

Programming and Problem Solving through Python Language

O Level / A Level

Chapter -1 : Introduction to Programming

What is a flowchart

A flowchart is a pictorial representation of the steps that are involved in the procedure.

A flowchart also shows the logical sequence in which the steps are to be performed.

A flowchart consists of boxes called the symbols and arrows called the flow lines.

The box depicts the process and the flow line indicates the next step to be performed.

Elements of a flow chart

Terminal Box

This symbol is used to indicate the beginning or the end of a flowchart.



When this symbol is used for START, no flow lines can enter it.

Only one flow line can leave this box.

When the terminal box is used for STOP, no flow lines can leave this box and any number of flow lines can enter this box.

There can be only one START symbol in each flowchart.

However there can be more than one STOP symbol in a flowchart.

Process Box

The shape of the processing box is a rectangle.



This symbol represents one or more instructions that perform a processing function in a program.

Examples of processing functions are addition, subtraction, multiplication, division or moving data to storage or assigning a value.

Input/output Box

The input/output box is represented by a parallelogram.



This symbol indicates any function of an input/output device such as keyboard or printer.

An input/output box makes data available for processing or displays the result of processing on the screen.

Decision Box

The shape of a decision box is a rhombus.



This box is used when two quantities need to be compared.

The decision box is also used for a testing condition.

Decision box results in two alternative answers to the condition: true or false.

The equality, less than, less than or equal to, greater than, greater than or equal to, and not equal to operators can be used in the decision box.

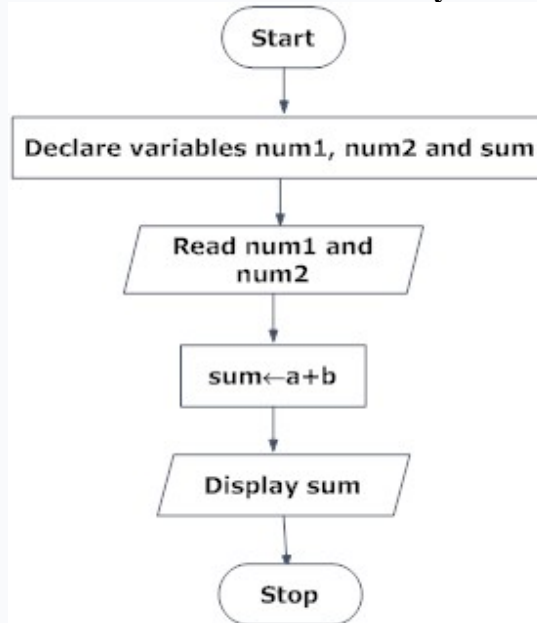
Flow line

Used to indicate the flow of logic by connecting symbols.

