ALGORITHM , FLOWCHART, PSEUDOCODE

ALGORITHM

- An algorithm is a sequence of steps to solve a particular problem.

Advantages of algorithm

- It is a step-wise representation of a solution to a given problem, which makes it easy to understand.
- An algorithm uses a definite procedure.
- It is not dependent on any programming language, so it is easy to understand for anyone even without programming knowledge.
- Every step in an algorithm has its own logical sequence so it is easy to debug

HOW TO WRITE ALGORITHMS?

Step 1 **Define your algorithms input**

Step 2 **Define the variables**

Step 3 **Outline the algorithm's operations**

Step 4 **Output the results of your algorithm's operations**

Example

Algorithm to find the largest of three numbers:

1. Start the program
2. Read the three numbers to be compared, as A, B and C.
3. Check if A is greater than B.
4. If true, then check if A is greater than C. If true, print 'A' as the greatest number.
5. If false, print 'C' as the greatest number.
6. If Step 4 is false, then check if B is greater than C. If true, print 'B' as the greatest number.
7. Else print 'C' as the greatest number.
8. Stop the program.

Find the sum of two numbers

Step-1 Start

Step-2 Input first numbers say A

Step-3 Input second number say B

Step-4 SUM = A + B

Step-5 Display SUM

Step-6 Stop

Swap Two Numbers using Temporary Variable

Step-1 Start

Step-2 Input Two Numbers Say NUM1,NUM2

Step-3 Display Before Swap Values NUM1, NUM2

Step-4 TEMP = NUM1

Step-5 NUM1 = NUM2

Step-6 NUM2 = NUM1

Step-7 Display After Swap Values NUM1,NUM

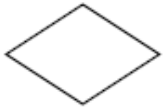
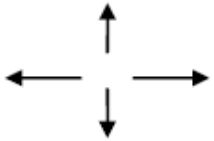
Step-8 Stop

FLOWCHART

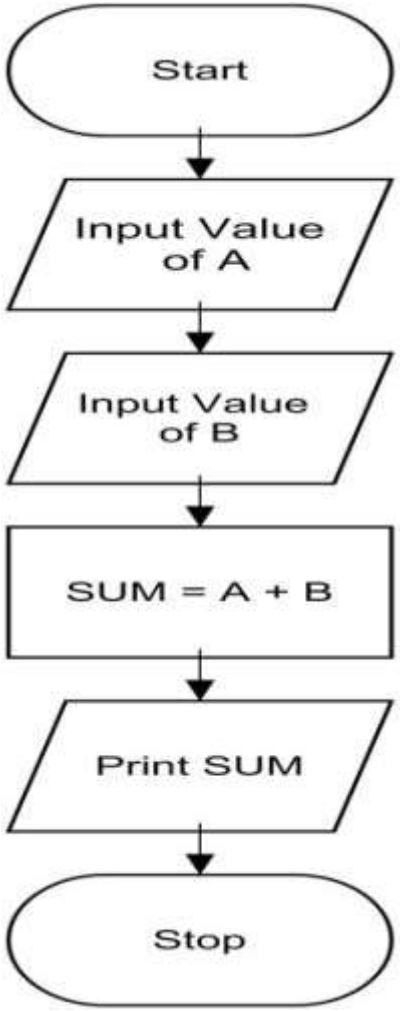
- **Flowchart is diagrammatic /Graphical representation of sequence of steps to solve a problem.**
- Flowchart uses different symbols to design a solution to a problem. It is another commonly used programming tool.
- By looking at a Flowchart one can understand the operations and sequence of operations performed in a system.
- Flowchart is often considered as a blueprint of a design used for solving a specific problem.

Advantages of flowchart:

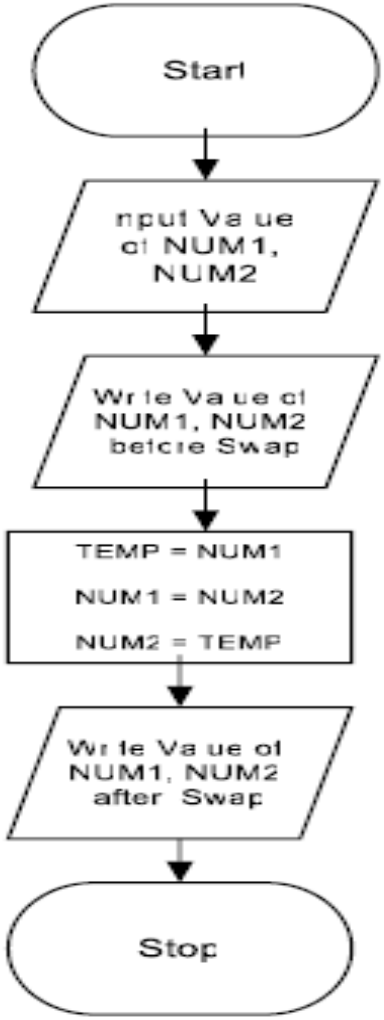
- Flowchart is an excellent way of communicating the logic of a program.
- Easy and efficient to analyze problem using flowchart.
- During program development cycle, the flowchart plays the role of a blueprint, which makes program development process easier.
- After successful development of a program, it needs continuous timely maintenance during the course of its operation. The flowchart makes program or system maintenance easier.
- It is easy to convert the flowchart into any programming language code

