
 - an exclamation (I'm so excited!)
 - a question (What time is it?)
- A sentence is composed of one or more clauses. A clause contains a subject and verb.

Independent and Dependent Clauses

- There are two types of clauses: independent clauses and dependent clauses. A sentence contains at least one independent clause and may contain one or more dependent clauses.
- An independent clause (or main clause)
 - is a complete thought.
 - can stand by itself.
- A dependent clause (or subordinate clause)
 - is an incomplete thought.
 - cannot stand by itself.

You can spot a dependent clause by identifying the subordinating conjunction. A subordinating conjunction creates a dependent clause that relies on the rest of the sentence for meaning. The following list provides some examples of subordinating conjunctions.:

- | | |
|----------|---------------|
| • after | • although |
| • as | • because |
| • before | • even though |
| • if | • since |
| • though | • when |
| • while | • until |
| • unless | • whereas |

Independent and Dependent Clauses

Independent clause: When I go to the movies, **I usually buy popcorn.**

Dependent clause: **When I go to the movies,** I usually buy popcorn.

Independent clause: **I don't like the ocean** because sharks scare me. Dependent
clause: I don't like the ocean **because sharks scare me.**

What Are the Different Types of Sentences?

Sentences are divided into four categories: simple sentences, compound sentences, complex sentences, and compound-complex sentences.

Simple Sentences

Definition	A simple sentence contains one independent clause.
Examples	<ul style="list-style-type: none">• Johnny rode his bike to school.• Who is your best friend?• She ate her lunch, took a walk, and went back to work.

Compound Sentences

Definition	A compound sentence contains two independent clauses. A coordinating conjunction (for, and, nor, but, or, yet, so) often links the two independent clauses and is preceded by a comma.
Examples	<ul style="list-style-type: none">• She wanted to go on vacation, so she saved up her money.• I like apples, but my sister loves bananas.• Tim loves to read, and he also loves to hike.

Complex Sentences

Definition	A complex sentence contains one independent clause and one or more dependent clauses. A complex sentence will include at least one subordinating conjunction .
Examples	<ul style="list-style-type: none">• She went to class even though she was sick.• As John was arriving to work, he realized he forgot his lunch.• While I enjoy classical music, I prefer rock and roll because I play the drums.

Compound-Complex Sentences

Definition	<ul style="list-style-type: none">• A compound-complex sentence combines complex sentence and compound sentence forms. A compound-complex sentence contains one or more independent clauses and one or more dependent clauses.
Examples	<ul style="list-style-type: none">• Although she felt guilty for missing her friend's birthday, she took her out to dinner the next day, and they had a great time.• I try to eat healthy food, but because fast food is so convenient, I cannot maintain a healthy diet.• If he got the job, he would have to commute 50 miles to work, so he decided the job was not worth it.

	<ul style="list-style-type: none"> • Complex: Since the researchers did not come to the correct conclusion, they restructured their hypothesis. • Compound-Complex: Since the researchers did not come to the correct conclusion, they restructured their hypothesis, and they will attempt the experiment again.
To elaborate on a claim or extend reasoning	<ul style="list-style-type: none"> • Compound: Cell phones should not be permitted in class, for they distract students and teachers. • Complex: Since cell phones distract students and teachers, they should not be used in class. • Compound-Complex: Since cell phones distract students and teachers, they should not be used in class, and I encourage faculty to forbid their use.

Activity 1

Directions: Identify the sentence type. Circle any coordinating or subordinating conjunctions. Underline independent clauses once and dependent clauses twice.

1. *Harry Potter* was rejected from many publishers before J.K. Rowling found success.

Sentence type: _____

2. Even though the patients showed various symptoms, the clinical study found that lack of sleep contributes to the inability to focus, irritability, and poorer health.

Sentence type: _____

3. More and more students are relying on online databases to find sources.

Sentence type: _____

4. The business analysts proposed higher numbers for next quarter, and they expect to exceed those numbers the following quarter.

Sentence type: _____

5. Homeless teens face intense obstacles, but when it comes to schooling, they do have the chance to receive an education if they enroll in a special program.

Sentence type: _____

Unit two

UNIT TWO: An Introduction to English for Computer Sciences

Lecture one: Computer

DEFENITION AND COMPONENTS OF COMPUTER

- 1) **Definition:** A Computer is an electronic device for processing data, calculating and storing information and results. It accepts inputs (data) that are translated into binary numbers then processed it and produced information.



