Module-1
Overview of IT Industry(Theory)

2.What are the key steps involved in the programming process? Types of Programming Languages

Key Steps Involved in the Programming Process

- **Understanding the Problem:**
  First, you need to clearly understand what problem you're trying to solve

- **Planning the Solution**
  Think of how to solve the problem step-by-step. You can use flowcharts or pseudocode.

- **Writing the Code (Coding)**
  Write the solution using a programming language like Python, C, Java, etc.

- **Compiling / Interpreting**
  The program is checked for errors and converted into machine language using a compiler or interpreter.

- **Testing and Debugging**
  Run the program to see if it works correctly. Fix any mistakes (bugs) you find.

- **Execution**
  After successful testing, the program is executed to produce the final output.

- **Maintenance**
  If any error is found later, or if updates are needed, the code is changed accordingly.

Types of Programming Languages :

1. Low-Level Languages

- Very close to machine language (binary: 0s and 1s).
- **Types:**
    - **Machine Language**: Directly understood by the computer.
    - **Assembly Language**: Uses symbols; faster but complex.

2. High-Level Languages

- Easy to read and write (like English).
- Examples: Python, Java, C++, etc.
- **Types:**
    - **Procedural Programming Language (POP)**
        - Focus on procedures (functions).
        - Example: C, FORTRAN, Pascal
    - **Object-Oriented Programming (OOP)**
        - Focus on objects (data + functions).
        - Example: C++, Java, Python
    - **Natural Language**
        - Used to process human languages.
        - Example: Used in AI for voice recognition, chatbots, etc.

3. Middle-Level Languages

- Mix of low-level and high-level features.
- Example: C, C++
