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# Algorithm and flowchart



# ALGORITHM

Algorithm is a set of well-defined instructions in sequence to solve a problem.

It is a step by step Procedure for solving a Problem.

Definition Algorithm is a sequence of instructions to be carried out in order to solve a problem.

## Example

Step 1. Start

Step 2. Let  $a=10$ ,  $b=20$

Step 3  $c=a+b$

Step 4 Print  $c$

Step 5 Stop

Characteristics of an Algorithm :- An algorithm must have following characteristics:

1. finiteness: An algorithm should have finite number of steps.
2. Input: An algorithm may have many inputs and no inputs at all.
3. Output: It should result at least one output.
4. Definiteness: Each step must be clear, well defined and precise.
5. Effectiveness: Each step must be simple.

## Advantages of Algorithms.

- ① It is easy to understand.
- ② Algorithm is a step wise representation of a solution to a given problem.
- ③ In Algorithm the problem is broken down into smaller steps.
- ④ It is not dependent on any programming language.
- ⑤ It reduced the complexity of problem.

## Disadvantages of Algorithms.

- ① Algorithms is Time consuming.
- ② Big tasks are difficult to put in Algorithms.
- ③ Difficult to show branching and looping.

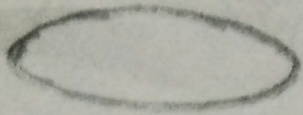
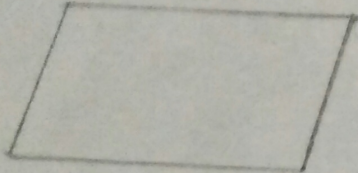
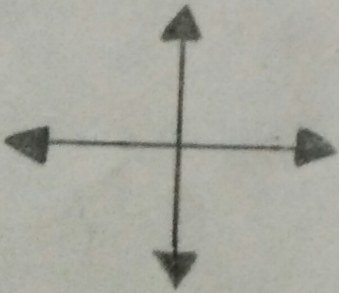
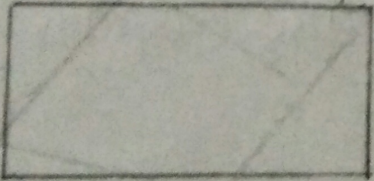

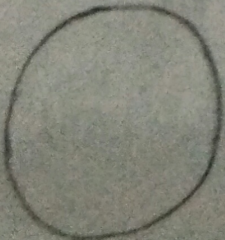
## FLOWCHART

Flowchart is the Graphical representation of any program is called flowchart.

⇒ A flowchart is a diagrammatic representation of an algorithm.

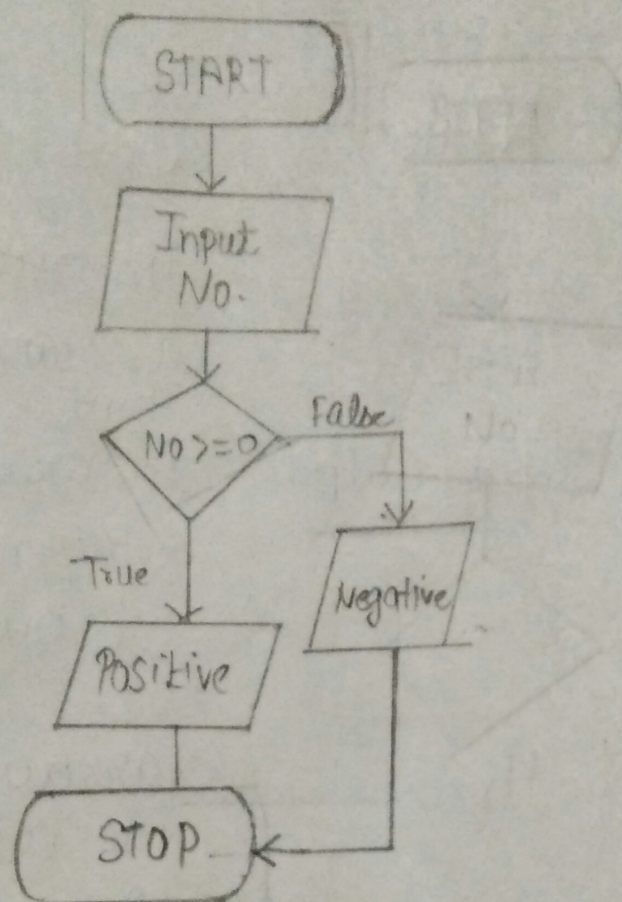
The Process of drawing a flowchart for an algorithm is known as "flowcharting."

There are some standard Graphics that are used in flowchart as following.

Symbol	Name	Function
	Start/end	An oval represents a start or end point.
	Input/Output	A parallelogram represents input or output.
	Arrows	Arrow shows the direction of the flow of control.
	Process	A Rectangle represents a process.
	Decision	A diamond indicates a decision.
	Connector	Connector Connect one part of the flowchart to another.

## Example

Draw a flowchart to check whether number is positive or negative.



## Advantages of flowcharts

- It represents the data flow.
- It provides a clear overview of entire program.
- It helps in debugging process.
- It provides documentation of a process.

## Disadvantages of flowcharts

Flowcharts are time consuming.

It is difficult to draw the proper symbols.

If modifications are required, then flowchart may require re-drawing completely.

## Algorithm

## Flowchart

1) Algorithm is step by step procedure to solve the problem.

2) Algorithm is complex to understand.

3) In Algorithm plain text are used.

4) Algorithm is difficult to construct.

5) Algorithm does not follow any rules.

6) Easy to debug errors.

7) It is difficult to make algorithm as compared to flowchart.

8) Example

Step 1: Start

Step 2: let  $a=2$ ,  $b=3$

Step 3:  $C=a+b$

Step 4: Print C

Step 5: Stop.

1) It is Graphical representation of an algorithm.

2) Flowchart is easy to understand.

3) In flowchart symbols / shapes are used.

4) Flowchart is simple to construct.

5) Flowchart follows rules to be constructed.

6) Difficult to debug errors.

7) It is easy to make flowchart.

8) Example

