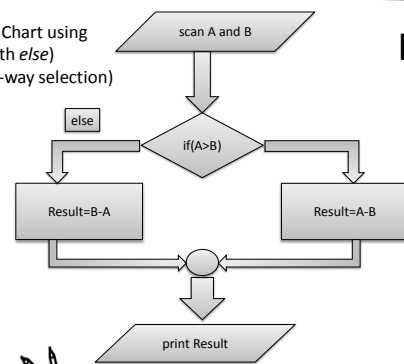## What is Flowchart — ITC

➢ A **flowchart** is a type of diagram that represents an algorithm or process, showing the steps as boxes of various kinds, and their order by connecting these with arrows. This diagrammatic representation can give a step-by-step solution to a given problem.
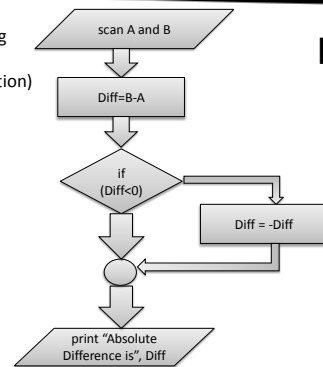

Uses of Flowchart — ITC

Flowchart are being used:
➢ To develop understanding of how a process is done.
➢ To study a process for improvement.
➢ To communicate to others how a process is done.
➢ When better communication is needed between people involved with the same process.
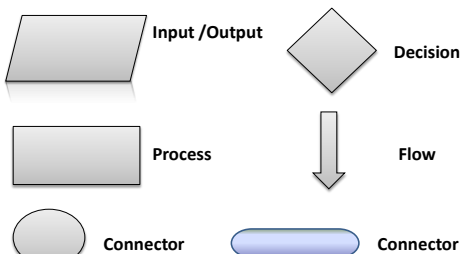➢ To document a process.
➢ When planning a project.

Flow Chart Symbols — ITC

Input /Output

Decision

Process

Flow

Connector

Connector

Flow Chart using *if* (with *else*) (Two-way selection) — ITC

scan A and B

else

if(A>B)

Result=B-A

Result=A-B

print Result

Flow Chart using *if* (without *else*) (One-way selection) — ITC

scan A and B

Diff=B-A

if (Diff<0)

Diff = -Diff

print "Absolute Difference is", Diff

Practice of One-Way IF — ITC

➢ Write a program that gives absolute of a number input by user.
➢ Write a program that requests an integer value representing the month of the year and gives the number of days in that month.
➢ Write a program that reads a single digit value (0-9) and then prints the number as a literal string. For example, if input is 7, then the output should be word "seven".

Practice of One-Way IF — ITC

➢ Write a program that mimics a calculator. The program should take as input two integers and the operation to be performed. It should then output the numbers, the operator, and the result. (For division, if the denominator is zero, output an appropriate message.) Use 1 for Addition, 2 for Subtraction, 3 for Multiplication, and 4 for Division. A sample run follow:

Practice of One-Way IF — ITC

➢ Input three values a, b and c and print the roots, if real, of the quadratic equation: $ax^2 + bx + c = 0$

➢ **Sample Input 1:** if input is a=1, b=1, c=-6 the output should be "Roots of the equation are -3 and 2"

➢ **Sample Input 2:** if input is a=1, b=0, c=9 the output should be "Sorry! The roots are not real may be imaginary or complex"

Practice of One-Way IF — ITC

Sample run:
➢ Enter 1st number : 13
➢ Enter 2nd number: 5
➢ Enter operator: 3
➢ 13 * 5 = 65

Practice of One-Way IF — ITC

➢ Input three values a, b and c and print the roots, if real, of the quadratic equation: $ax^2 + bx + c = 0$. Display the root if the values of a, b, c do not cause any problem for computation formula.

➢ Write a program that takes a point (x, y) from the user and find where does the point lies.

Practice of One-Way IF — ITC

➢ Write a program that reads operator code and two integers. If the operator code is between 1-6 to map the six relational operators (<, >, <=, >=, ==, !=), then two integers are compared using that operator and a message describing the result is printed.

Sample run:
➢ != 33 77
➢ 33 is not equal to 77

Home Task Questions — ITC

1. Input a number form the user, if it is between 1 and 100, display "In Range" otherwise display "Out of Range".

2. Input a number form the user, if it is between 10 and 99, display "two" otherwise display "not two".

Practice of Joining Conditions ITC

3. Write a program that inputs a number and displays its number of digits. Assume that user will enter a positive number less than 1000.

4. Write a program that inputs a number and displays its number of digits. Assume that user will enter a positive number less than 10000.

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Practice of Joining Conditions ITC

7. Write a program that takes a point (x, y) from the user and find where does the point lies.

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Practice of Joining Conditions ITC

5. Write an if-else statement that outputs the word "Warning" provided that either the value of the variable temperature is greater than or equal to 100, or the value of the variable pressure is greater than or equal to 200, or both. Otherwise, the if-else statement outputs the work "OK". The variables temperature and pressure are both of type Integer.

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Practice of Joining Conditions ITC

6. Input marks from a user, if marks are greater than 85 display "Excellent", if the marks are between 80 and 84 (both inclusive) display "Very Good", if the marks are between 75 and 79 (both inclusive) display "Good", if the marks are between 70 and 74 (both inclusive) display "Fair", if the marks are between 65 and 69 (both inclusive) display "Satisfactory", otherwise display "You may not get the degree with such marks".

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