The operation of processing data is based on instructions provided by either Hardware or Software (the Computer system).

- 2) **Components of a Computer :**

I. Hardware

- **System Unit:**

**processor* (CPU) = central processing unit

**Memory* (RAM &ROM)

RAM: Random Access Memory. It cannot be easily altered or reprogrammed. It is lost when the power is turned off. Form of storage that can be accessed randomly at any time. It allows the computer to read data quickly to run applications. It allows reading and writing.

ROM: Read Only Memory. Is a form of data storage in a computer and other electronic Devices. The contents are retained even after the power is switched off. Rom stores the program required to initially boot the computer. It only allows reading.

**Storage* (Hard Disk): is a data storage device that uses magnetic storage to store and retrieve digital information using one or more rigid rapidly rotating disks coated magnetic material.

**Removable Storage Devices:* any type of storage devices that can be removed from computer while the system is running. EG: CD DVD USB

- **Keyboard:** A piece of computer hardware used to input texts, characters into computer or similar devices
- **Monitor:** Screen or any device with screen on which words or pictures can be seen.
- **Mouse:** A small handheld input device that controls the computer screen's cursor or pointer in conjunction with the way it is moved on a flat surface.
- **Printer:** An output device that prints paper documents (texts , images or a combination of both)

- **Modem:** is short for Modulator. It is a hardware component that allows the computer or other device to connect to the internet. It converts or modulates an analog signal from a telephone or cable wire to a digital signal that a computer can recognize
- **Multimedia Devices:**
 - II. **Software:** Instructions for computer hardware to execute, it tells the computer how to work. Software is the translator of the inputs that we enter to get the information we need. It is shown on the desktop of the screen in form of icons but you cannot touch or feel them.
 - **Application Software:** are designed to specific purposes as **Paint, Adobe Shop, Ms Word**
 - **System Software:** it controls and manages the computer. EG : Windows 7, and Windows 8.

3) Functions of a Computer: Input, Processing, Output and Storage.

- a) **Input:** transferring information into the system. This may be through a user input device i-e keyboard, mouse, scanner... or through previously loaded software/program , cd ...
- b) **Output:** the function that allows a computer to display information, from the system, for the user. This can be accomplished through the monitor or other graphical display i-e printer or speaker. Output devices allow a computer to send processed data in various forms. Most of the time this information is sent as text, picture, sound or video.
- c) **Processing:** is where the computer does the work. It manipulates and controls data entered to the computer, and turn it into information. The computer is able to do this due to the CPU.
- d) **Storage:** most computers are able to store data both temporarily (in order to process) and long time (permanently). Storage takes place on hard drives or external storage devices. Operation

History of computer

Earliest Computer

- Originally calculations were computed by humans, whose job title was computers.
- These human computers were typically engaged in the calculation of a mathematical expression.
- The calculations of this period were specialized and expensive, requiring years of training in mathematics.

- The first use of the word "computer" was recorded in 1613, referring to a person who carried out calculations, or computations, and the word continued to be used in that sense until the middle of the 20th century.

1/ Tally Sticks

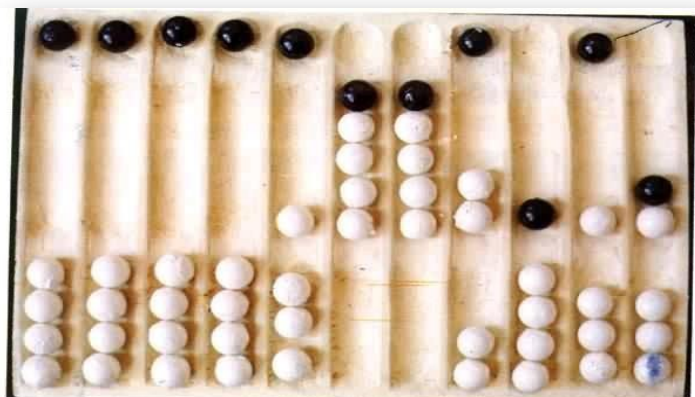
A **tally stick** was an ancient memory aid device to record and document numbers, quantities, or even messages.



