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# CIS 1101 – PROGRAMMING 1

**ALGORITHM: FLOW CHART**

# REPRESENTATIONS OF ALGORITHM: **FLOW CHART**

- ☐ It is a graphical or symbolic representation of a solution to a given task.
- ☐ It is a diagrammatic or graphical representation of sequence of steps to solve a problem.
- ☐ It is used for representing algorithm in pictorial form.



# FLOW CHART: **IMPORTANT NOTES**

- ❑ A tool that can help to develop and represent program logic sequence graphically.
- ❑ Enables us to trace and detect any logical or other errors before the programs are written.
- ❑ Widely used in multiple fields to document, study, plan, and map-out complex problems in easy-to-understand diagrams.
- ❑ Can range from simple hand-drawn flowcharts to complex computer-drawn flowcharts.
- ❑ Unlike in Pseudocode, one can get a visual representation on the actual process flow using flowcharts.



# FLOW CHART: IMPORTANT NOTES

- ❑ The first design of flow chart goes back to **1945** which was designed by **John Von Neumann**.
- ❑ Unlike an algorithm, flow chart uses different symbols to design a solution to a problem.
- ❑ By looking at a flow chart, one can understand the operations and sequence of operations performed in a system.
- ❑ Flowchart is often considered as a blueprint of a design used for solving a specific problem.
- ❑ For beginners, following or understanding a flow chart can be easier compared to following pseudocode.



# ADVANTAGES OF FLOW CHART

## ❖ **Communication:**

- A flow chart can be used as a better way of communication of the logic of a system and the steps involved in the solution to all concerned particularly to the client of the system.

## ❖ **Effective analysis:**

- A flow chart of a problem can be used for effective analysis of the problem.

## ❖ **Proper documentation:**

- Program flow charts serve as a good program documentation, which is needed for various purposes, making things more efficient.



# ADVANTAGES OF FLOW CHART









## ❖ Efficient Program Maintenance:

- Once a program is developed and becomes operational it needs time to time maintenance.
- With the help of flow chart, maintenance becomes easier.

## ❖ Efficient Coding:

- The flow charts act as a guide or blueprint during systems analysis and program development phase.



	Flow line	Used to indicate the flow of logic by connecting symbols.
	Terminal(Stop / Start)	Used to represent start and end of flowchart.
	Input / Output	Used for input and output operation.
	Processing	Used for arithmetic operations and data-manipulations.
	Decision	Used to represent the operation in which there are two alternatives, true and false.
	On-page Connector	Used to join different flowline
	Off-page Connector	Used to connect flowchart portion on different page.
	Predefined Process/Function	Used to represent a group of statements performing one processing task.



(for differentiation purpose)

