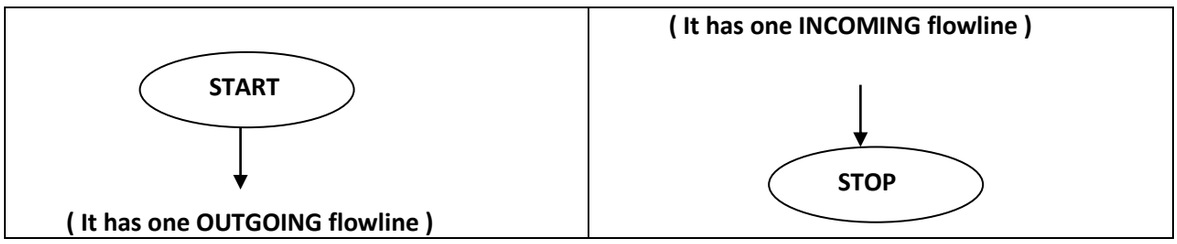
Introduction to Flowchart

What is a Flowchart ?

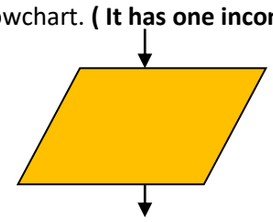
Flowchart is a graphical representation of an algorithm. Programmers often use it as a program-planning tool to solve a problem. It makes use of symbols which are connected among them to indicate the flow of information and processing.The process of drawing a flowchart for an algorithm is known as "flowcharting".

Basic Symbols used in Flowchart Designs.

1. Terminal: The oval symbol indicates Start, Stop and Halt in a program's logic flow. A pause/halt is generally used in a program logic under some error conditions. Terminal is the first and last symbols in the flowchart.

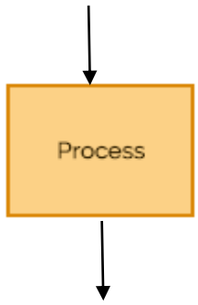


2. Input/Output: A parallelogram denotes any function of input/output type. Program instructions that take input from input devices and display output on output devices are indicated with parallelogram in a flowchart. **(It has one incoming flowline and one outgoing flowline**)



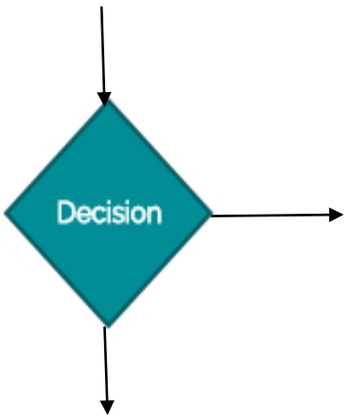
3.Processing: A box represents arithmetic instructions. All arithmetic processes such as adding, subtracting, multiplication and division are indicated by action or process symbol.

(It has one incoming flowline and one outgoing flowline)



4. Decision : Diamond symbol represents a decision point. Decision based operations such as yes/no question or true/false are indicated by diamond in flowchart.

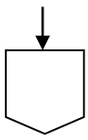
(It has one incoming flowline and two outgoing flowlines)



5.Flow lines: Flow lines indicate the exact sequence in which instructions are executed. Arrows represent the direction of flow of control and relationship among different symbols of flowchart.

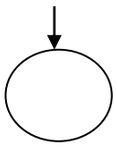
6. Off-page connector

It connects the flowchart continued in **next page** . **It has one incoming flowline .**

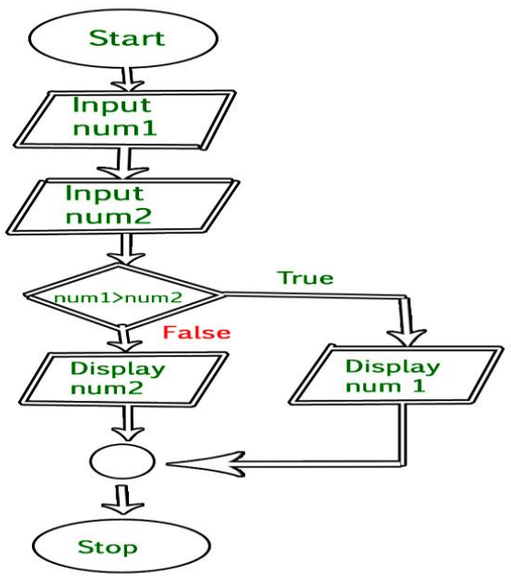


7. On-page connector

It connects the flowchart in same page. It has one incoming flowline



Example : Draw a flowchart to input two numbers from user and display the largest of two numbers

