

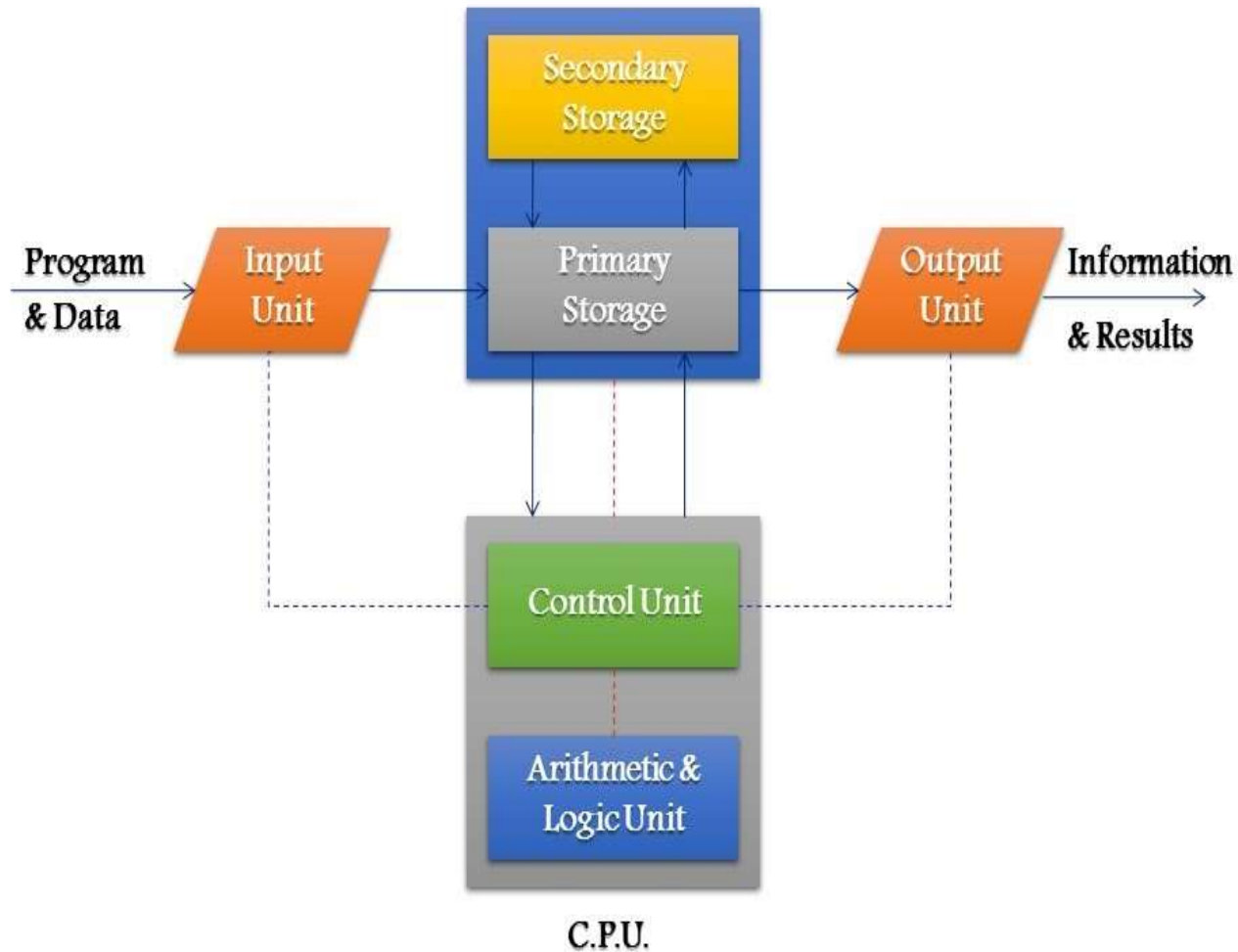
Computer – Definition and Types of computers

(Biostatistics and computer application)
(Unit – 1)

Definition of computer

- “**Computer**” is a word derived from “compute” which means to calculate
- A computer is a programmable electronic machine that processes information
- A computer is an electronic device which has ability to receive information in a particular format and perform a series of operations in predetermined but varied set of procedural instructions to produce a result in the form of information
- Computer is a fast, electronic data processing machine/device for receiving, storing, processing, analyzing and retrieving any amount of data or information with 100% of accuracy following a set of instructions given to it by human being.
- It does all work assigned to it perfectly without committing any mistakes.

