

Computer science

Class: 10th

Date: 12-06-2020

Week: 2nd

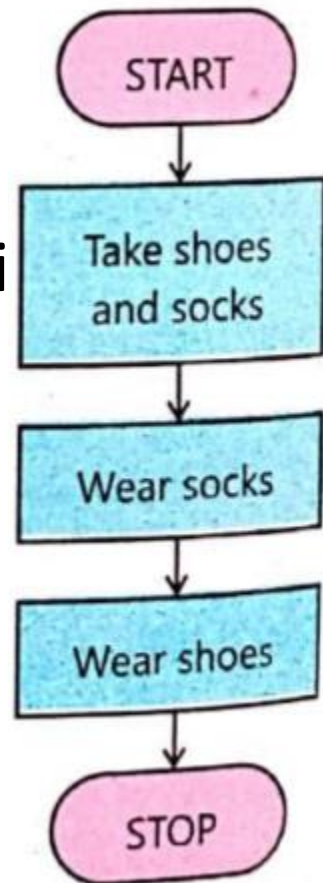
Ch#01

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FLOWCHART

- It is a diagrammatic representation of algorithm.
- It describes what operations are required to solve a problem.
- It is helpful to know about the steps used to solve a problem.
- We use symbols for each step, and these symbols are connect with the help of arrows to show the flow of processing.

For example: A simple problem of wearing shoes with socks.



Importance of flowchart

- It illustrates the sequence of operations to be performed to solve a problem in the form of a diagram.
- Computer programmers first draw it before writing program.
- It provides an easy way to analyze and find solutions of the problems.
- It helps in finding and removing errors.
- It is more effective to visualize a solution graphically than a text.
- It is also a good way to communicate the solution of a problem to other people.

Steps for drawing flowchart

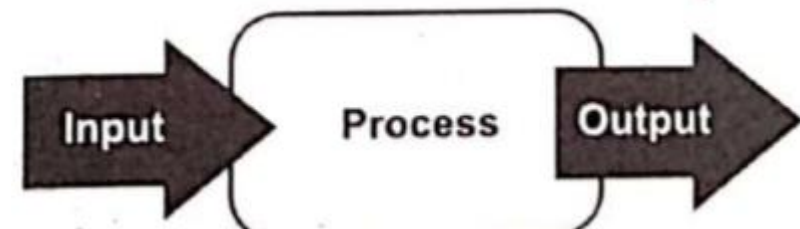
- Input to the flow chart
- Type of processing required
- Decision to be taken
- The output to be produced after processing

Input:

Input means taking data from the user. It is important to know, how many and what type of inputs are required.

Processing:

It is used for performing calculations and storing the results of calculations. These may include increasing/decreasing a value. adding/multiplying/dividing two values etc.



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Decision:




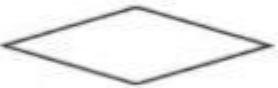


- To determine whether a statement is true or false, and taking appropriate steps according, is called decision making.
- It decides which control structure (sequence, repetition or selection) are to be applied for the solution of the problem.

Output:

It is used to display information and usually this information exhibits the processed results.

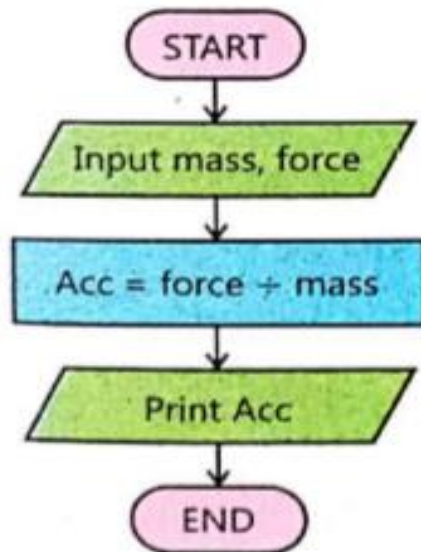
Flowchart symbols

- Flowcharts explain a process clearly through symbols and text. They use special shapes to represent different types of actions or steps in a process. Some of the most widely used symbols in flowcharts.

