# ACT111L, BCS111L, BIT111L Intro to Computing

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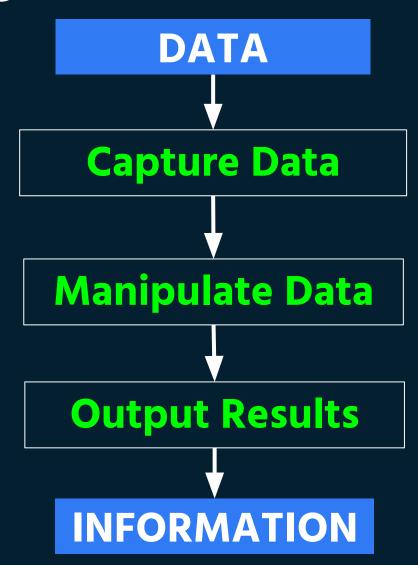
## What is a Computer?

"compute" ——— "to calculate"

 A computer is an electronic device that can perform arithmetic operations at high speed

 A computer is also called a data processor because it can store, process, and retrieve data whenever desired

#### **Data Processing**



# **Characteristics of Computers**

- Speed
- Accuracy
- Memory
- Versatility
- Automation

#### **Advantages of Computer**

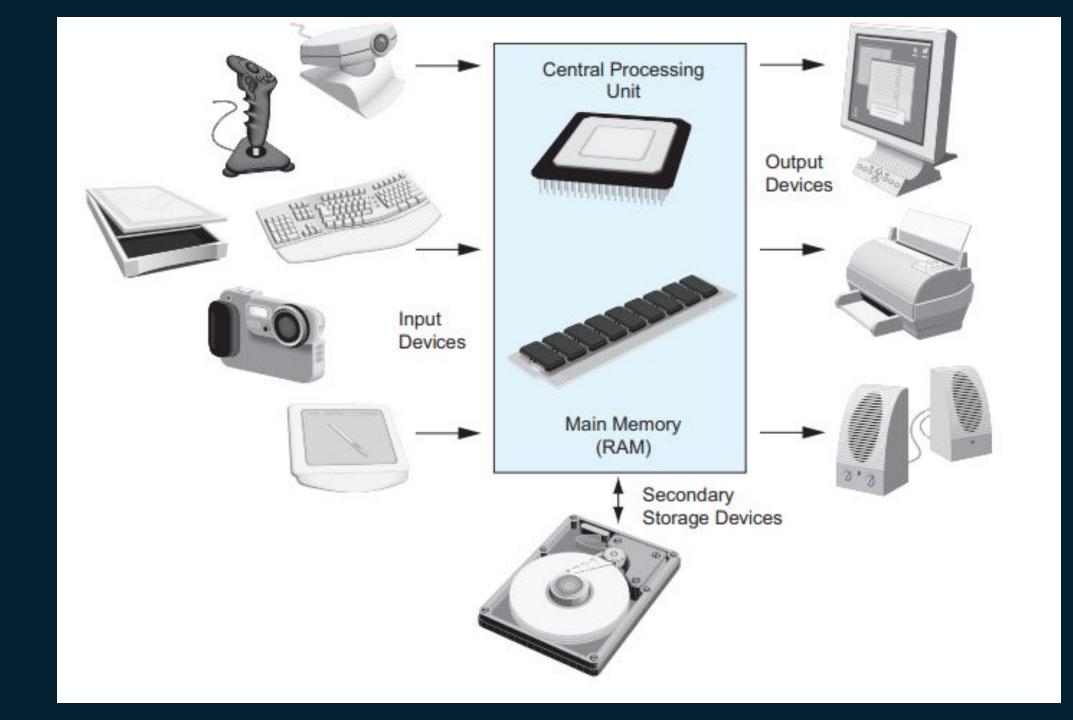
- Multitasking
- Speed
- Accuracy
- Data Security
- Communication
- Productivity
- Reliability
- Storage

## Disadvantages of Computer of Computers

- Virus and Hacking attacks
- Online Cyber crimes
- Reduction in Employed opportunity
- High Cost
- Distractions/Disruptions
- Increases Waste and Impacts the environment
- Health problems

#### **Computer Hardware**

- CPU (Central Processing Unit): The brain of the computer, responsible for executing instructions.
- Memory: Stores data and instructions for the CPU to access.
- Storage: Stores data persistently, even when the computer is turned off (e.g., hard drives, SSDs).
- Input/output devices: Allow interaction with the computer (e.g., keyboard, mouse, monitor, printer).



#### **Computer Hardware**

- Desktop computers: Powerful computers for general use.
- Laptops: Portable computers with integrated keyboard and display.
- Servers: Computers designed to provide services to other computers (e.g., web servers, email servers).
- Supercomputers: Extremely powerful computers used for complex calculations and simulations.

#### **Computer Networks**

 LAN (Local Area Network): Connects computers within a limited area (e.g., office, home).

 WAN (Wide Area Network): Connects computers across a large geographic area (e.g., the internet).

 MAN (Metropolitan Area Network): Connects computers within a city or metropolitan area.

