CO206U Problem Solving Using Python

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Problem Solving Using Python

- **ISA Tool (10 Marks)**
    1. Online Surprise Tests (Atleast 5)
    2. Attendance

- **MSE (30 Marks)**
- **Theory (60 Marks)**
- **ICA + PRESE (25 + 25 = 50 Marks)**

Book:

Introduction to Computing and Problem Solving Using Python by E Balagurusamy

Problem Analysis

Before applying a particular method of technique to solve a problem, we need to analyse the problem first.

Key Dimensions:

1. Decomposable/Non-decomposable
2. Solution Steps-can/cannot be ignored
   - Ignorable
   - Recoverable
   - Irrecoverable
3. Predictable/Unpredictable
4. Good Solution: Absolute or Relative

Problem Analysis

Problem:

A problem can be defined as a gap between the actual and desired condition.

Methodology of Problem Solving:

1. Structural chart
2. Pseudocode
3. Flowchart

Algorithms

Definition:

1. finite set of steps to be followed in order to solve the given problem.
2. Algorithm is a precise method to solve a problem.
3. It contains a finite number of steps and has a natural flow from one step to another, unless jumps satisfied.
4. Many more…..

Algorithms

Properties or Characteristics:

- Input
- Output
- Finiteness
- Definiteness
- Effectiveness

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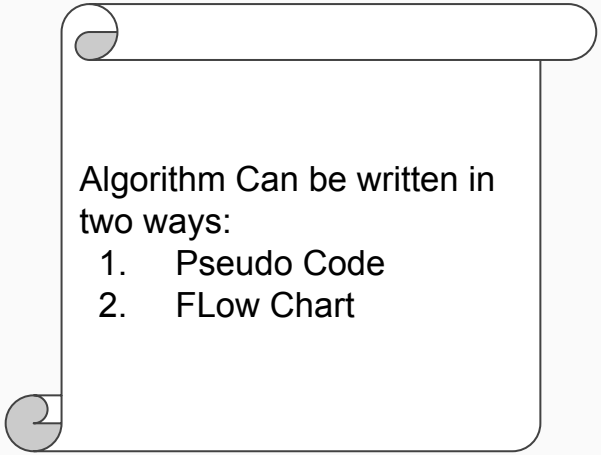


Algorithms

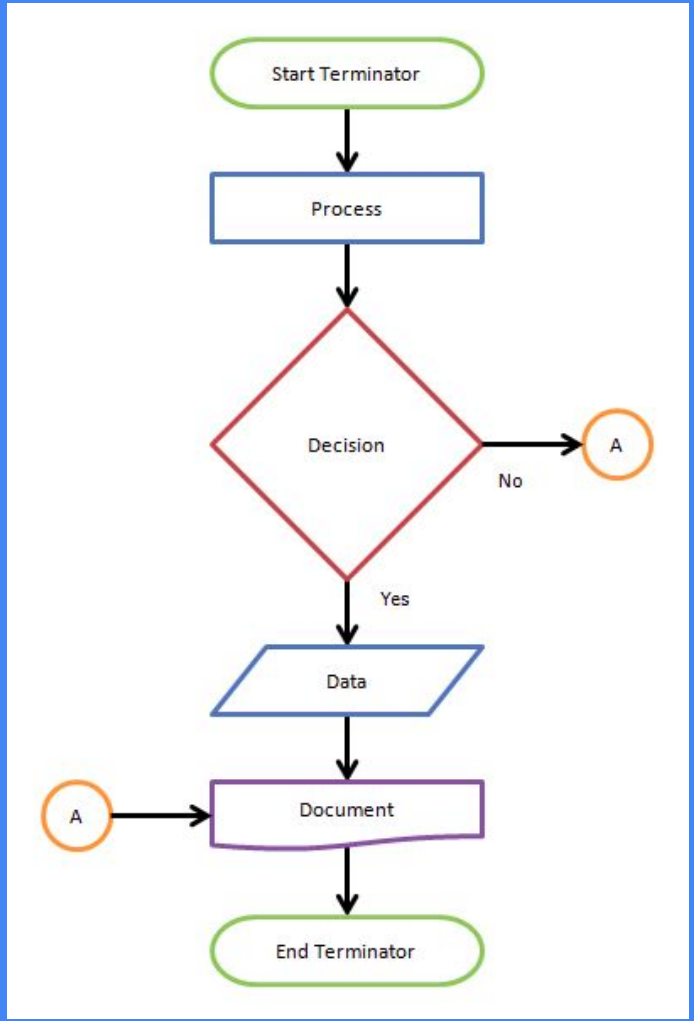
- **Examples:**
  - **Algorithm for addition of two numbers**
  - **Algorithm for odd and even number**
  - **Algorithm for sorting of given elements**