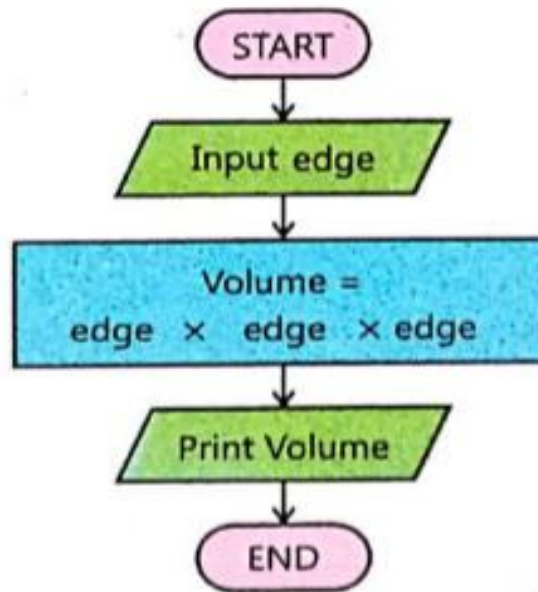
Symbol	Name	Description
	Flow line	It is used to determine the flow of steps in a flowchart.
	Terminal	It indicates start and end of a flowchart.
	Process	It represents operations to change values.
	Decision	It shows a conditional operation that determines which one of the two paths to take. The operation is commonly a yes/no question or a true/false test.
	Input/Output	It indicates the input of data from user or displaying results to user.
	Connector	If a flowchart doesn't fit on a page, then we use connector to connect parts of a flowchart on different pages.

Examples.....

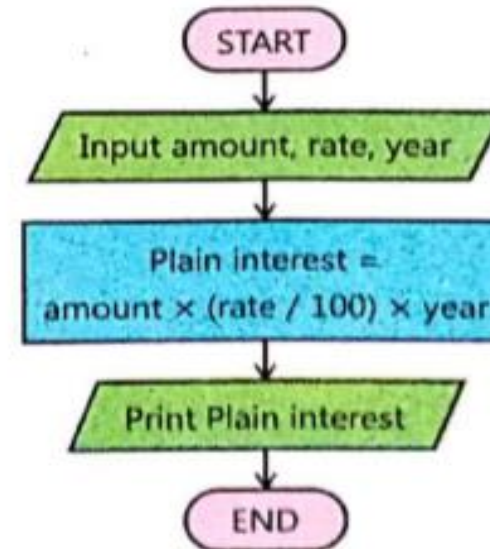
2. To find acceleration of a moving object with given mass and the force applied.



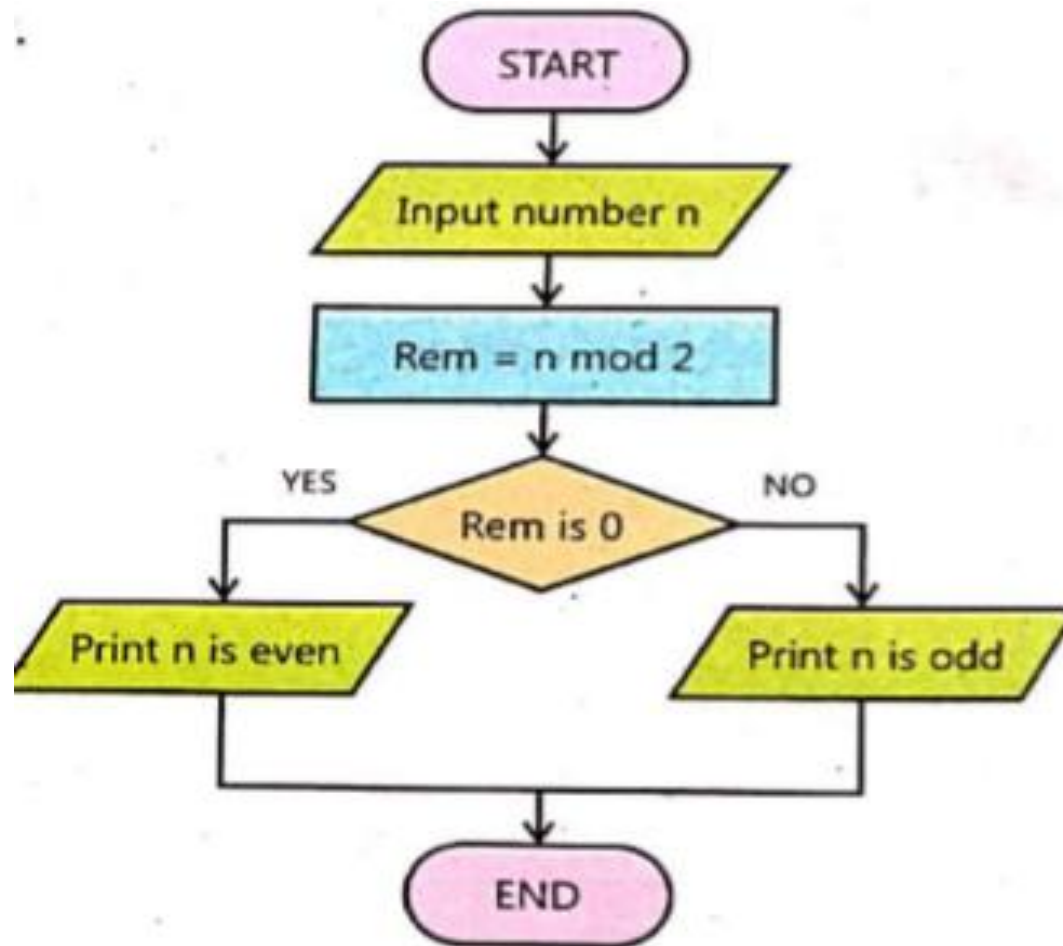
3. To find the volume of cube.



