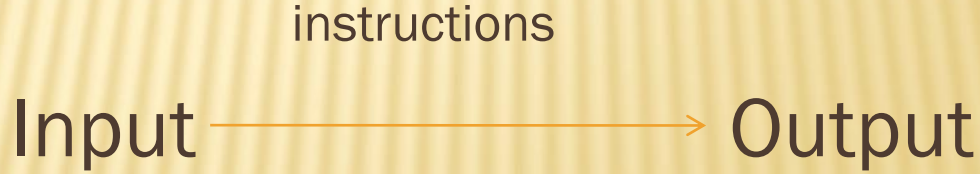
INTRODUCTION

WHAT IS A COMPUTER?

- A computer is a device that accepts information/data and processes it for some result based on a sequence of instructions on how the data is to be processed and gives us the required output.



WHAT IS A COMPUTER PROGRAM?

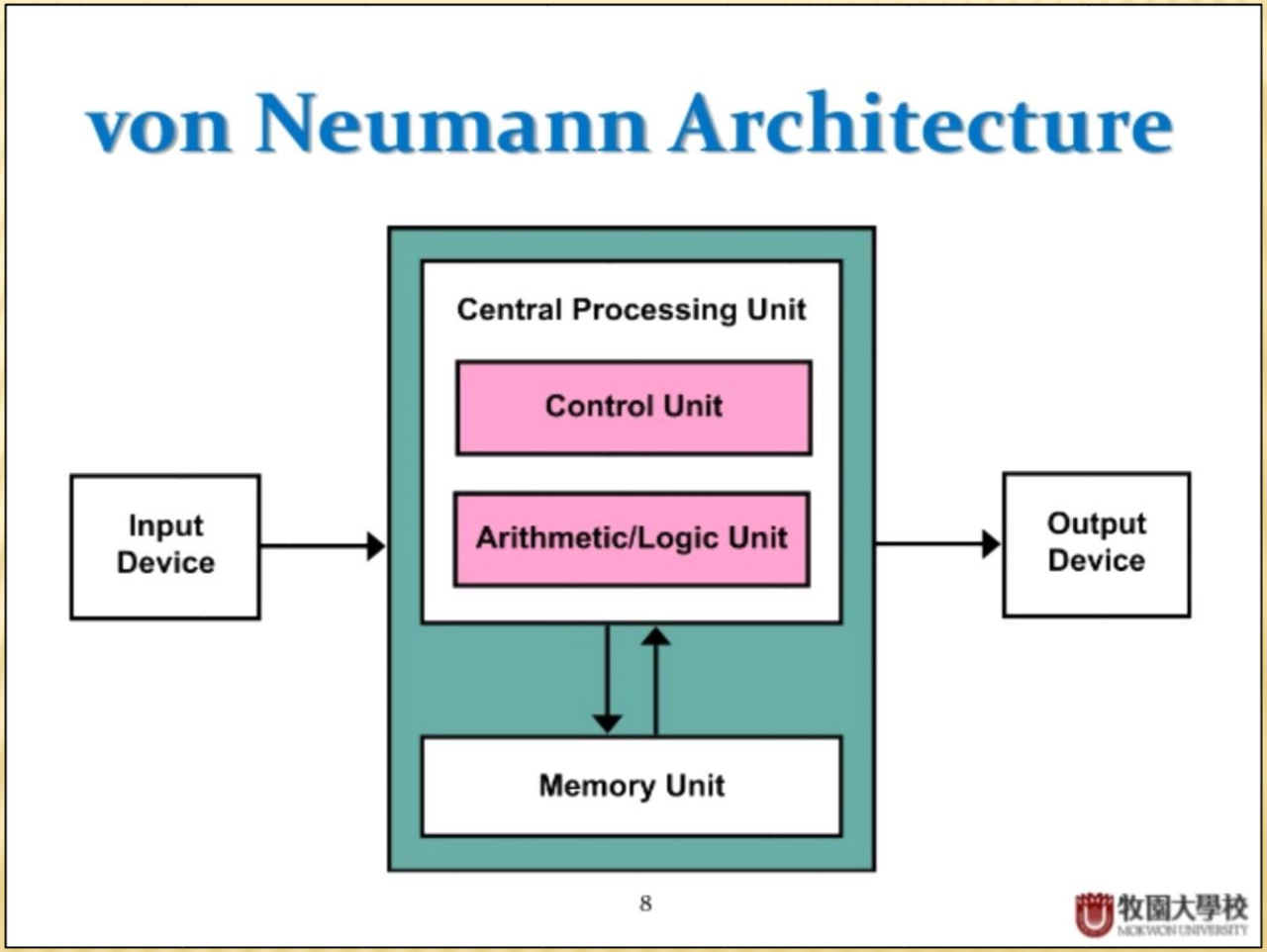
- A **computer program** is a collection of instructions that performs a specific task when executed by a **computer**.
- Most **computer** devices require **programs** to function properly.
- A **computer program** is usually written by a **computer programmer** in a **programming** language.

