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DEPARTMENT OF COMMERCE WITH INFORMATION TECHNOLOGY

21UCI507 -Business Information Technology

Classification of Computers

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Classification of Computers

- The computers are classified into various types depends on their purpose, operation and size.
- In general computers are classified into major categories based on.

(a) According to the purpose of the computer.

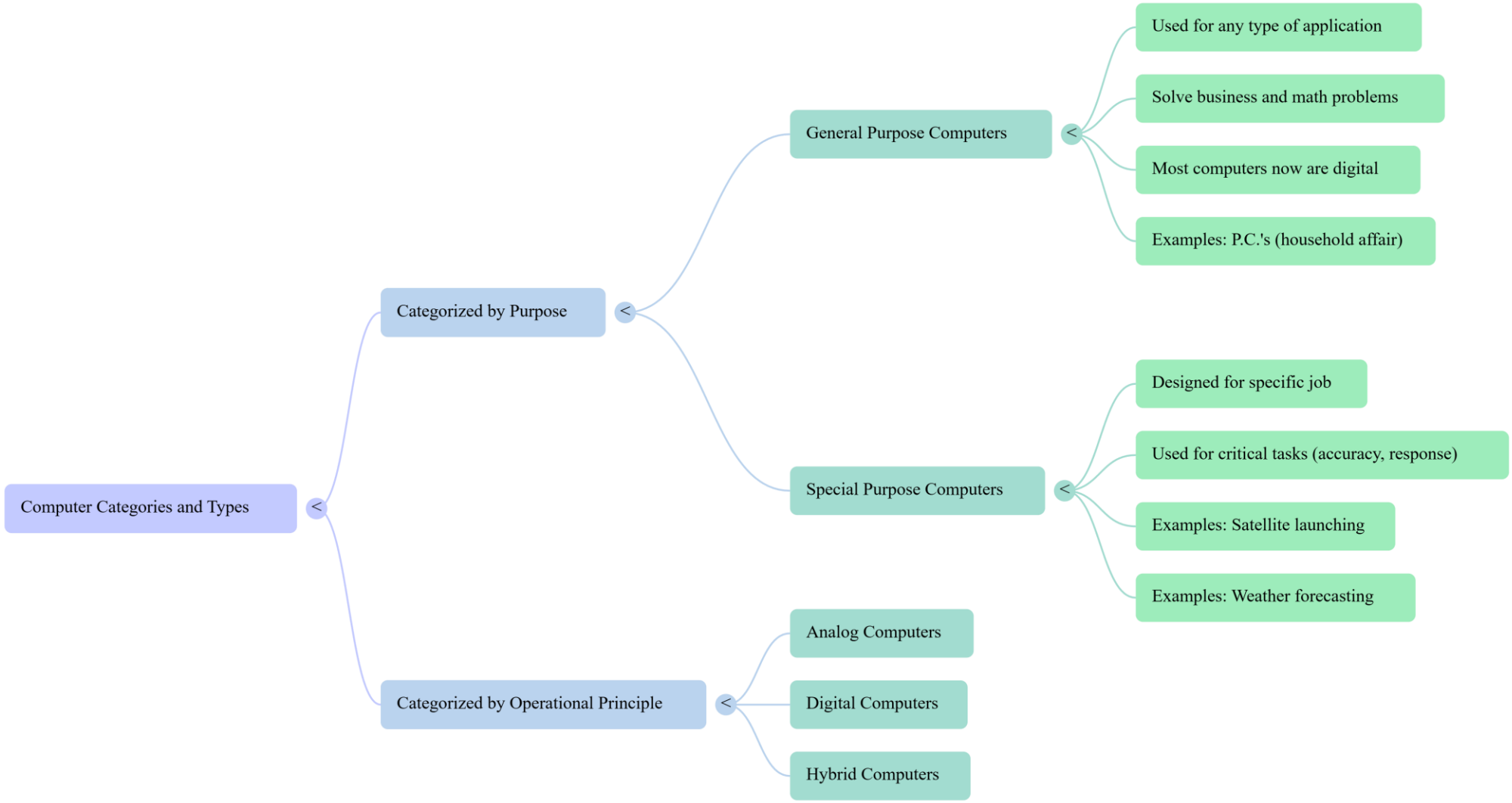
(b) According to the operation of computer.

