







# Flow Chart Symbols

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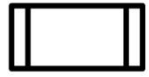



This page describes the symbols used in my Udemy.com course on Flowcharting and Pseudocode.

The following pages describe most flow chart symbols used in computer programming.









## Most Common Flow Chart Symbols


SYMBOL	NAME	DESCRIPTION	TYPICAL USE/EXAMPLES
	Flow Line (or Arrow Connector)	Flow line connectors show the direction that the process flows. An arrow coming from one symbol and ending at another symbol represents that control passes to the symbol that the arrow points to.	The line for the arrow can be solid or dashed. The meaning of the arrow with dashed line may differ from one flowchart to another and should be defined in the legend.
	Terminate (or Oval or Terminal Point)	Terminators show the start and stop points in a process.	Usually containing the word "Start" or "End", or another phrase signaling the start or end of a process, such as "PrintPayrollCheck" or "ComputeSalesBonus".
	Process	Show a Process or action step. This is the most common symbol in flowcharts. Usually used to set variables or to do math calculations.	Generic processing steps, such as: Add 1 to X kilos = pounds X 2.2 Decrement turn counter
	Data or I/O	The Data flowchart shape (parallelogram) indicates inputs to and outputs from a process. As such, the shape is more often referred to as an I/O shape than a Data shape.	Examples: Get temperature from the user Display date Input hoursWorked
	Document	A process step that produces a document.	Unless otherwise described in the legend, this represents output to a printer or plotter.
	Decision	Indicates a question or branch in the process flow. Typically, a question with only two possible answers. (Yes/No, True/False, etc.)	There is usually one entry point, but there could be several. There should be two, and only two, exit points.

## Process/Operation Symbols







SYMBOL	NAME	DESCRIPTION	TYPICAL USE/EXAMPLES
	Process	Show a Process or action step. This is the most common symbol in flowcharts.	Generic processing steps, such as: Add 1 to X kilos = pounds X 2.2 Decrement turn counter
	Alternate Process	Not commonly used. Can mean anything the author desires.	
	Subroutine (Predefined Process)	A Predefined Process symbol is a marker for another process step or series of process flow steps that are formally <b>defined elsewhere</b> . If you see "Print Paycheck" in this shape, expect to find all of the code required in the "Print Paycheck" routine; probably on another page in the document.	This shape commonly depicts sub-processes (or subroutines in programming flowcharts).
	Delay	The Delay flowchart symbol depicts any waiting period that is part of a process.	Delay shapes are common in process mapping, but rarely used in programming flow charts.
	Preparation	A preparation process flow step, such as a set-up operation. Shows operations which have no effect other than preparing a value for a subsequent conditional or decision step.	Examples: Set document count to zero Set DiscountRate to 0.055 Weekdays = {"MON", "TUE" .....
	Manual Operation	An operation requiring outside action by a human or a piece of machinery. Usually, the program has no control over this action and must wait until it is completed.	Operation requires inserting a disk or mounting some hardware.



# Branching and Control of Flow Symbols

SYMBOL	NAME	DESCRIPTION	TYPICAL USE/EXAMPLES
	Flow Line (or Arrow Connector)	Flow line connectors show the direction that the process flows. An arrow coming from one symbol and ending at another symbol represents that control passes to the symbol that the arrow points to.	The line for the arrow can be solid or dashed. The meaning of the arrow with dashed line may differ from one flowchart to another and should be defined in the legend.
	Terminate (or Oval or Terminal Point)	Terminators show the start and stop points in a process.	Usually containing the word "Start" or "End", or another phrase signaling the start or end of a process, such as "PrintPayrollCheck" or "Compute Sales Bonus".
	Decision	Indicates a question or branch in the process flow. Typically, a question with only two possible answers. (Yes/No, True/False, etc.)	There is usually one entry point, but there could be several. There must be two, and only two, exit points.
	Connector, On-Page	In flowcharts, this symbol is typically small and is used as a Connector to show a jump from one point in the process flow to another.	Connectors are usually labeled with capital letters (A, B, AA) to show matching jump points. They are handy for avoiding flow lines that cross other shapes and flow lines.
	Off-Page Connector	Off-Page Connector shows continuation of a process flowchart onto another page. When using them in conjunction with Connectors, it's best to differentiate the labels, e.g. use numbers for Off-Page Connectors and capital letters for Connectors	See Legend for how this is used. One way might be to put "To Page 5" in this symbol on page 1, and then on page 5 put "From page 1" in the same symbol where flow continues.
	Merge (Storage)	Shows the merging of multiple processes or information into one.	A junction symbol will have more than one arrow coming into it, but only one going out.
	Extract (Measurement)	Shows when a process splits into parallel paths. Also commonly indicates a Measurement, with a capital 'M' inside the symbol.	
	OR	The logical OR symbol shows when a process diverges - usually for more than 2 branches.	When using this symbol, it is important to label the out-going flow lines to indicate the criteria to follow each branch.






	Summing Junction	The logical Summing Junction flowchart shape is shows when multiple branches converge into a single process. The merge symbol is more common for this use, though. This symbol and the OR symbol are really more relevant in data processing flow diagrams than in programming flowcharts.	Usually not used in programming.
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## Input and Output Symbols



SYMBOL	NAME	DESCRIPTION	TYPICAL USE/EXAMPLES
	Data (I/O)	Sometimes described as the symbol for reading or writing data from/to another device, but more commonly used to designate general input or output steps. This symbol sometimes used as the only symbol for any type of input or output.	Examples: Enter UserName Enter Password
	Display	Indicates a process step where information is displayed to a person (e.g., PC user, machine operator).	In the 1960's this looked more like a television's cathode-ray-tube, so it indicated output to the TV or computer screen. Not common now.
	Document	Output any document, usually to a printer, but sometimes to a file.	Examples: Print username Print Password
	Multi-Document	Output multiple documents.	
	Manual Operation	Manual Operations flowchart shapes show which process steps are not automated.	Rarely used.
	Manual Input	Manual Input flowchart shapes show process steps where the operator/ user is prompted for information that must be manually input into a system.	Sometimes used to indicate "Keyboard Input".

	Punched Card	This is the companion to the punched tape flowchart shapes. This shape is seldom used.	Comes from the common use of IBM punch cards in the 1950's.
	Paper Tape	Used for input into old computers and CNC machines.	Generally obsolete

## File and Information Storage Symbols

SYMBOL	NAME	DESCRIPTION	TYPICAL USE/EXAMPLES
	Stored Data	A general Data Storage flowchart shape used for any process step that stores data (as opposed to the more specific shapes to follow next in this table).	Generic shape. Could represent any of the actions below.
	Magnetic Disk	The most universally recognizable symbol for a data storage location, this flowchart shape usually depicts a database.	Examples: Write studentData Read employeePayRate
	Direct Access Storage	Storage on a Hard Drive.	
	Sequential Access Storage (Magnetic Tape)	Store or retrieve data from a magnetic tape.	This symbol is supposed to look like a reel of tape.
	Internal Storage	Used in programming flowcharts to mean information stored in memory, as opposed to on a file.	Most programmers just use Process instead of this.

## Data Processing Symbols

SYMBOL	NAME	DESCRIPTION	TYPICAL USE/EXAMPLES
	Collate	The Collate flowchart shape indicates a process step that requires organizing data, information, or materials according into a standard format or arrangement.	
	Sort	Indicates the sorting of data, information, materials into some pre-defined order.	Indicates data to be put in order by name, ZIP code or some other attribute.