Tally sticks

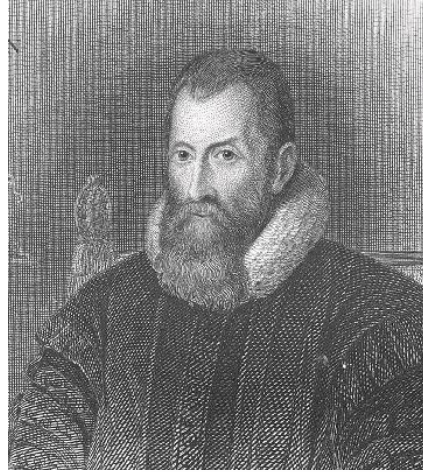
2/ Abacus

- An **abacus** is a mechanical device used to aid an individual in performing mathematical calculations.
- The **abacus** was invented in Babylonia in 2400 B.C.
- The abacus in the form we are most familiar with was first used in China in around 500 B.C.
- It used to perform basic arithmetic operations.



Napier's Bones

- Invented by **John Napier** in 1614.
- Allowed the operator to **multiply, divide** and **calculate square** and **cube roots** by moving the rods around and placing them in specially constructed boards.



Tabulating Machine

- Invented by **Herman Hollerith** in 1890 to assist in summarizing information and accounting.



Havard Mark 1

- Also known as IBM Automatic Sequence Controlled Calculator(ASCC).
- Invented by **Howard H. Aiken** in 1943
- The first electro-mechanical computer.



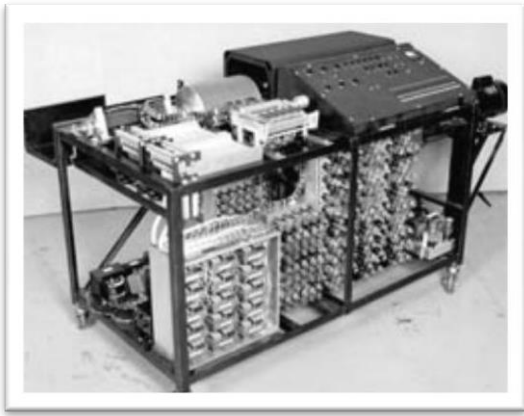
Z1

- The first programmable computer.
- Created by **Konrad Zuse** in Germany from **1936 to 1938**.
- To program the Z1 required that the user insert punch tape into a punch tape reader and all output was also generated through punch tape.



Atanasoff-Berry Computer (ABC)

- It was the first electronic digital computing device.
- Invented by **Professor John Atanasoff** and graduate student Clifford Berry at Iowa State University between 1939 and 1942.



ENIAC

- ENIAC stands for Electronic Numerical Integrator and Computer.
- It was the first electronic general-purpose computer.
- Completed in 1946.
- Developed by **John Presper**

Eckert and John W. Mauchl.



UNIVAC 1

- The **UNIVAC I (UNIVersal Automatic Computer 1)** was the first commercial computer.
- Designed by **J. Presper Eckert** and **John Mauchly**.



EDVAC

- EDVAC stands for Electronic Discrete Variable Automatic Computer
- **The First Stored Program Computer**
- Designed by Von Neumann in 1952.
- It has a memory to hold both a stored program as well as data.



The First Portable Computer

- **Osborne 1** – the first portable computer.
- Released in 1981 by the Osborne Computer Corporation.



The First Computer Company

- The first computer company was the **Electronic**

Controls Company.

- Founded in 1949 by **J. Presper Eckert** and **JohnMauchly**.



Computer Generations

There are five generations of computer:

- **First generation** – 1946 - 1958
- **Second generation** – 1959 - 1964
- **Third generation** – 1965 - 1970
- **Fourth generation** – 1971 - today
- **Fifth generation** – Today to future

The First Generation

- The first computers used **vacuum tubes** for circuitry and **magnetic**

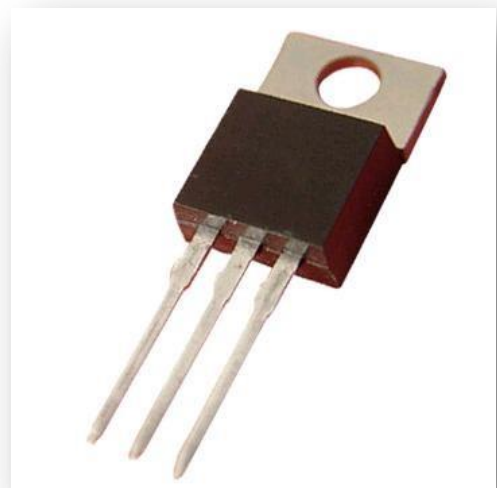
drums for memory, and were often enormous, taking up entire rooms.

