

UG-ARTWORKS:

INTRODUCTION TO COMPUTER SYSTEMS COURSE-HACK

1.BASICS OF COMPUTERS

a. COMPUTERS

- i. Is an electronic device that receives data (input), processes it and produces information (output) e.g laptops used for farm data analysis at LUANAR.
- ### **b. DATA**

- i. This refers to the raw facts and figures e.g students marks, rainfall amount data.

c. INFORMATION

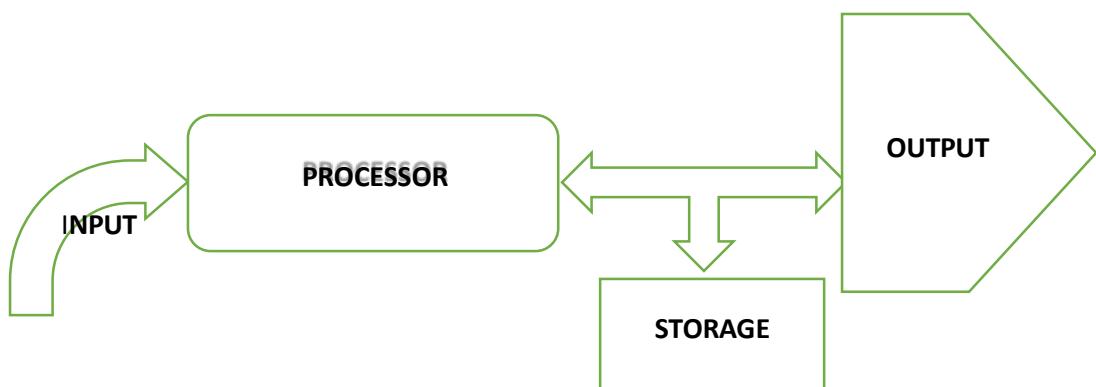
- i. This is the processed, meaningful data e.g Average rainfall per district, passing percentage of students.

d. INFORMATION AND COMMUNICATION TECHNOLOGY (ICT)

- i. In this field, the technology is used to store, process and transmit information

e.g online LUANAR registration system ,WhatsApp messaging between students.

NB: Computers work by receiving data (input), processes it, produces information (output) and stores it in storage. Graphically:



2.COMPONENTS OF A COMPUTER SYSTEM

a. HARDWARE

i.These are physical parts you can touch e.g keyboard, mouse, monitor

b.SOFTWARE

- i. These are instructed programs that tell computers what to do e.g browsers, whatsapp messenger

c.USERS

- i. Individuals who operates computers e.g students, lectures, technicians

d.DATA

- i. Raw facts and figures used by computers as inputs e.g
exams results to put on students' portal, students IDs

e. PROCEDURES

- i. instructions on how to use the system e.g Login steps, file saving methods

NB: The computer systems comprises of hardware, software, users, data and procedures

3.TYPES AND CLASSIFICATION OF COMPUTERS

a. OPERATING PRINCIPLE

- i. This differentiates digital (0s and 1s) and analog (continuous waves) operating principles

b. SIZE OF COMPUTER

- i. This categories computers according to their size starting from microcomputers (PC), mini-computers (mid-size), main-frame (e.g servers)

c. PROCESSING POWER

- i. This groups computers according to processing power and might be similar to size i.e micro-computers (has little processing power), mini-computers (has mild or moderate processing power), mainframe computers (handles large data that means larger storage and processing power), supercomputers (very powerful ,used for scientific work).

➤ EMBEDDED SYSTEMS

- This are devices that has built-in instructions or programs

NB: These focuses more on PC and mainframe differences

4. COMPUTER HARDWARE COMPONENTS

a. INPUT DEVICES

- Used to enter data into computer e.g keyboard, mouse, scanner, microphones,touchscreen

b. OUTPUT DEVICES

- Display or produces results e.g monitor, printer, speaker

c. PROCESSING UNIT (CPU)

- Brain of computer that processes data e.g intel processor

d. STORAGE DEVICES

- Saves data permanetly e.g hard driver,Digital Versatile Disk(DVD), compact disks(CD)

e. MEMORY (RAM/ROM)

- Temporary and permanent data storage e.g RAM for temporary storage which helps in quick running of programs; ROM for permanent storage which stores boot information

NB: *Central processing unit consists of:*

- a. Control unit: *makes sure all processes work*
- b. Arithmetic and logical unit: *performs math calculations (-/+) and make decisions*
- c. Memory unit: *stores the instructions waiting to be executed or processed*

5. COMPUTER SOFTWARE

a. SYSTEM SOFTWARE

- i. Runs and controls the hardware e.g *operating system (windows, linux)*

b. APPLICATION SOFTWARE

- i. Performs a specific task e.g *Microsoft word, browsers, instragram*

c. UTILITY PROGRAMS

- i. Helps maintains system e.g *Antivirus, back-up software.*

d. PROGRAMMING SOFTWARE

- i. Used to create other programs e.g *python,java,c++*

NB: *Software is the invisible engine that drives hardware.*

6.OPERATING SYSTEMS (OS)

- i. it is the main software that controls the computer.

FUNCTIONS OF OPERATING SYSTEM

- ✓ Booting ○ For starting the computer system e.g turning on a laptop
- ✓ File management ○ Organising files and folders e.g documents ,pictures and folders

- ✓ Resource allocation
 - Handles the sharing cpu and memory among programs e.g running games (dream league) and running music player at once
- ✓ Users interface
 - Handles communication between user and system eg GUI(graphical user interface) for example icons and command line interface for example windows dos command prompt

NB; Common OS in Malawi is windows for computer and mac OS ,linux

7. COMPUTER NETWORK AND INTERNET

- NETWORK
 - Connection of two or more computers sharing data eg LUANAR campus WI FI
- LOCAL AREA NETWORK(LAN)
 - Covers small area e,g computer lab network
- WIDE AREA NETWORK(WAN)
 - Covers large area ,multiple locations e.g internet ,government network
- INTERNET

- Global network of computers e.h email ,E learning

➤ INTRANET

- International organisational network e.g *LUANAR STAFF WI FI*

➤ MODEM

- Device connecting computer to internet eg *router or use modem*

NB: *Network is communication plus connecting and sharing*