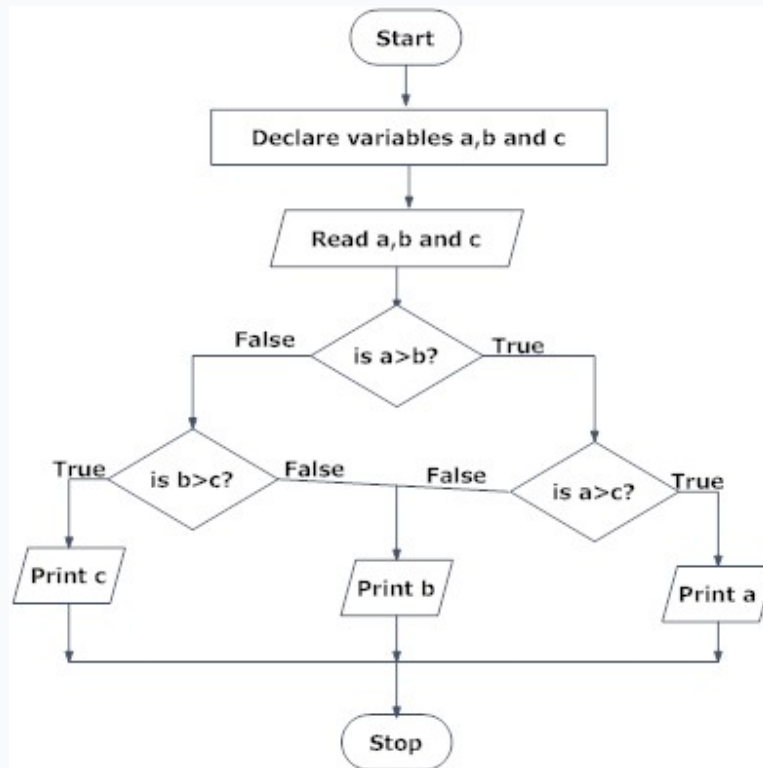


Flowchart for calculate factorial value of a number

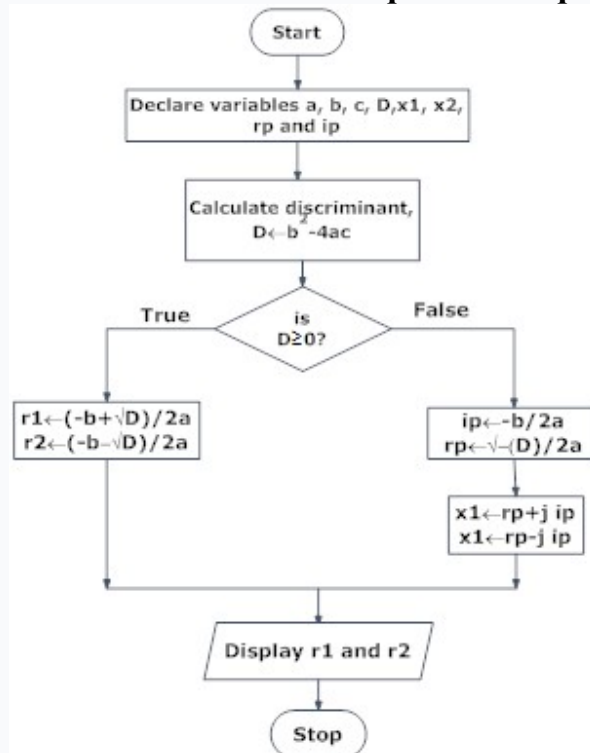
1. Draw a flowchart to add two numbers entered by user.



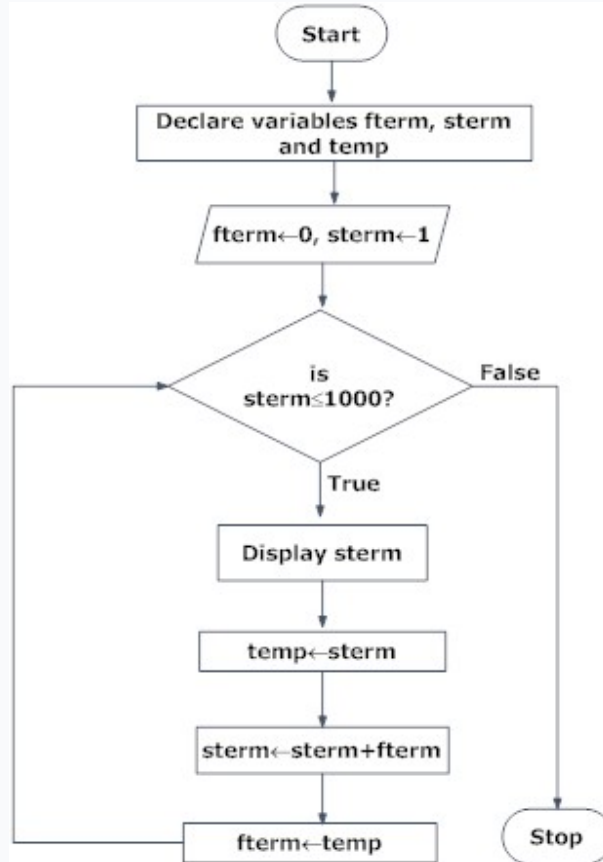
2. Draw flowchart to find the largest among three different numbers entered by user.



3. Draw a flowchart to find all the roots of a quadratic equation $ax^2+bx+c=0$



4. Draw a flowchart to find the Fibonacci series till term ≤ 1000 .



Assignment

Q. 1. Draw an flowchart to find the area of a rectangle.

$$\text{Area} = \text{Length} \times \text{Width}$$

Q.2 Draw an flowchart to find the area of Circle.

$$\text{Area} = \frac{22}{7} * \text{radius} * \text{radius}$$

Q.3 Draw an flowchart to calculate the Simple Interest , after reading the Principal Amount , Rate of Interest and Time .