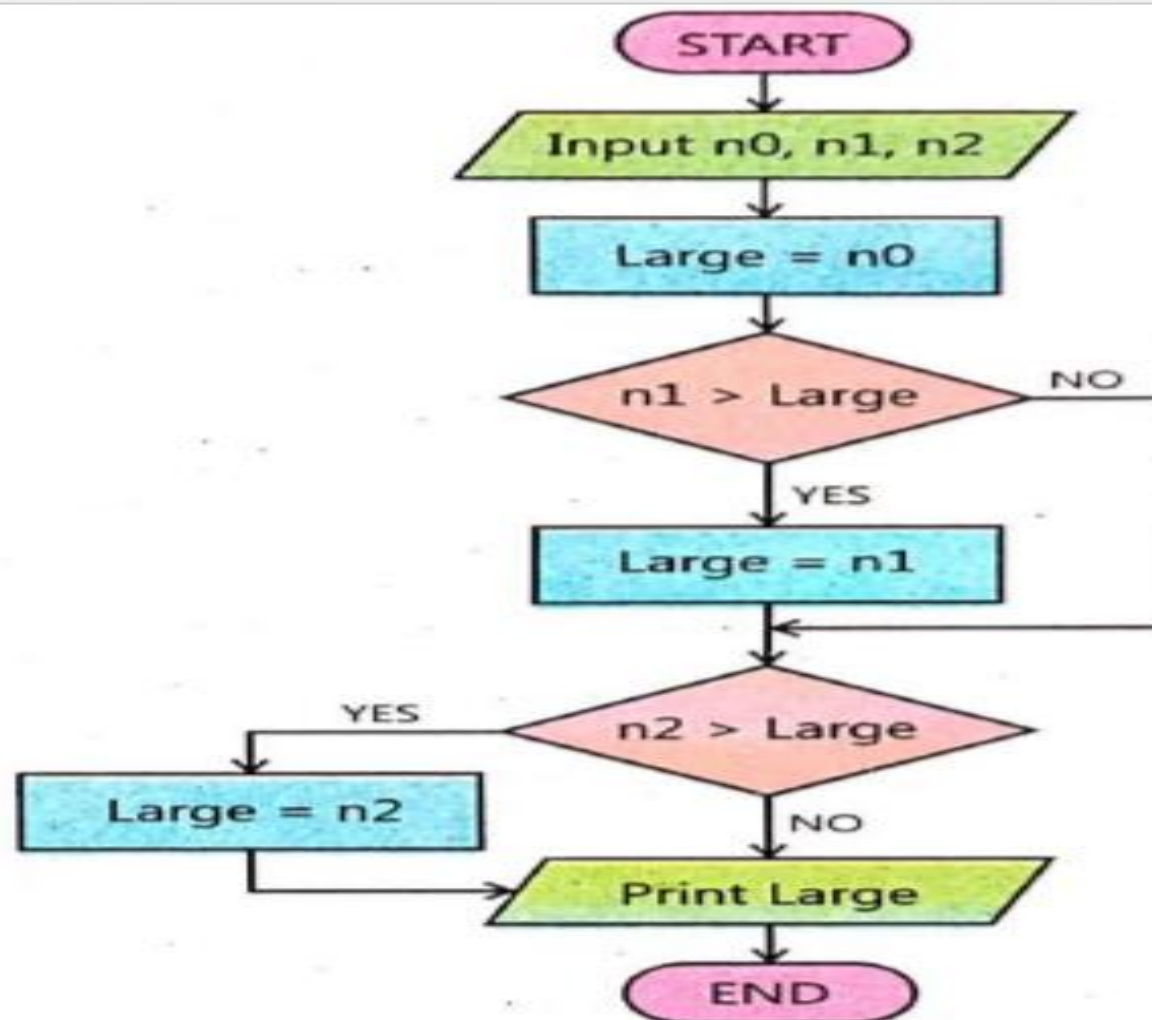
4. To find plain the interest on an amount.



