

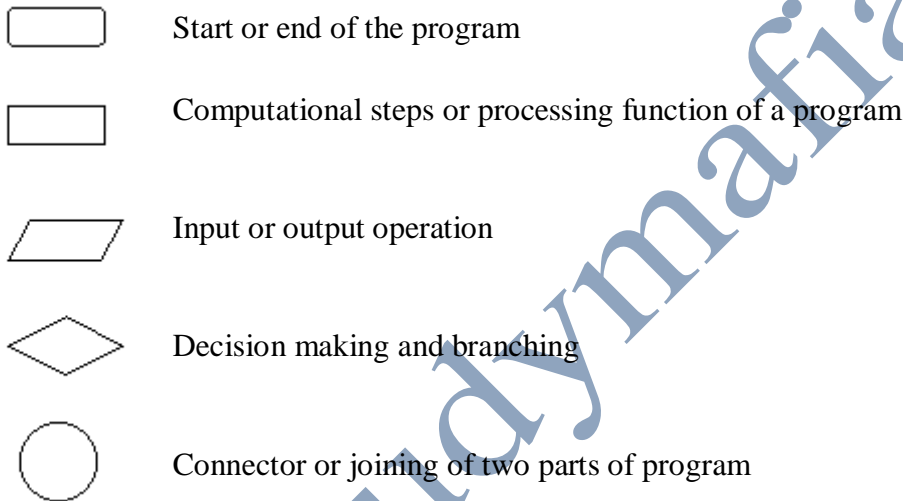
## Flowchart

### What is a Flowchart?

Flowchart is a graphical representation of an algorithm. Programmers often use it as a program-planning tool to solve a problem. It makes use of symbols which are connected among them to indicate the flow of information and processing.

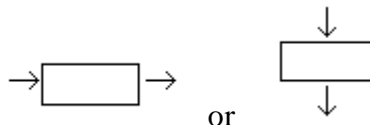
The process of drawing a flowchart for an algorithm is known as “flowcharting”.

Flowcharts are usually drawn using some standard symbols; however,

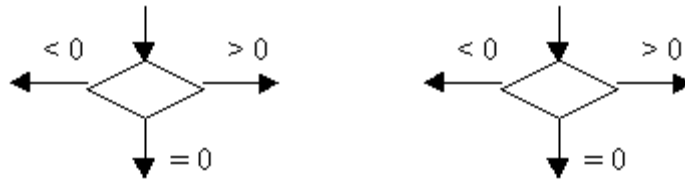


The following are some guidelines in flowcharting:

- In drawing a proper flowchart, all necessary requirements should be listed out in logical order.
- The flowchart should be clear, neat and easy to follow. There should not be any room for ambiguity in understanding the flowchart.
- The usual direction of the flow of a procedure or system is from left to right or top to bottom.
- Only one flow line should come out from a process symbol.



- Only one flow line should enter a decision symbol, but two or three flow lines, one for each possible answer, should leave the decision symbol.



- f. Only one flow line is used in conjunction with terminal symbol.



- h. If the flowchart becomes complex, it is better to use connector symbols to reduce the number of flow lines. Avoid the intersection of flow lines if you want to make it more effective and better way of communication.
- i. Ensure that the flowchart has a logical *start* and *finish*.
- j. It is useful to test the validity of the flowchart by passing through it with a simple test data.

### Example of a flowchart:

Problem 1: Write an algorithm and draw the flowchart for finding the average of two numbers

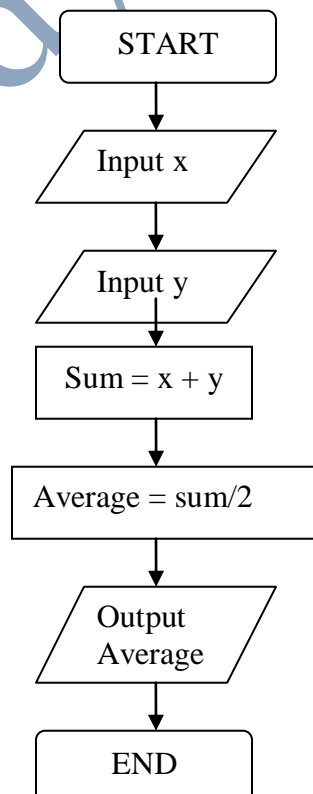
#### Algorithm:

Input: two numbers x and y

Output: the average of x and y

Steps:

1. input x
2. input y
3.  $\text{sum} = x + y$
4.  $\text{average} = \text{sum} / 2$
5. output average



## How to use it:

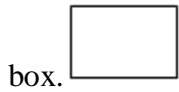
Process Flowchart is one of the most basic diagram you will meet. It is a great one to begin with since it is used to describe a high-level process of the whole system. You don't have to go into every single edge case here. It is better just to describe a happy path, showing via what modules or actions User has to go through to complete a certain scenario.

Besides, you can use Process Flowchart for plenty other more specific aims like mapping User roles or showing manufacturing process in the system.

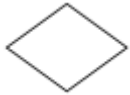
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## Commonly Used Symbols in Detailed Flowcharts

One step in the process; the step is written inside the box. Usually, only one arrow goes out of the



→ Direction of flow from one step or decision to another.



Decision based on a question. The question is written in the diamond. More than one arrow goes out of the diamond, each one showing the direction the process takes for a given answer to the question. (Often the answers are “yes” and “no.”)



Delay or wait



Link to another page or another flowchart. The same symbol on the other page indicates that the flow continues there.



Input or output



Document



Alternate symbols for start and end points

## Types and Uses of Flowcharts

There are a wide variety of flowchart types. Here are just a few of the more commonly used ones.

- Swimlane flowcharts
- Data flow diagrams
- Influence diagrams
- Workflow diagrams
- Process flow diagrams
- Yes/no flowcharts
- Decision flows

Flowcharts were originally used by industrial engineers to structure work processes such as assembly line manufacturing.

Today, flowcharts are used for a variety of purposes in manufacturing, architecture, engineering, business, technology, education, science, medicine, government, administration and many other disciplines.

Here are some of the ways flowcharts are used today.

- Project planning
- Program or system design through flowchart programming
- Process documentation
- Audit a process for inefficiencies or malfunctions
- Map computer algorithms
- Documenting workflow

## Flowchart Basic Procedure

Materials needed: sticky notes or cards, a large piece of flipchart paper or newsprint, marking pens.

1. Define the process to be diagrammed. Write its title at the top of the work surface.
2. Discuss and decide on the boundaries of your process: Where or when does the process start? Where or when does it end? Discuss and decide on the level of detail to be included in the diagram.
3. Brainstorm the activities that take place. Write each on a card or sticky note. Sequence is not important at this point, although thinking in sequence may help people remember all the steps.
4. Arrange the activities in proper sequence.
5. When all activities are included and everyone agrees that the sequence is correct, draw arrows to show the flow of the process.
6. Review the flowchart with others involved in the process (workers, supervisors, suppliers, customers) to see if they agree that the process is drawn accurately.

## Advantages Of Flowchart

1. It is a convenient method of communication.
2. It indicates very clearly just what is being done, where a program has logical complexities.
3. A key to correct programming.
4. It is an important tool for planning and designing a new system.
5. It clearly indicates the role-played at each level.
6. It saves the inconveniences in future and serves the purpose of documentation for a system.
7. It provides an overview of the system and also demonstrates the relationship between various steps.
8. Facilitates troubleshooting.
9. It promotes logical accuracy.
10. It makes sure that no logical path is left incomplete without any action being taken.

## Disadvantages Of Flowchart

1. The flowchart is waste of time and slows down the process of software development.
2. The flowchart is quite costly to produce and difficult to use and manage.
3. Flowcharts are not meant for man to computer communication.
4. Sometimes the Complex logic of the program logic is quite complicated to draw out on by using different defined shapes. In that case, flowchart becomes complex and clumsy. This will become a pain for the user, resulting in a waste of time and money trying to correct the problem
5. If you need to modify or alternate the process then it will be very hard to do in the flowchart. Because either you will have to erase the end of the flowchart or start.

## REFERENCES

1. [www.google.com](http://www.google.com)
2. [www.wikipedia.org](http://www.wikipedia.org)
3. [www.studymafia.org](http://www.studymafia.org)