⊗ **Programming :-**

Programming is the Process of writing instruction's that a Computer can understand & Execute to Perform specific task (or) solve problems.

Definition:- Programming is the Process of designing and building an Executable Computer Program to accomplish a specific Computing result.

Types of Programming :-

① **low level Programming :-**

⇒ this Programming are closest to the hardware and very hard for humans to understand.

⇒ they give direct control over Computer hardware Components.

⊛ **Types :-**

ⓐ Machine language :- written in Binary (0s and 1s)

Ex:- 10110000   01100001

ⓑ Assembly language :- uses symbols instead of Binary codes

Ex:- MOV A, 5

ADDA, 2 .

② High-level languages :—

⇒ these are close to humans, where it can Be understand by human Eazyly & To write & Maintain was Eazy.

⇒ they Required a Compiler (or) interpreter to convert Code onto Machine language.

Eg:-   Python
       C
       c++
       JAVA
       JAVA Script.

③ Very High-level language (or) 4th Gen language (4GL) :—

⇒ these language are even More user friendly.

⇒ these languages are focuse on what to do ? rather than How to do it.

⇒ uses Data bases, repot generation & AI Application's.

Ex:-   SQL
       MAT LAB
       R
       SAS

⊛ **Python :—**

⇒ Python is a high level language, Interrupted Programming language that is widely used for Many types of software development

⇒ It was created by Guido Van Rossum & first released in 1991

⊛ **Application's of Python :—**

⊛ web Development

 - Python is widely used to build Websites & web Application's

why :—

  - Easy Coding & fast development
  - Strong security
  - Supports both front - End (templating) & back End (server-side Code)

Ex:- Instagram → Backend build using Django.

 YouTube → for Managing VedioContent & Recommendation's.

⊛ Data Analysis & Data Science

 - Python is the #1 language used in Data Science.

why :—

 - Easy to handle Massive data
 - tools to analyze & Visualize data.

※ Machine learning & Artificial Intelligence

- Python is heavily used to create smart systems that learn from data.

Ex:- - Netflix recommending Movies to uses
      - Face Recognition In Mobile Phones.
      - Self Driving Car Systems.

※ Cyber Security & Ethical hanking :-

- Python is used to create security & hacking tools.

Reason:-
      - Can Interact with OS & Networks Easily.
      - Has special libraries for scanning & testing.

※ Game Development.

- Python is used to Build 2D games & Simulation's

⊛ GAME LIBRARY :- Pygame.

※ Internet of things (IoT)

- It is runs on Micro Computers like Raspberry Pi to Control devices.

※ Mapping & GIS (Geographical System)

- It was used to Analyse Earth Maps & location data

used In:- Google Maps
          weather forecasting, Disaster Prediction Systems. AND More....