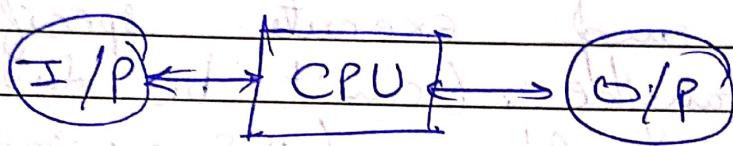


Date: 17 July 2025
MON TUE WED THU FRI SAT

Book → Python computing - Abhijit Kar Gupta
fundamentals & applications

Teacher - Sudheer Kumar Sir

Programming



C - Commonly

O - Operating

M - machine

P - particularly.

U - Used for

T - Technology

E - Education

R - Research.

18th July, 2025

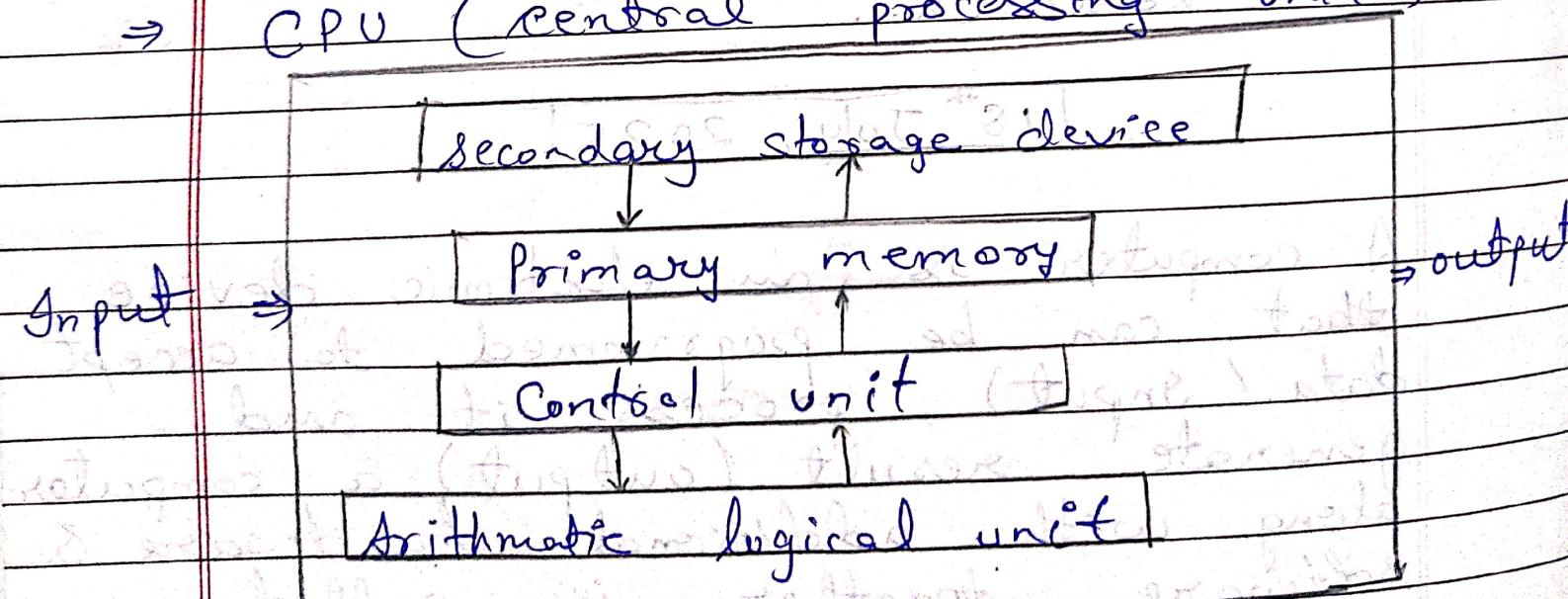
A computer is an electronic device that can be programmed to accept data (Input), process it and generate result (output) a computer along with additional hardware & software together is called a Computer system

Hardware: hardware is the visible physical elements of a computer. for eg :- Keyboard, mouse, monitor, CPU, etc.

Software: it is a set of instructions program or data. Used to operate computers and execute specific tasks. It is tangible. (can't be touched). eg:- system software (O.S → windows 10, linux, android)

- application software: (whatsapp, MS Office, google chrome)
- programming software: (python, Java, CSS, JS)

→ CPU (central processing unit)



4 Bits	\rightarrow	1 nibble
2 nibble	\rightarrow	1 Byte
1 Byte	\rightarrow	8 Bytes
1 KB	\rightarrow	1024 Bytes
1 MB	\rightarrow	1024 KB
1 GB	\rightarrow	1024 MB
1 TB	\rightarrow	1024 GB
1 PB	\rightarrow	1024 TB
1 EB	\rightarrow	1024 PB
1 ZB	\rightarrow	1024 EB
1 YB	\rightarrow	1024 ZB

Here, 1 kB = kilobytes

1 MB = megabytes

1 GB = Gigabytes

1 TB = Terabytes

1 PB = Petabytes

1 EB = Exabytes

1 ZB = Zettabytes

1 YB = Yottabytes

28th July \rightarrow

Step I \rightarrow Power-on: the user turns on the computer & power is supplied to hardware components.

