Introduction to Computer Programming

Recompiled –
Dr. Jaideepsinh Raulji
Assistant Professor,
CSE, SET,
Navrachana University

Algorithms

- **Algorithm** is a procedure or step by step process for solving a problem.

- Any problem can be **expressed** using different kinds of notations, including algorithm, pseudocode, flowcharts, programming languages and natural languages.

- Computer algorithm is a kind of logic written in computer software by the programmer to solve a specific problem.

Properties of Algorithms

- It is written in simple English.

- Each step of an algorithm is unique and should be self explanatory.

- An algorithm must have at least one input.

- An algorithm must have at least one output.

- An algorithm has finite number of steps. **OR** Should have an end point

- It should be unambiguous, precise and clear.

- It should provide the correct solutions.

Algorithms

1. Problem Definition: Write an algorithm to add given two numbers.

- Step 1: Start.

- Step 2: Read two numbers A and B from user.

- Step 3: Calculate Answer = A + B.

- Step 4: Display Answer.

- Step 5: Stop.

Algorithms

Symbol	Symbol Name
⬭	Terminal
▭	Process
◇	Decision
▱	Input / Output
○	Connector
→	Flow line

A flowchart is a graphical representation of algorithms, workflow or process.

Each flowchart represents a solution to a given problem definition.

Psuedocode

- Pseudocode is an artificial and informal language that helps programmers develop algorithms.

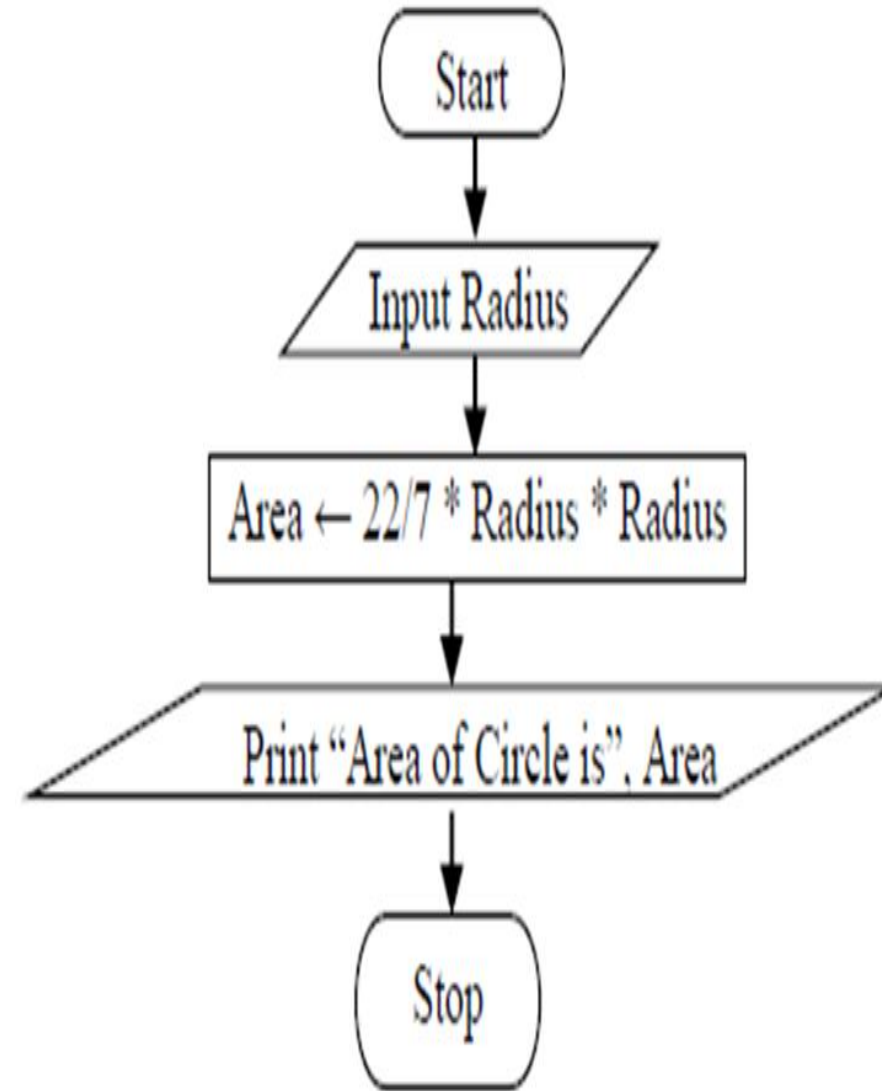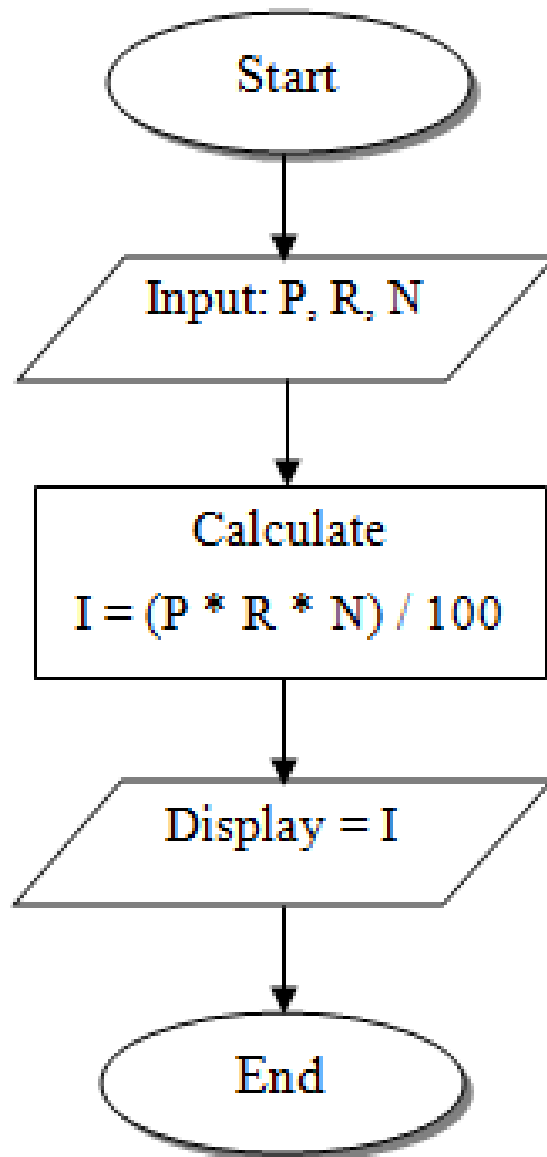- Pseudocode is a "text-based" detail (algorithmic) design tool.

Eg Simple Pseudo Code

```
If student's grade is greater than or equal to 60
    Print "passed"
Otherwise
    Print "failed"
```

Flow Chart

Algorithm Example

Algorithm to find largest number from given three numbers .

- Step1: Start
- Step2: Read three numbers into A, B and C variables
- Step3: If (A>=B) and (A>=C) then Max=A
- Step4: If (B>=A) and (B>=C) then Max=B
- Step5: If (C>=A) and (C>=B) then Max=C
- Step6: Print Max
- Step7: End