- Input/Enter



- Output/Display/Print



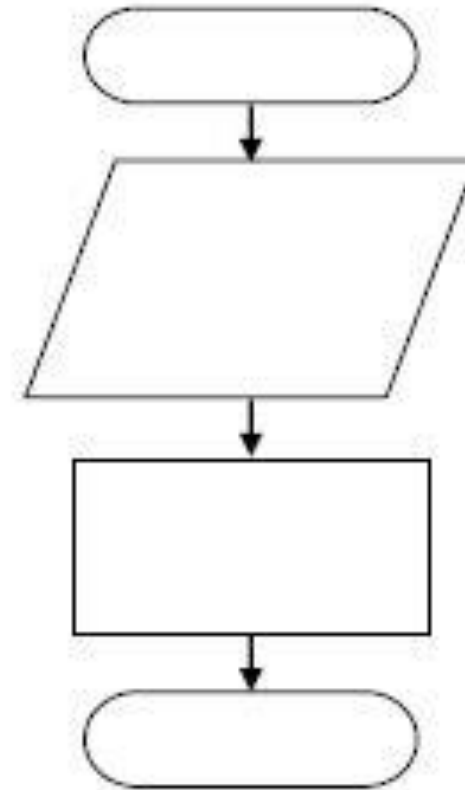
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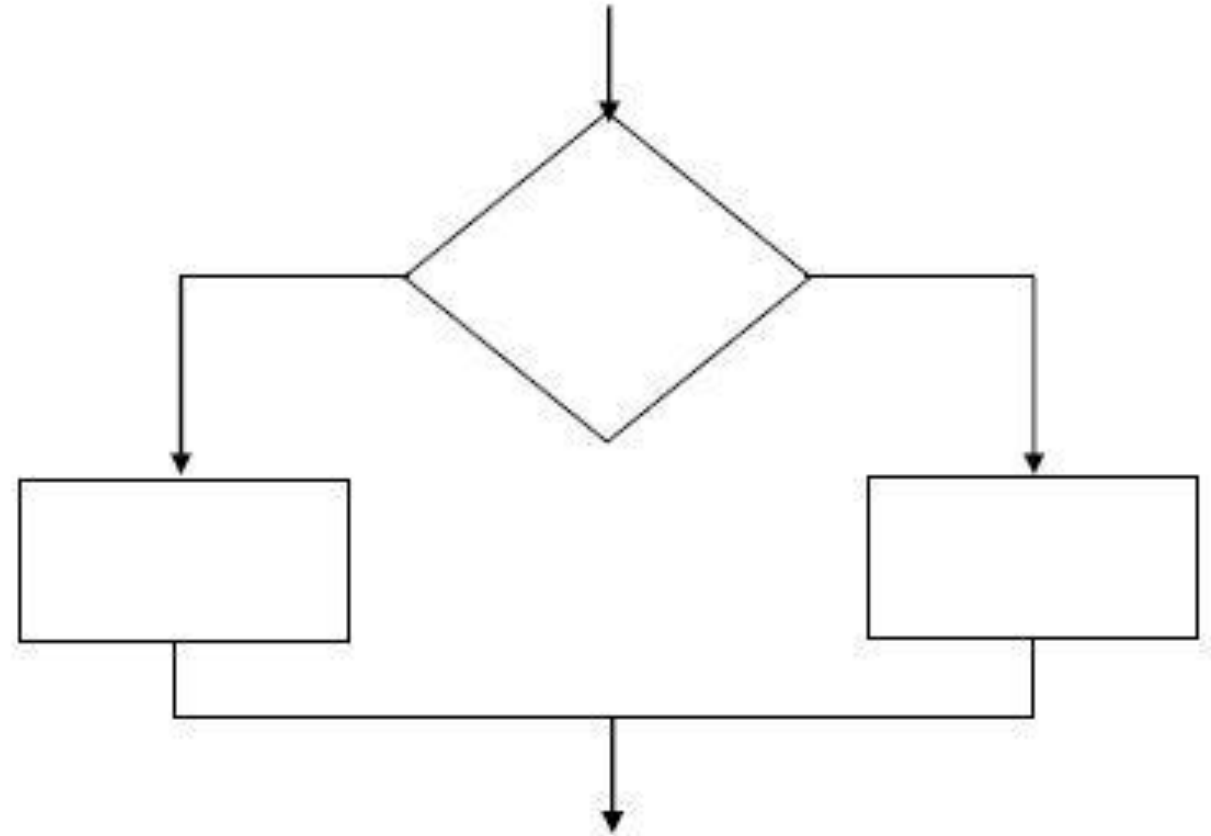
# Basic structures