- They were very expensive to operate and in addition to using a great deal of electricity, generated a lot of heat, which was often the cause of malfunctions.
- First generation computers relied on machine language, the lowest-level programming language understood by computers, to perform operations, and they could only solve one problem at a time.
- Input was based on punched cards and paper tape, and output was displayed on printouts.



The Second Generation

- Transistors replaced vacuum tubes and ushered in the second generation of computers.
- One transistor replaced the equivalent of **40 vacuum tubes**.
- Allowing computers to become smaller, faster, cheaper, more energy-efficient and more reliable.
- Still generated a great deal of heat that can damage the computer.

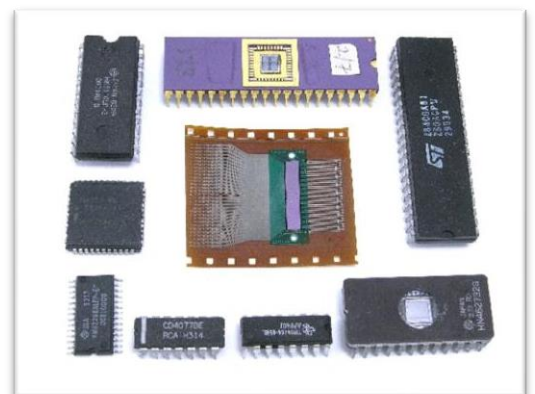


Transistor

- Second-generation computers moved from cryptic binary machine language to symbolic, or assembly, languages, which allowed programmers to specify instructions in words.
- Second-generation computers still relied on punched cards for input and printouts for output.
- These were also the first computers that stored their instructions in their memory, which moved from a magnetic drum to magnetic core technology.

The Third Generation

- The development of the **integrated circuit** was the hallmark of the third generation of computers.
- Transistors were miniaturized and placed on silicon chips, called semiconductors, which drastically increased the speed and efficiency of computers.
- Much smaller and cheaper compare to the second generation computers.
- It could carry out instructions in billionths of a second.



- Users interacted with third generation computers through keyboards and monitors and interfaced with an operating system, which allowed the device to run many different applications at one time with a central program that monitored the memory.
- Computers for the first time became accessible to a mass audience because they were smaller and cheaper than their predecessors.

The Fourth Generation

- The **microprocessor** brought the fourth generation of computers, as thousands of integrated circuits were built onto a single silicon chip.
- As these small computers became more powerful, they could be linked together to form networks, which eventually led to the development of the Internet.
- Fourth generation computers also saw the development of GUIs, the mouse and handheld devices.



The Fifth Generation

- Based on Artificial Intelligence (AI).
- Still in development.
- The use of parallel processing and superconductors is helping to make artificial intelligence a reality.
- The goal is to develop devices that respond to natural language input and are capable of learning and self-organization.

There are some applications, such as voice recognition, that are being used today