(c) According to the size of computer.

(a) Classification as per purpose of the computer

1. General purpose computers.
2. Special purpose computer

Classification of Computers



Classification of Computers

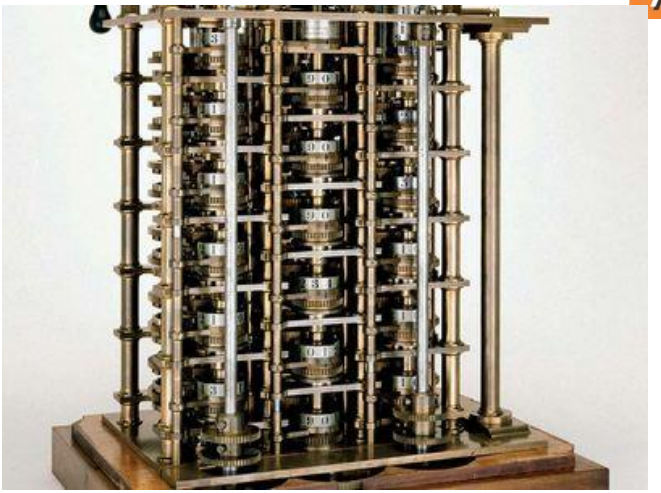
Analog Computers: These are almost extinct today.

- Perform several mathematical operations simultaneously.
- It uses continuous variables for mathematical operations and utilizes mechanical or electrical energy.

Classification of Computers

Digital Computers: They use digital circuits and are designed to operate on two states, namely bits 0 and 1.

- They are analogous to states ON and OFF.
- Suitable for complex computation and have higher processing speeds.
- They are programmable. Digital computers are either general-purpose computers or special purpose ones.

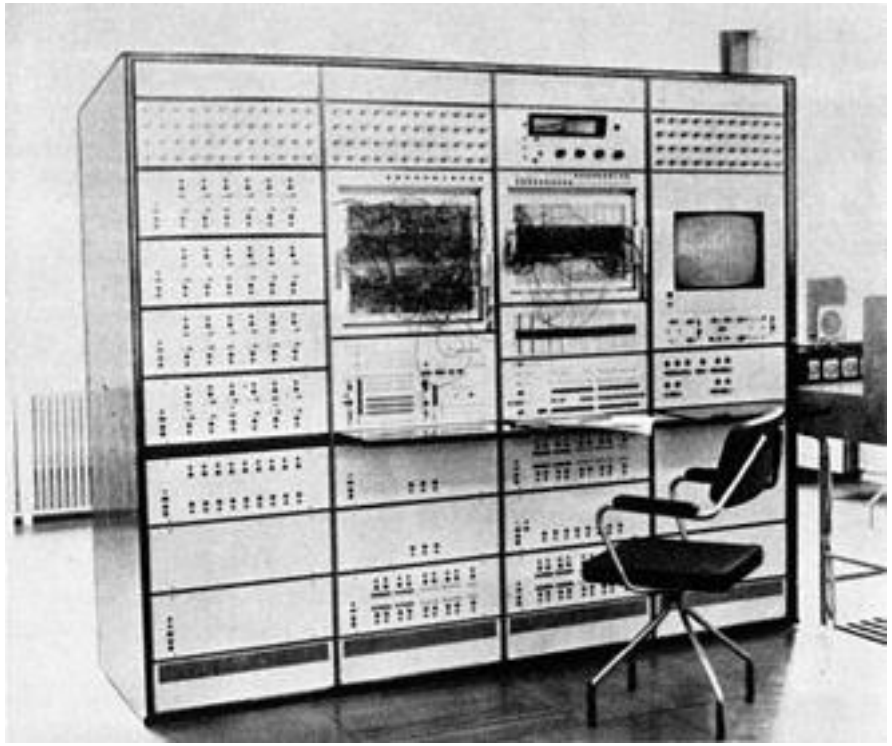


Classification of Computers

Hybrid Computers:

These computers are a combination of both digital and analog computers.