Flow Chart

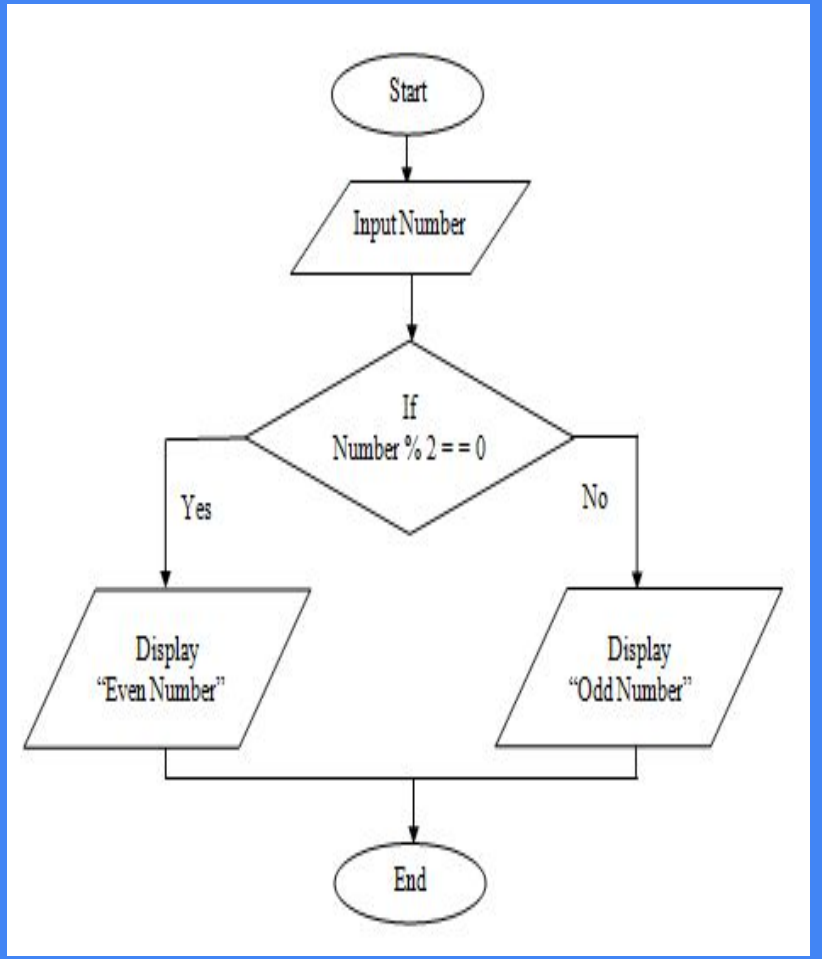
Definition:

"A graphical or pictorial representation of a given problem in relation to its sequence of functions"

Flowchart Symbols



Flowchart Example



Home Assignment

1. **Write an algorithm and flowchart to log in to your Gmail account**
2. **Write an algorithm and flowchart to put a book in the box.**
3. **Write an algorithm and flowchart to join a class of PSP**