Step II \rightarrow POST: - power-on self test

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→ Types of Booting :-

- Cold Booting and Warm booting.
- Starting the computer from off-state when it is fully shut down.
 - Restarting the computer without turning off the power (e.g. pressing $\text{Ctrl} + \text{Alt} + \text{Del}$)

Q. What is the importance of Booting?

- ② What are common booting errors?
- ③ How are mobile phones both input/output devices?

Answers:

A① Booting is one of the most important processes in the world of computers. It is the process that brings a computer to life, from a powered-off state to a fully operational system, ready for user interaction.

Importance of Booting:

1. Loads the OS
2. Initial Hardware Check (POST)
3. Activates system files & Drivers
4. Security checks

5. User Interface Access.
6. foundation of All tasks.

A(2) Common Booting Errors.

- ① BOOTMGR is missing
→ corruption or missing Boot manager file (Bootmgr) in windows.
- ② Operating System not found.
→ BIOS/UEFI can't find the OS on any drive.
- ③ Disk Boot failure/ Insert system disk
→ Boot device not found or drive is corrupted.
- ④ Blue screen during boot.
→ Driver conflict, hardware issue, or OS corruption.
- ⑤ Grub Rescue Error (in linux/Dual Boot)
→ GRUB Bootloader is missing or misconfigured.
- ⑥ Automatic repair loop (windows)
→ Windows fails to boot and keeps restarting in repair mode.

A ③ mobile phones act as both input and output devices.

- Input: Touchscreen (typing / swiping), microphone (voice), camera (photo/video), sensors (motion, face, fingerprint).
- Output: Screen (display), speakers (sound), vibration (alerts), flashlight (signals).

They take user input and give back results, making them versatile communication devices.

◆ features of the programming language:

(i) Used to create software, website, apps and games.

(ii) Has specific Syntax and rules

(iii) Converts Human logic into machine - executable code

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→ High level language :- A high level language is a programming language that is easy to understand like English and used to write software and apps.

Eg. → C, C++, Java, Python, etc.

→ Low level languages :- A low level language is close to machine language (Binary / Assembly) and is used to control computers / hardware directly.

Eg. → Features :

- ① Hard to read and write.
- ② Use of symbols and code.
- ③ ~~Not~~ Machine depended (not portable).
- ④ fast Execution.
- ⑤ Difficult to debug.

Code :-

Eg. → Mov Ax, 01

Mov Bx, 02

Add Ax, Bx

Python programming

' → Single quote

" → Double quote

\ \ → Backslash (to write backslash)

\n → new line.

\b → break the line

\t → tab space

\r → carriage return

~~Q1~~ Write a python program that asks the user for his name and then welcome him.

* Assignment operator

① a = 10 # a is assigned to 10

a -= 5 # a = a - 5

a *= 5 # a = a * 5

a /= 5 # a = a / 5

② write a python program that accepts the principal, time and rate and gives the simple interest.

Python

Roadmap

The Python Interpreter

Datatypes ← Console I/O ←

↳ List → Tuple → Dictionaries

Control flow ← Conditions ←

↳ functions → file I/O

~~(x.w)~~, Q. Write the release date of Python.

version release date from 2020 till today.

Q. Difference b/w bug, error, fault.

→ Introduction of Python

→ Python is a popular and easy-to-learn programming language. It is used to write computer programs for many different purposes - like building websites, apps, games, data science, artificial intelligence (AI), machine learning (ML), and more.

→ Inventor → Guido Van Rossum

• Country → the Netherlands

(Dutch programmer)

• Year of Development → 1989

→ Release → 1991

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--	--	--	--	--	--

~~Input (f) = Getting data from the user using the input() function.~~

eg:- name = input ("enter your name")

print ("Hello", name)

eg:- User1 = input ("enter your name")
 print (f"Hello, {User1}")

H.W

Versions →

2020 → 3.9.0

2021 → 3.10.0

2022 → 3.11.0

2023 → 3.12.0

2024 → 3.13.2

2025 → 3.13.5

11 Aug 25

example:

city = "Tokyo"

year = 2025

print ("Welcome to" + city + "in" + str(year))

Inp *

Note: → each method has its own charm

- f-strings are modern and clean,
- format() is flexible, and concatenation is old school but still useful.

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Try it :-

→ fruits = ["apple", "banana", "cherry"]

x, y, z = fruits

print (x)

print (y)

print (z)