



Principles of Programming and Problem Solving

Phases in Programming

- 1. Problem identification** – Understand the problem well. Its output, input, process data type etc.
- 2. Algorithms and flowchart** – step by step procedure to solve a problem is **algorithm** and pictorial representation of algorithm is **flowchart**
- 3. Program coding-** Write the program using any High Level Language it is called **source code**
- 4. Translation-** Process of converting HLL into LLL using compiler or interpreter. i.e convert Source code into Object Code
- 5. Debugging-** Bug means error. Debugging means finding and correcting errors(**Syntax error, Logical error, runtime error**) in a program.
- 6. Execution and Testing-** make sure that correct output you get when all types of inputs are given.
- 7. Documentation-** **internal** (comments in program) **external** (system manual and user manual)

Characteristics of Algorithm

1. begin with instructions to accept inputs
2. Use variables to refer data
3. Each and every instruction should be precise and unambiguous.
4. Each instruction be carried out in finite time by a person with paper and pencil.
5. The total time to carry out all the steps should be finite
6. Desired output must be obtained after performing all the instructions.

Advantages of Flowchart

1. Better Communication
2. Effective Analysis
3. Effective Synthesis
4. Efficient Coding

Disadvantages of Flowchart

1. Very time consuming and laborious task
2. Any change or modification in the logic may requires a new flowchart
3. There is no standards determining the amount of detail that should be included.