BLOCK DIAGRAM OF COMPUTER



Computer Memory

Primary

Secondary

Cache

RAM

ROM

Static

Dynamic

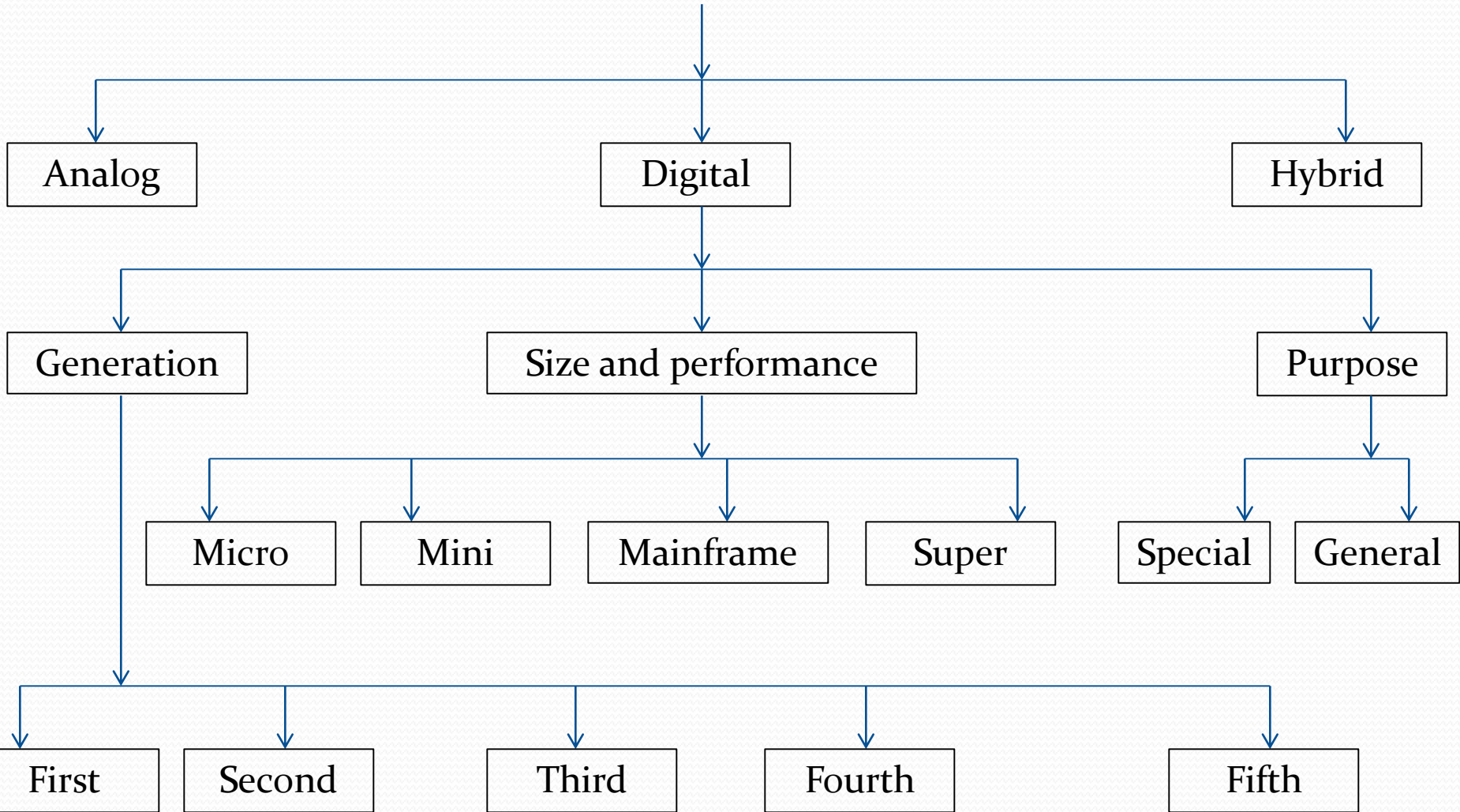
PROM

EPROM

EEPROM

Hard disk, Magnetic Tape,
CD, DVD, USB Flash drive,
Blu Ray Disk etc.

Computers



TYPES OF COMPUTERS

- Digital Computers
- Analog Computers
- Hybrid Computers
- Personnel Computers
- Mini Computers
- Mainframe Computers
- Super Computers

Digital Computers

- It is a counting device that operates on discrete data.
- It operates by directly counting numbers that represent numeral letters or special symbol, just as digital watches directly count off the seconds, minutes and hours.
- Digital processors also count discrete values to achieve desired output result.



Digital computer

Analog Computers

- These computers use varying physical quantities like voltage, current, temperature, etc as their data values
- They do not directly count numbers.
- They deal with variables (voltage, current and temperature) that are measured along a continuous scale and are recorded to some predetermined degree of accuracy.



Analog Computer

Hybrid Computer

- This type is suitable combination of both analog and digital computer.
- In hospital intensive care unit (ICU) analog devices could be used to measure a patient's cardiac rate, pulmonary rate, temperature and other vital functional rate
- These measurement could then be converted into numbers and supplied to digital component in the system
- This component is used to monitor the patient's vital symptoms and to send immediate signals to nursing terminal if any abnormality in reading is detected



Hybrid computer

Microcomputer

- Microcomputer is the smallest general purpose systems
- In 1970, invention of microprocessor has changed the computing scene dramatically
- A microprocessor is a silicon chip that can do the same jobs as the main parts inside a computer
- It is normally used to mean the single chip containing central processing unit (CPU), but it can also be used to mean the complete microcomputer systems
- A microcomputer when interfaced with memory and input/output units becomes microcomputers.
- Microcomputer are cheap and limited in capabilities
- Used for data processing by small business organisation and in homes



Microcomputers

Minicomputer

- Microcomputer is the general purpose computer
- They are more powerful and expensive than microcomputers
- They have more storage capacity and variety of input and output devices.
- IBM, DEC, NCR, HCL, Univac are some of the minicomputers
- The mini computer is usually designed to serve multiple users simultaneously
- A system that supports multiple users is called multi-terminal time sharing systems
- They are popular data processing system in business organisation



MINI COMPUTER

Mainframe computers

- Mainframe computers are large computers that may offer faster processing speeds and greater storage than minicomputers
- They are used for information retrieval in military and other application
- They support a large number of terminals for use simultaneously



MainFrame Computer

Supercomputers

- These systems are the largest, fastest and most expensive computers in the world
- The speed of traditional computer is measured in terms of million instruction per second (MIPS)
- A super computer is rated in terms of million operations per second (MOPS) with an operation consisting of numerous instructions
- Typically supercomputer is used for large-scale numerical problems in scientific and engineering disciplines
- These includes applications in electronics, space, petroleum engineering, defense mechanism, weather forecasting, chemistry, medicine and physics.



Cyber and Cray – I are some of the super computers.
Param – 10,000 and Annapurna are some of the supercomputers produced in India



Thanks!!