- **Sequence**
  - Series of actions are done sequentially



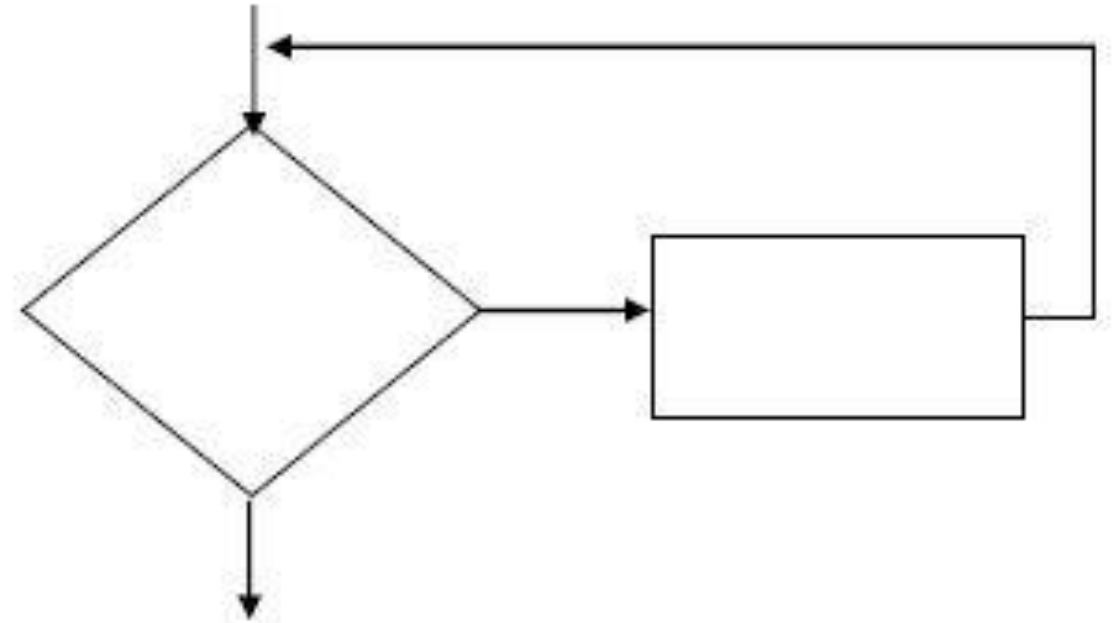
# • Decision

- One of two actions is taken depending on the condition
- Can either be TRUE or FALSE



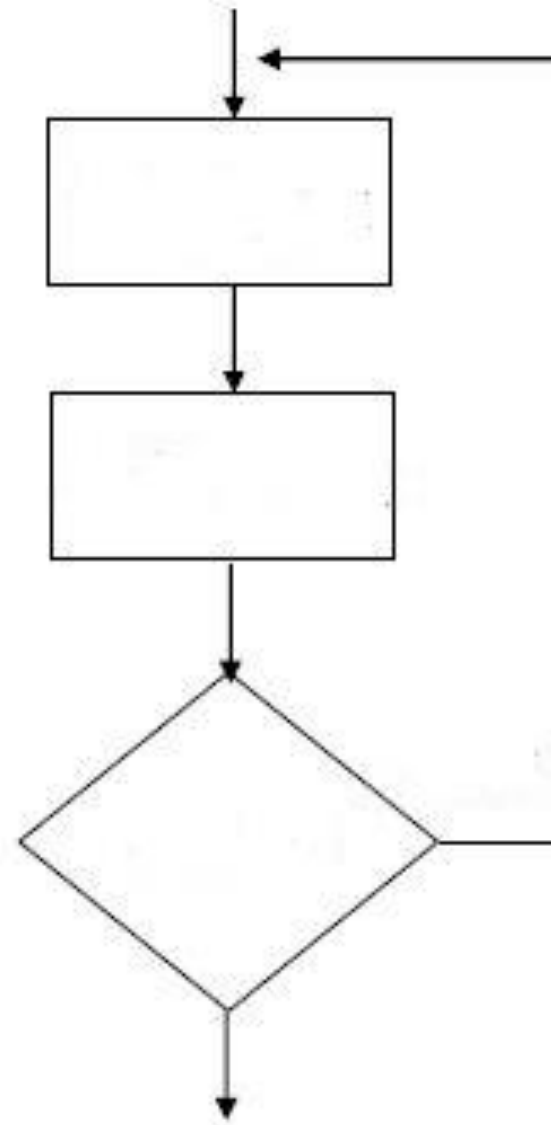
## • Repetition

- Pre – Test : condition is tested before any actions (for, while)



Cont.

- Post – Test : condition is tested after action



- **Case**

- Multiple possible answers in a decision
- switch – case statements

