

# Symbolic Representation of a Flowchart

Unit 1: Problem Solving using Flowchart and Algorithm  
Lecture 4: Symbolic representation of a flowchart

# Agenda

Standardized Symbols (ANSI)  
Terminal, Input/Output, Process  
Decision, Flow Lines  
Connectors  
Rules for Drawing Flowcharts  
Examples

# Why Standard Symbols?

To ensure universal understanding.

The American National Standards Institute (ANSI) established a standard set of flowchart symbols.

Using standard symbols makes flowcharts language and platform independent.

# Terminal Symbol (Oval)

Shape: Oval or rounded rectangle.

Function: Indicates the Start or Stop of the program.

Every flowchart must have exactly one Start symbol, and at least one Stop/End symbol.

# Input/Output Symbol (Parallelogram)

Shape: Parallelogram.

Function: Represents any input or output operation.

Examples: 'Read X', 'Print Y', 'Input user age'.

# Process Symbol (Rectangle)

Shape: Rectangle.

Function: Represents a process, calculation, or data manipulation.

Examples: 'Sum = A + B', 'Count = Count + 1'.

# Decision Symbol (Diamond)

Shape: Diamond.

Function: Indicates a decision point where the flow can branch.

Contains a condition (e.g., 'Is X  $\leq$  Y?').

Must have multiple outward flow lines labeled (e.g., 'Yes' and 'No').

# Flow Lines and Connectors

Flow Lines (Arrows): Show the exact sequence of execution.

Connectors (Small Circle): Used to connect different parts of a flowchart across pages or complex diagrams to avoid messy lines.

Labeled with a letter or number to match ends.

# Rules for Drawing Flowcharts

Generally, flow should be from top to bottom, or left to right.

Flow lines should not cross each other.

Only one flow line should enter a process symbol, and only one should exit.

Only one flow line should enter a decision symbol, but two or three may exit.

# Example 1: Add Two Numbers

1. Oval: Start
2. Parallelogram: Read A, B
3. Rectangle:  $\text{Sum} = A + B$
4. Parallelogram: Print Sum
5. Oval: Stop

## Example 2: Check Voting Eligibility

1. Start (Oval)
2. Read Age (Parallelogram)
3. Is Age  $\geq 18$ ? (Diamond)
  - Yes path -> Print 'Eligible' (Parallelogram)
  - No path -> Print 'Not Eligible' (Parallelogram)
4. Both paths converge to Stop (Oval)

# Summary

Standard symbols: Oval (Start/Stop), Parallelogram (I/O), Rectangle (Process), Diamond (Decision).

Arrows show control flow.

Adhering to rules ensures readability.