CAN YOU GIVE SOME EXAMPLES OF COMPUTER PROGRAMS?

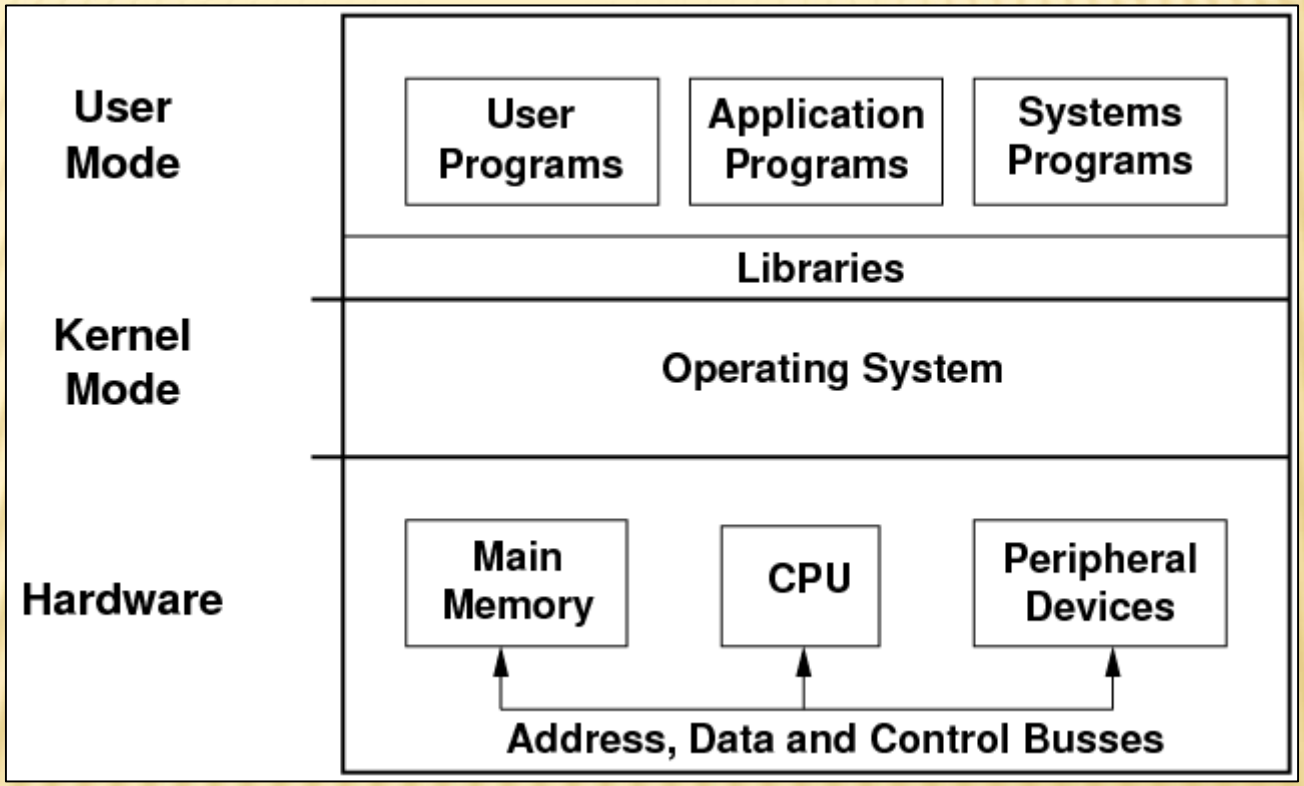
- Microsoft Word, Excel, Powerpoint , Notepad
- Music Player
- Database systems(SQL, Oracle)
- Amazon, Flipkart etc (Online shopping)
- PUBG(Computer games)
- Internet Browsers(Mozilla, IE, Google Chrome)
- Operating systems
- Twitter, Facebook, Instagram
- IRCTC
- Internet Banking applications
- WhatsApp, PayTm,Snapchat,TikTok(All mobile apps)

HOW DOES A COMPUTER LOOK?