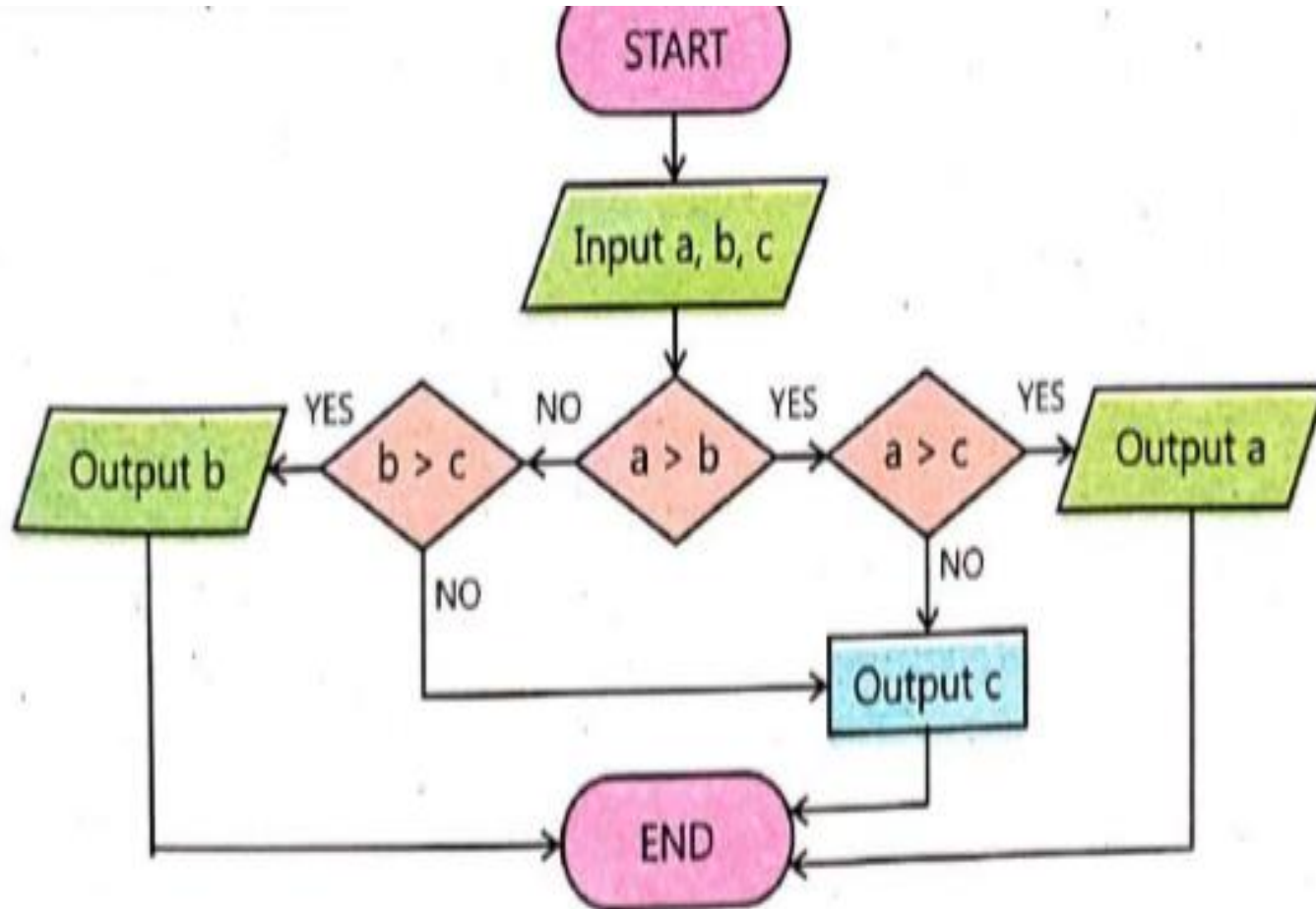
To determine whether a given number is odd or even.(conditional)