COMPONENTS (PARTS) Of COMPUTER



Image 1



Image2

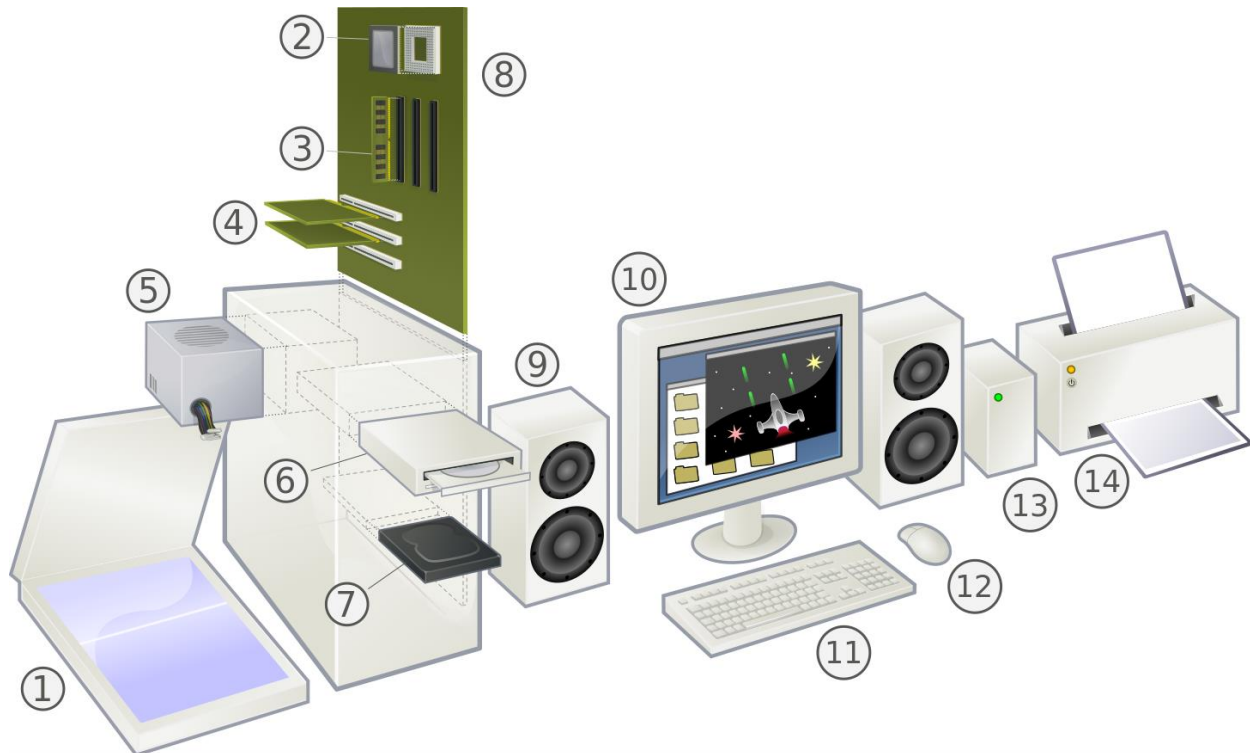


Image 3



Image 4

Computer Components:



(1) Scanner: An input device that can convert the contents of a paper document into a digital image that can be stored in the computer.

(2) CPU (Central Processing Unit) or the processor: The "brain" of the computer where programs are run. It is one of the most expensive parts of the hardware. Modern CPUs can perform multiple tasks simultaneously.

(3) RAM (Random Access Memory): The computer's high-speed, short-term memory. It temporarily stores data and instructions for programs that run on the computer.

(4) Expansion Cards: Circuit boards that can be inserted to add functionality to a computer system (for example: network, sound, or video cards).

(5) Power Supply: Converts electricity from the wall into the form that the other computer components use.

(6) Optical Drive: An input/output device that reads data from and writes data to CDs and DVDs.

(7) Hard Drive: An input/output device that serves as the long-term storage memory of the computer. There are two primary kinds: mechanical drives that use a mechanical arm to read and write data on a rotating disk, and "solid state" drives that have no moving parts.

(8) Motherboard: A circuit board that holds and connects various components of the computer and allows their communication.

(9) Speaker: An input/output device that outputs sound from the computer.

(10) Monitor: An input/output device that displays information visually. Generally, monitors are output devices where the computer visually displays information. *Touchscreens* combine the functions of output and input.

(11) Keyboard: An input device on which the user can type to communicate with the computer.

(12) Mouse: An input device that allows the user to interact with visual objects displayed on the monitor.

(13) External Hard Drive: An input/output device that serves as an extra hard drive used for additional or backup storage.

(14) Printer: An output device that can transfer digital data onto paper.

Lecture two: Internet

INTRODUCTION TO THE INTERNET

Computer Network (Networking and Internetworking)

Until recently, getting a computer was mostly equivalent to getting a machine that would be used to perform office-related assignments and other calculations. This type of computer was commonly referred to as standalone. A network is a group of computers linked together so that they can share resources such as printers, software programs and documents. Computer network is the interconnectivity of autonomous computers. In order for two computers to share what they have, they must establish some type of communication. This is easily done using a cable and an appropriate object (a network card, also called NIC) inserted in each computer. This means that a cable would go from this object of one computer to the same type of object on the other computer. This is perfectly possible to connect two computers.