Digital segments perform process control by conversion of analog signals to digital ones.



Classification of Computers

Supercomputers: The highly calculation-intensive tasks can be effectively performed.

- Quantum physics, mechanics, weather forecasting, molecular theory are best studied by means of supercomputers.
- Their ability of parallel processing and their well-designed memory hierarchy give the supercomputers, large transaction processing powers. Ex. PARAM developed in India.

Classification of Computers

Servers: They are computers designed to provide services to client machines in a computer network.

- They have larger storage capacities and powerful processors.
- Running on them are programs that serve client requests and allocate resources like memory and time to client machines.

Mainframe Computers: Large organizations use mainframes for highly critical applications such as bulk data processing and ERP.

Classification of Computers

Wearable Computers: A record-setting step in the evolution of computers.

- Worn on the body and are often used in the study of behavior modeling and human health.
- Military and health professionals have incorporated wearable computers.
- When the users' hands and sensory organs are engaged tracking human actions.
- Wearable computers do not have to be turned on and off and remain in operation without user intervention

Classification of Computers

Minicomputers: In terms of size and processing capacity, minicomputers lie in between mainframes and microcomputers.

- Minicomputers are also called mid-range systems or workstations.
- The 12-bit PDP-8 minicomputer of the Digital Equipment Corporation - 1st successful minicomputer

Classification of Computers

Microcomputers: A computer with a microprocessor and its central processing unit is known as a microcomputer.

- They do not occupy space as much as mainframes do and can be called personal computers.
- Computer memory in the form of RAM and a power supply unit come packaged in a microcomputer.
- These computers can fit on desks or tables and prove to be the best choice for single-user tasks

Case Study: Classifications of Computers

1. Problem Scenario

A retail store wants to upgrade its technology. They need different types of computers for: Billing, Stock management, Online marketing, Security surveillance and Customer feedback system.

2. Design Thinking Stages

Stage 1 – Empathize - Fast billing system, Reliable stock management, A computer for office tasks, A system for CCTV recording, A simple interface for customer feedback, Low maintenance and budget friendly

Users: Cashiers, Manager, Marketing Staff, Security Team, Customers.

Stage 2 – Define: Select proper computers based on classification.

Case Study: Classifications of Computers

Stage 3 – Ideate: Think of possible computer types that may help:

By Size

Microcomputers → Desktop, Laptop **Mini Computers** → For small organizations

Mainframes → Large-scale transaction processing

Supercomputers → Complex data analytics

By Purpose

General-purpose computers → Office work **Special-purpose computers** → Billing machine, ATM **Embedded systems** → CCTV camera system, POS machine

By Data Handling

Analog computers **Digital computers** **Hybrid computers**

Case Study: Classifications of Computers

Stage 4 – Prototype

Prepare a simple solution table for the store:

Store Need	Type of Computer	Classification	Why?
Billing counter	POS Machine	Special-purpose / Embedded	Fast, simple, reliable
Manager office	Desktop Computer	Microcomputer, General-purpose	Multitasking, cost-effective
Inventory / Stock	Mini Computer	Mid-size	Handles large data
CCTV System	Embedded Computer	Special-purpose	Continuous recording
Online Marketing	Laptop	Microcomputer	Portable for campaigns

Case Study: Classifications of Computers

Stage 5 – Test

Show the plan to the store:

Feedback questions:

•“Is the classification easy to understand?”

•“Does each system meet your requirement?”

•“Is it within your budget?”

Final Outcome

The store clearly understands:

•What types of computers exist

•How computers are classified

•Which type suits each task

•How classification helps in real-world decision making

Classification of Computers

Next Topic:

Anatomy of a Digital Computer System