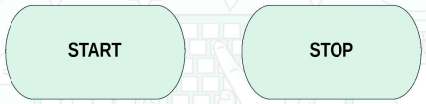
Flowchart

Introduction

- A visual representation of the decisions that are needed to be taken, and the sequence of steps to be executed, in order to accomplish a task.
- Purpose: To make the logic of the program clear using a visual representation.

Flowchart Components – Terminals

- Represented by rounded rectangles
- Indicate a start or an end point



Flowchart Components – Input/Output

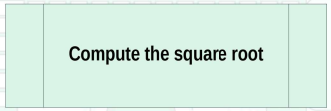
- Represented by parallelograms
- Indicate an input or output operation at a certain step
- Also called “Data” in some conventions

Flowchart Components – Process

- Represented by rectangles
- Indicates any process such as
  - mathematical computation
  - variable assignment

Flowchart Components – Modules

- A complex step in the main flowchart can be provided in a seperate flowchart
- That seperate flowchart can be included as a module in the main flowchart.
- Sometimes called a “predefined process”

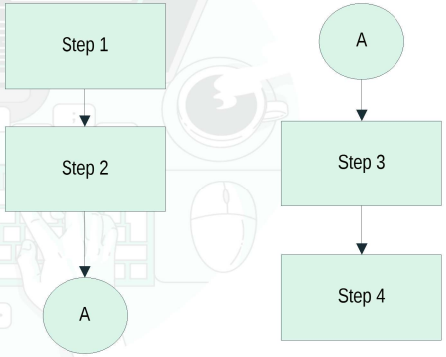


Flowchart Components – Decision Making

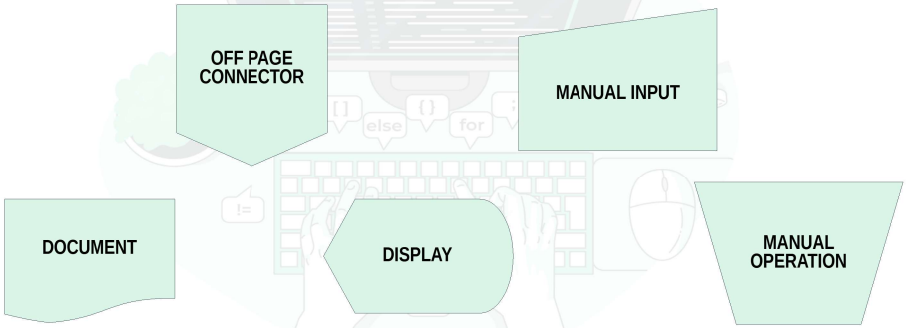
- Represented by a diamond.
- A decision is made at this point, and the flow takes one of the multiple routes specified by the decision node.

Flowchart Components – Connector

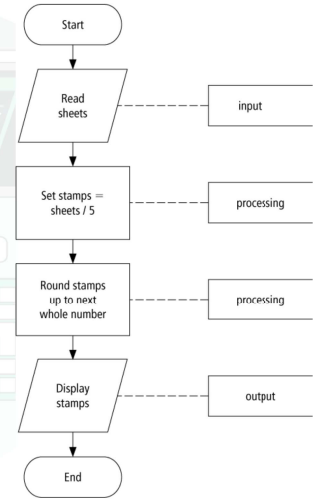
- Can be used to connect two or more flowcharts, or different parts of the same flowchart together in an elegant way.
- Reduces clutter and improves readability.



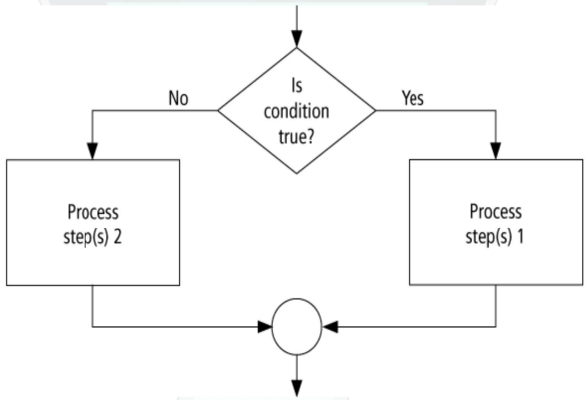
Flowchart Components – Others



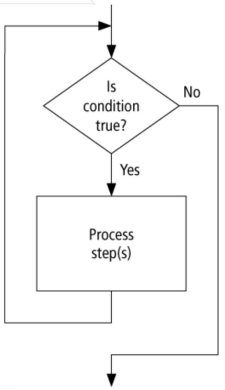
Sequence Flow Chart



Selection Flow Chart

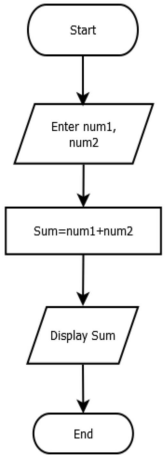


Looping Flowchart



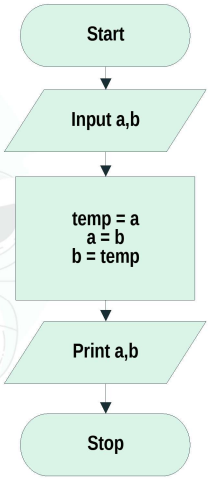
Flowchart Example 1

- Addition of two numbers
- Step 1: Start
- Step 2: Read values num1 and num2
- Step 3: Add num1 and num2 and assign the result to sum.
  - sum ← num1+num2
- Step 4: Display sum
- Step 5: Stop



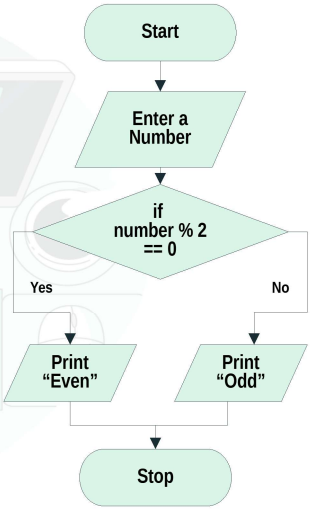
Flowchart Example 2

- Swapping two numbers.
- Step 1: Start
- Step 2: Read two values a and b
- Step 3: temp=a; a=b; b=temp
- Step 4: Display a and b
- Step 5: Stop



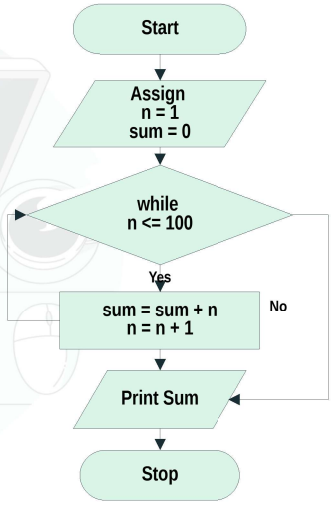
Flowchart Example 3

- Print odd or even.
- Step 1: Start
- Step 2: Read a number
- Step 3: if number %2 == 0: Print " Even"
- Step 4: else: Print "Odd"
- Step 5: Stop



Flowchart Example 4

- Sum from 1 to 100
- Step 1: Start
- Step 2: Initialize n=1, sum=0
- Step 3: For each value of n<=100
  - sum=sum+n
  - n=n+1
- Step 4: Print sum
- Step 5: Stop



Try these flowcharts yourself ...

- Calculate area of triangle and square
- Find the greatest of two numbers
- Find if a person is eligible to vote
- Convert Celsius to Fahrenheit
- Check if a number is Positive or Negative
- Sum the even numbers from 1 to 100
- Display the even numbers from 1 to 100