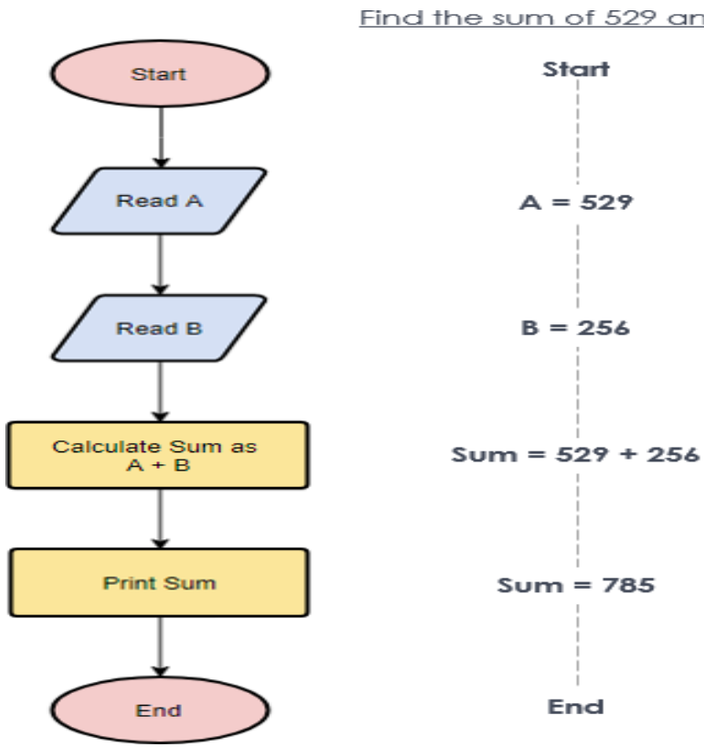


Q 1: How are flowcharts used in computer programming?

Answer: A computer program consists of many processes and flows. Flowcharts are used to visualize the processes and make them understandable for non-technical people.They are also used to visualize algorithms and comprehend pseudo-code which is used in programming.

Flowchart Example – Simple Algorithms

A flowchart can also be used in visualizing algorithms, regardless of its complexity. Here is an example that shows how flowchart can be used in showing a simple summation process.



ADVANTAGES OF FLOWCHART

• Communication: Flowcharts are better way of communicating the logic of a system to all concerned or involved.

• Effective analysis: With the help of flowchart, problem can be analysed in more effective way therefore reducing cost and wastage of time.

• Proper documentation: Program flowcharts serve as a good program documentation, which is needed for various purposes, making things more efficient.

• Efficient Coding: The flowcharts act as a guide or blueprint during the systems analysis and program development phase.

• Proper Debugging: The flowchart helps in debugging process.

• Efficient Program Maintenance: The maintenance of operating program becomes easy with the help of flowchart. It helps the programmer to put efforts more efficiently on that part

Disadvantages Of FLOWCHARTS:

• Complex logic: Sometimes, the program logic is quite complicated. In that case, flowchart becomes complex and clumsy. This will become a pain for the user, resulting in a waste of time and money trying to correct the problem

• Alterations and Modifications: If alterations are required the flowchart may require re-drawing completely. This will usually waste valuable time.

• Restructuring: As the flowchart symbols cannot be typed, reproduction of flowchart becomes a problem.

Questions

1. Draw a flowchart to input a side of square and print area of square.

2. Draw a flowchart to accept radius of a circle. Calculate and print the area of circle using.

Area = 22/7 *R^2

3. Design a flowchart to accept the age of a person and print whether the person is eligible to vote or not.

4. Design a flowchart to accept a number and print whether the number is an **Even** number or an **Odd** number.

5. Draw a flowchart to accept any three number to display the sum and average of the three numbers.

(Instruction : To be drawn on the computer copy)

*****END*****