HOW DOES A COMPUTER LOOK? (INTERNALLY)



WHAT ABOUT SOFTWARES?



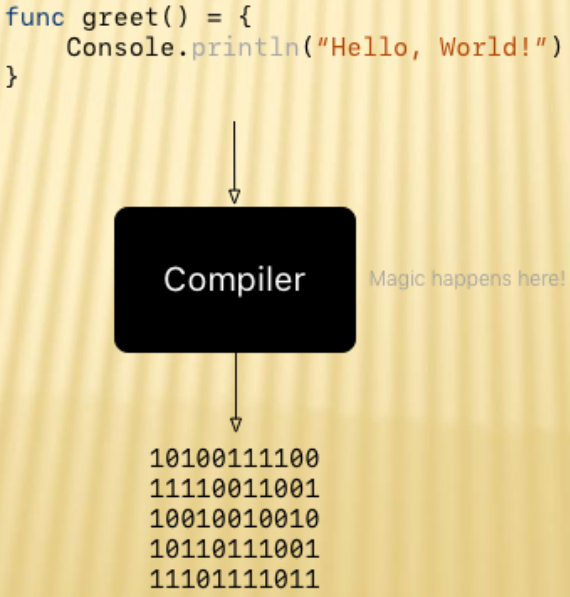
LET US STEP INTO THE WORLD OF PROGRAMMING.....

WHAT DO WE NEED BEFORE WE START?

- Problem statement
- Sample input and expected output
- Good logic(algorithm/pseudo-code)
- A window to write/edit our programs
- A window to interact with the machine by giving the input and viewing the output (GUI)
- One more thing….. Can you guess????

COMPILERS!!!

- They translate source code into machine language/binary language
- The .c file gets converted into a .obj file.
- The .obj file is then sent for execution



GENERAL STEPS OF PROGRAMMING

1. Write the code
2. Save the file with .c extension
3. Compile the code
4. Debug code and remove errors if any
5. Repeat the steps 3-4 until compiler gives no error
6. Execute the code by giving the required input and viewing the output.

PSEUDOCODE FIRST…

- It is an informal high-level description of a computer program or algorithm.
- Written in plain simple English, less use of symbols
- There are no rules for writing a pseudo-code.
- It is not specific to any programming language
- Advantages:
  - Directly writing code for complex purposes might result in time wastage.
  - The causes of this range from improper algorithms to ambiguous program flow.

SAMPLES OF PSEUDOCODES

- Let's watch this video:

https://www.youtube.com/watch?v=4G0EYfrrDT8

- Keep the design simple, precise and easy to understand
- Taking a practical example, if I gave you the following instructions:

(a) Take a left, then take a right, go down the stairs, on your right enter the kitchen, pick a cup and pour some hot water and add some hot chocolate….

(b) Please make me a hot chocolate.

TRY SOME EXAMPLES ON YOUR OWN..

- Calculate the area of a circle
- Given the marks of 5 subjects, calculate the percentage marks of a student
- Find if a student has passed or failed in an exam considering passing percentage as 50

SAMPLE SOLUTIONS FOR PSEUDOCODE

- Calculate the area of a circle

1. Input the radius of a circle
2. Calculate area by multiplying pi and radius squared
3. Print area

SAMPLE SOLUTIONS FOR PSEUDOCODE

- Given the marks of 5 subjects, calculate the percentage marks of a student

1. Input marks of 5 subjects of a student each out of 50
2. Add up the marks
3. Divide marks by 250 and multiply the result by 100
4. Print the final percentage scored

SAMPLE SOLUTIONS FOR PSEUDOCODE

- Find if a student has passed or failed in an exam considering passing percentage as 50

1. Input marks of 5 subjects of a student each out of 50
2. Add up the marks
3. Divide marks by 250 and multiply the result by 100
4. Check if the percentage calculated is less than 50
5. If yes, print “Fail”
6. Else Print ”pass”