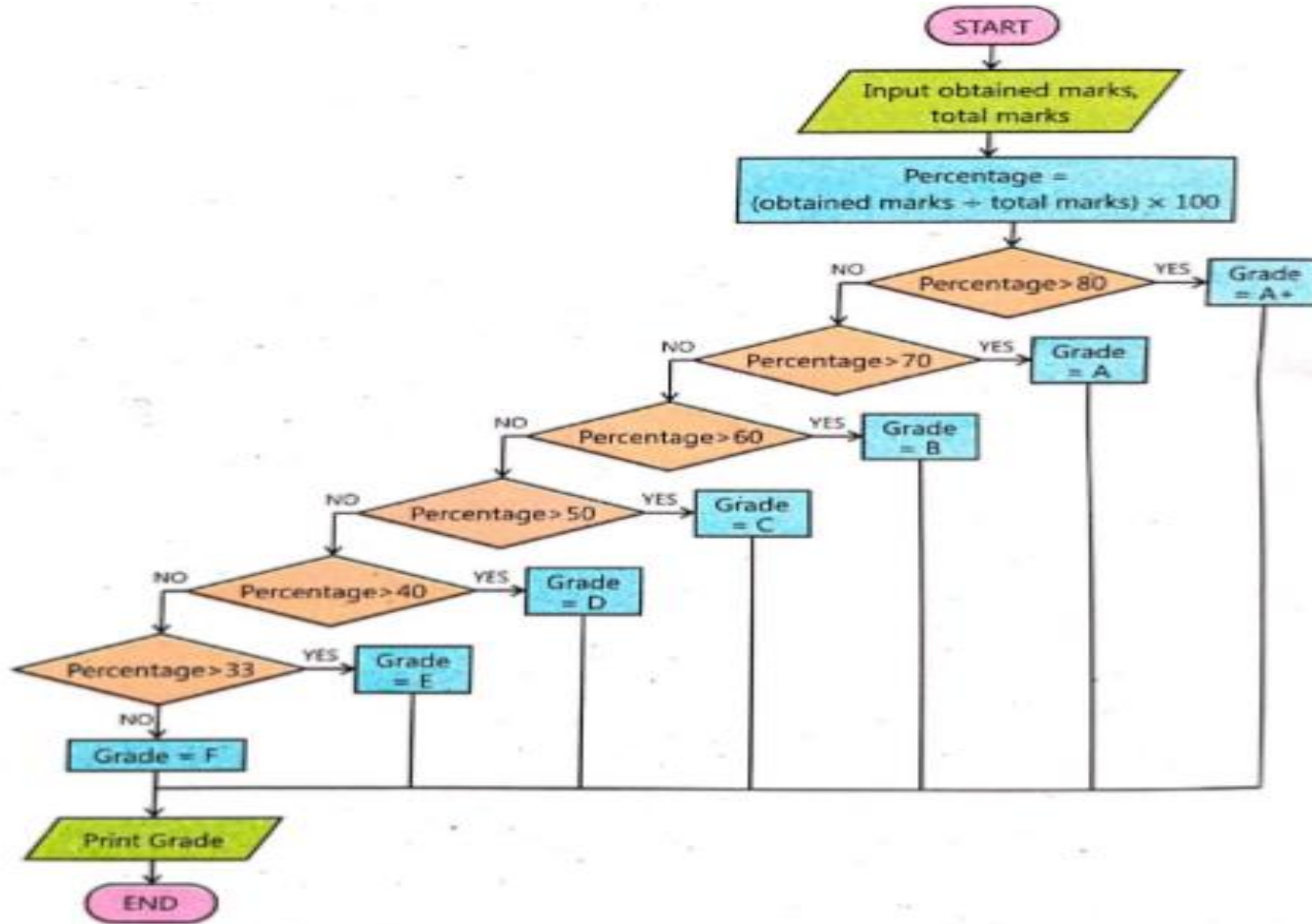
Flowchart to find the largest of three unequal numbers.



An other solution...