Symbol Name	Symbol	function
Oval		Used to represent start and end of flowchart
Parallelogram		Used for input and output operation
Rectangle		Processing: Used for arithmetic operations and data-manipulations
Diamond		Decision making. Used to represent the operation in which there are two/three alternatives, true and false etc
Arrows		Flow line Used to indicate the flow of logic by connecting symbols
Circle		Page Connector

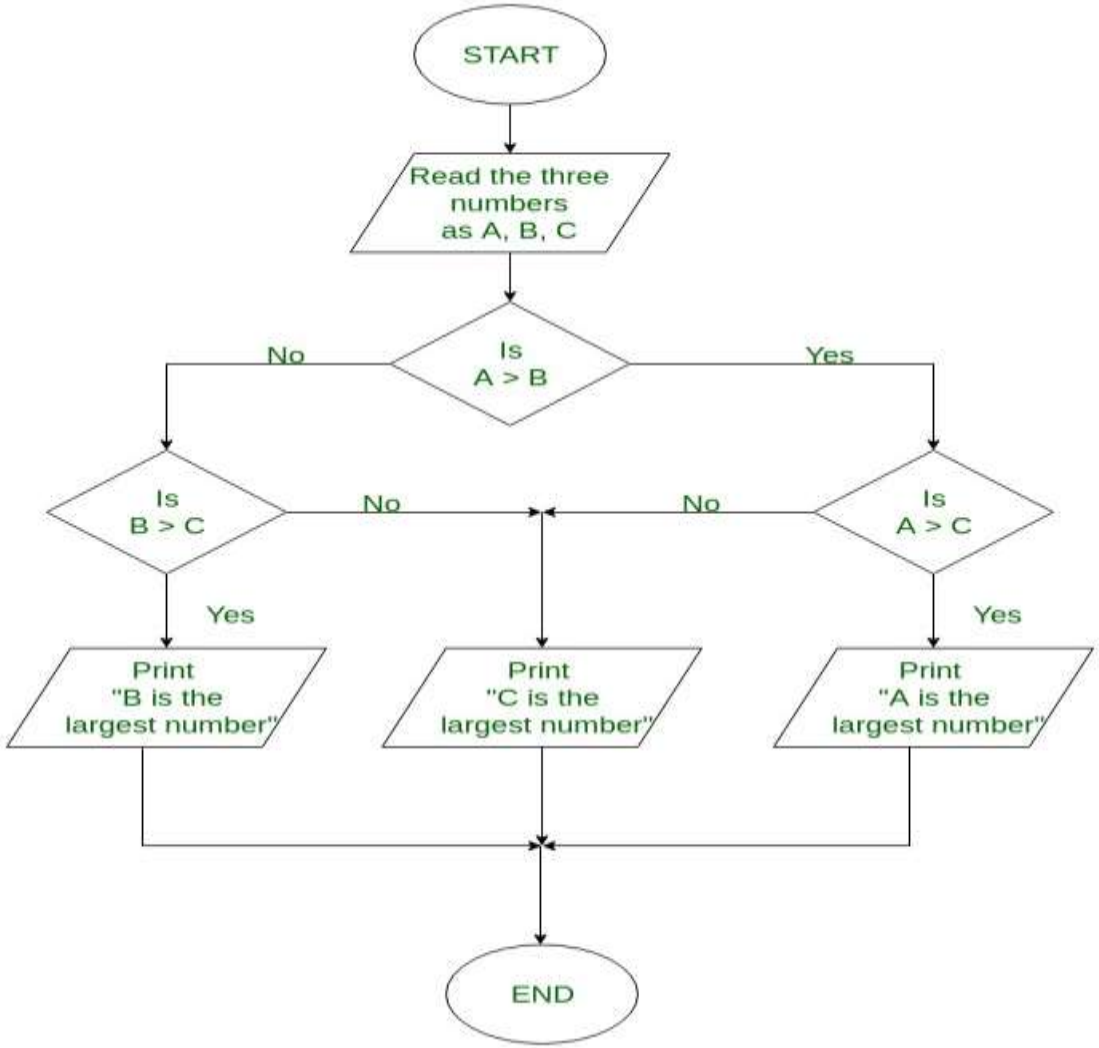
Flowchart for Sum of Two Numbers



Flowchart for Swapping of Two Numbers



Flowchart for Greatest of 3 Numbers



Pseudocode

- It uses short phrases to write code for programs before actually create it in a specific language. It focuses only on the logic of the program

Pseudo code for Greatest of 3 Numbers

InputN1, N2, N3

if (N1>N2) then

if (N1>N3) then

MAX :N1[N1>N2, N1>N3]

Else

MAX:N3[N3>N1>N2]

Endif

else

if (N2>N3) then

MAX : N2[N2>N1, N2>N3]

Else

MAX:N3[N3>N2>N1]

Endif

Endif

Print “The largest number is”, MAX