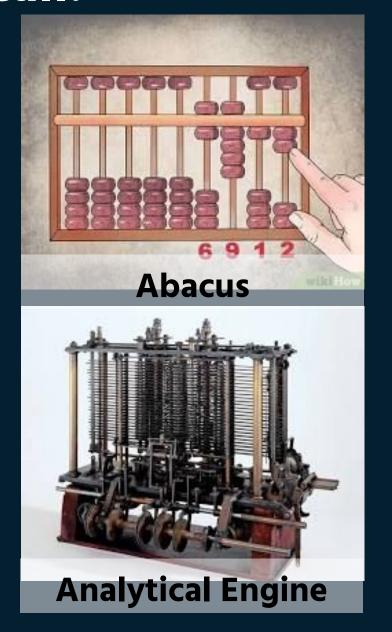
#### **Computer Software**

 Operating systems: Manage computer hardware and software resources (e.g., Windows, macOS, Linux).

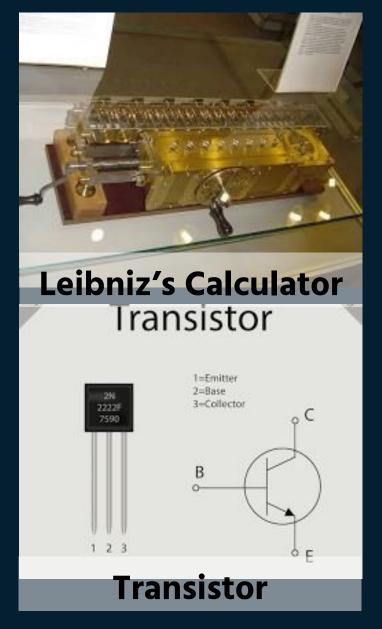
 Application software: Performs specific tasks for users (e.g., word processors, spreadsheets, games).

 Programming languages: Used to create software (e.g., Python, Java, C++).

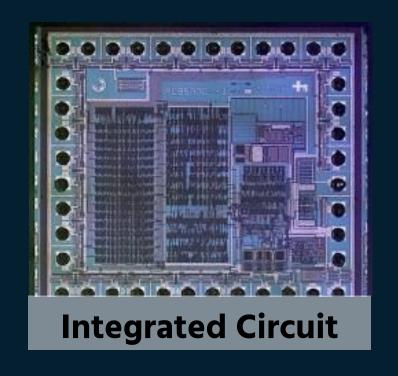
#### **Recall:**







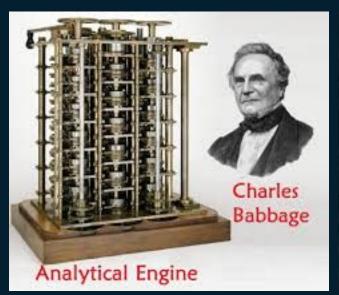
## **Recall:**





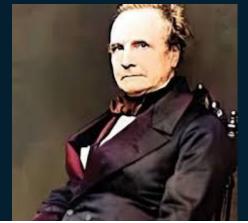


## **Pioneers of Computing**









**Charles Babbage** 



**Ada Lovelace** 



**Alan Turing** 

## **Early Conceptualizers**

Charles Babbage (1791-1871): Often considered the "father of the computer," Babbage envisioned and designed the Difference Engine and the Analytical Engine, early mechanical general-purpose computers.

Ada Lovelace (1815-1852): A mathematician and writer, Lovelace is known as the world's first computer programmer. She wrote the first algorithm intended to be processed by a machine.

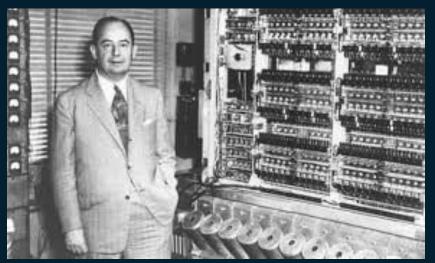
#### **Electronic Computing Era**

Alan Turing (1912-1954): A British mathematician and computer scientist, Turing's work on theoretical computation and cryptography was instrumental in cracking the Enigma code during World War II. His concept of the Turing machine is a foundational model of computation.

John von Neumann (1903-1957): A Hungarian-American mathematician and physicist, von Neumann's contributions to computer architecture, including the stored-program concept, were crucial in developing early electronic computers.

John Mauchly (1907-1980) and J. Presper Eckert (1919-1995): American engineers who collaborated to create the ENIAC, the first electronic general-purpose computer.

# **Pioneers of Computing**











J. Presper Eckert & John Mauchly

# **Pioneers of Computing**





**Tim Bernes-Lee** 







**Paul Allen & Bill Gates** 

**Steve Jobs & Steve Wozniak** 



#### **Later Developments**

Grace Hopper (1906-1992): An American computer scientist and rear admiral in the U.S. Navy, Hopper is credited with developing the first compiler for a computer language. She also popularized the term "debugging" to describe the process of finding and fixing errors in computer programs.

Tim Berners-Lee (born 1955): The inventor of the World Wide Web, Berners-Lee developed the Hypertext Transfer Protocol (HTTP), HTML, and the first web browser.

Dennis Ritchie (1941–2011) was an influential computer scientist who made groundbreaking contributions to the field of computing. He is best known for creating the C programming language and for his work on the development of the Unix operating system.

#### **Later Developments**

**Bill Gates (born 1955) and Paul Allen (1953-2018)**: The co-founders of Microsoft, Gates and Allen played a pivotal role in popularizing personal computers and developing the Windows operating system.

Steve Jobs (1955–2011) and Steve Wozniak (1950–Present): Co-founders of Apple Inc., they played a critical role in the personal computing revolution with the development of the Apple I and Apple II computers.