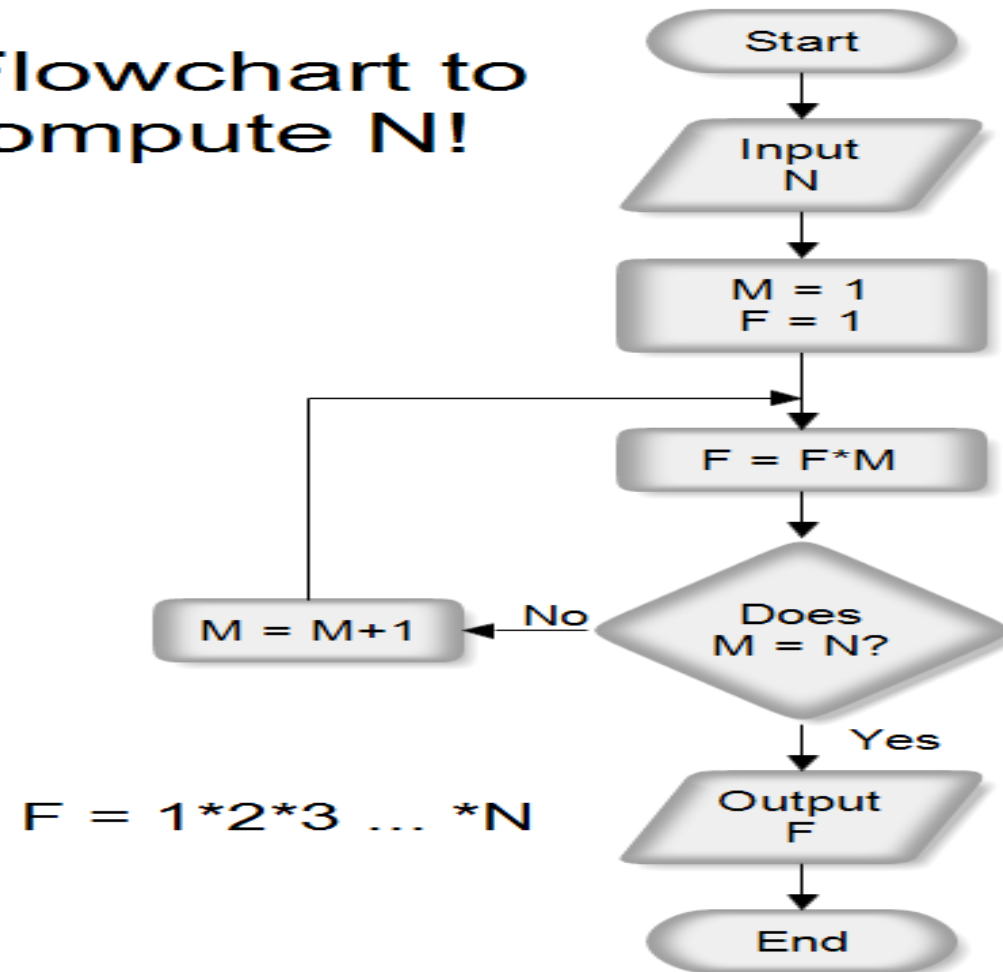


To assign grade to a subject based on total marks and obtained marks.



Flowchart to find factorial of a number.

A Flowchart to Compute $N!$



Difference between an algorithm and flowchart...

- It is just like the difference between story and movie.

S.NO	ALGORITHM	FLOWCHART
1.	Algorithm is step by step procedure to solve the problem.	Flowchart is a diagram created by different shapes to show the flow of data.
2.	Algorithm is complex to understand.	Flowchart is easy to understand.
3.	In algorithm plain text are used.	In flowchart, symbols/shapes are used.
4.	Algorithm is easy to debug.	Flowchart it is hard to debug.
5.	Algorithm is difficult to construct.	Flowchart is simple to construct.
6.	Algorithm does not follow any rules.	Flowchart follows rules to be constructed.
7.	Algorithm is the pseudo code for the program.	Flowchart is just graphical representation of that logic.

Advantages of a Flowchart

- Easy to draw
- Easy to understand problem solving
- Easy to identify errors (if any)
- Easy to observe flow from one step to an other.

Disadvantages of a Flowchart

- More time is required to draw a flowchart.
- Modifying a flowchart is not very easy every time.
- It is not suitable for very large problem.

Advantages of an Algorithm

- Easy to write
- Techniques to write an algorithm are easy to understand
- To solve a large problem, algorithms are helpful.

Disadvantages of an algorithm

- Modifying an existing algorithm is not very easy every time.
- Showing the flow from one step to the other is not very easy.
- Usage of **go to** make it difficult to identify errors.

Home work and Test:

Q1. Note down and draw all the flowcharts on your computer notebook.(pg# 21-27)

Q2. Solve the all exercise questions on your note book. (pg #28-29)

Note: you can take help from lectures and given notes to solve the exercise questions.

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Or whatsapp at 0347-7762237.