If you have more than two computers, then you use a type of intermediary object whose job is to "direct traffic". This object is called a hub. For example, when one computer A requests to use or open a piece of text that is located in a computer B but to print it in a printer that is connected to a computer C, this intermediary object is able to know what computer has the text, what computer has the printer, and what computer needs these two services. For these reasons, most connections use this intermediary object: **the hub**

There are two types of networking relationship: computer workstations (clients) are connected to a number of central network servers, which allocate resources. In a peer-to-peer relationship, computer workstations serve each other: one workstation may have access to a printer and allocates this resource to others in the network; another may have access to file storage and allocates this to others (including the workstation with the printer)

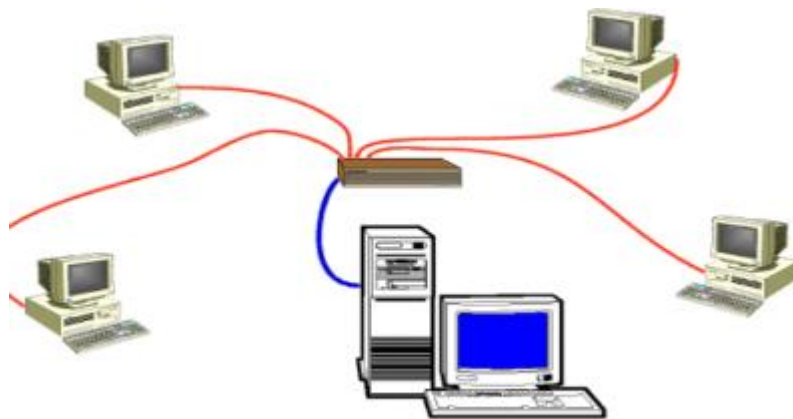


Figure 8: Connection of Computers using the Hub

Information and resources (things to share) became more and more useful and in demand, servers of different companies started establishing types of connections among themselves, of course following some rules. In fact, in some situations, some big computers (servers) were made simply to provide information to other computers, without needing to know who owned these small computers, why

these small computers needed this information, or what to do with them. The internet was born.

Why the Internet?

The Internet is a fast, easy way to communicate. An email message can be sent anywhere in the world to any number of people and can arrive within seconds. Documents, pictures, sounds and video clips can be sent to anyone with internet access anywhere in the world. Software such as shareware packages, demos of commercial packages and games can be accessed. An enormous range of knowledge and data useful for research can be searched for and shared. Other advantages include News group (group on the internet that share news with one another about matters that interest individuals which range from commercial, business, sports, medical, etc.), Internet teleconference (people on the net that conduct real life discussion by typing your own contribution that others can read and reply), online training and learning (e.g. GRE, TOEFL, etc.), e-registration (e.g. WASSCE, NECO, JAMB, NYSC, etc.) And e-commerce/business

Lecture three: SOFTWARE AND HARDWARE

1/ Hardware:

Hardware is the term given to the physical components of a computer: e.g. keyboard, monitor, system box or floppy disk drive. Software, on the other hand, is electronic information: files, operating system, graphics, computer programs are all example of software. The difference between hardware and software reflects the duality between the physical and mental worlds: for example, your brain is hardware, whereas your mind is software.

2/ Software

Software is the stuff that makes your computer do things for you. The computer without software would be like a home entertainment system with no tapes, CD's, or movies - you have the machine, but there is nothing to play on it. Software is continually developed. Each time the software maker (Microsoft, Adobe, Corel, etc) develops a new version of their software they assign it a version number.

Hardware are those components or physical pieces (things you can touch) that make up the computer. The different pieces of the computer's hardware are monitor, speakers, mouse, CDROM, floppy drive, hard drive, keyboard, CPU, RAM, Processor, etc. Each piece plays a role in the operation of a computer.

Operating System

An operating system is a program that acts as an intermediary between the application programs and the computer hardware. You cannot directly use computer applications (or programs) with computer hardware without a translation system between the hardware and the applications. This translation system is called the operating system (OS). The Windows or Mac OS works "behind-the-scenes" to run your computer (i.e. the software and the hardware). It tells the computer what to do when it starts up and keeps track of your documents, files, and other software. It also provides the standard user interface component (like menus and the desktop) that you see when you look at your computer screen