



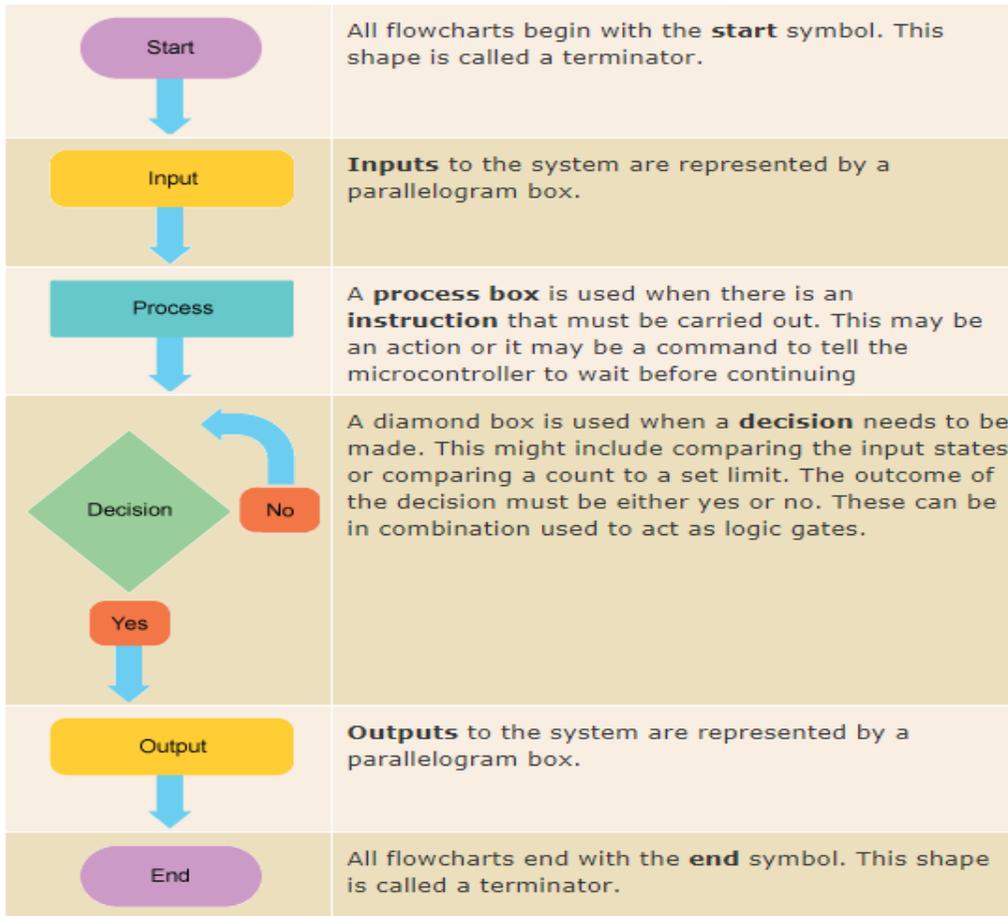
What is a system flowchart?

System flowcharts are a way of displaying how data flows in a system and how decisions are made to control events.

Facts

- All flowcharts must start with a **START** and finish with **END**. These symbols called **TERMINATORS**
- Decision has only two outputs: either **YES** or **NO**.

Flowchart Shapes/Symbols



Key Word	Definition
Algorithm	A set of instructions which is followed to solve a given problem. Can be represented using a flowchart or Pseudo code
Flowchart	A diagram that shows an algorithm or process, made up of boxes representing steps, decision, inputs and outputs.
Computational Thinking	Algorithmic thinking is a way of getting to a solution through the clear definition of the steps needed – nothing happens by magic
Program	A sequence of instructions used by a computer.
Sequence	The order which the computer will run code in, one line at a time.
Selection	Being able to select between different options or scenarios
Iteration	Iteration is the act of repeating a process, either to generate an unbounded sequence of outcomes, or with the aim of approaching a desired goal, target or result
Condition	Checking to see whether a statement or sum is true or false.
Input	Entering data or information into an algorithm.
Output	Displaying data or information as a result of an algorithm.
variable	A value where data is stored and can be changed when used in a program.
Flow	How data moves through a program, explained using arrows in a flowchart.
Comparative Operators	Symbols used to compare one value to another (see below table for examples) and return a True/False.

Input and output

For the system to work there is an input and an output. The process is taking the input and doing something with it - modifying it in some way - and producing an output.

In a computer system the processing will be done by a microprocessor of some kind.

Feedback is the output fed back to the input. The cruise control flowchart is an example of negative feedback because the speed is always kept at the same value. Positive feedback would push the speed **away** from the desired value.

- **Examples of inputs**

- Keyboard
- Mouse
- Microphone

- **Examples of outputs**

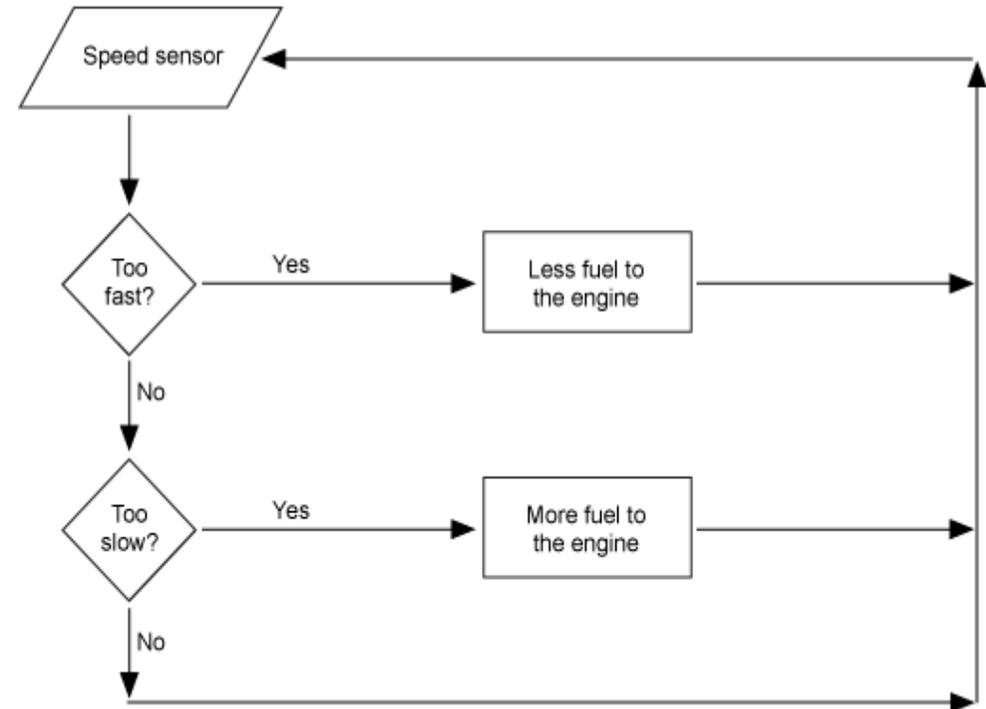
- Printers
- Speakers
- Motors

Comparative Operators

==	Equal to (It is equal to)
!=	Not equal to
>	Greater than
<	Less than
>=	Greater than or equal to
<=	Less than or equal to
=	Is it equal (question?)

Using flowchart ideas

This flowchart is a diagram for a 'cruise control' for a car. The cruise control keeps the car at a steady speed that has been set by the driver.



The flowchart shows what the **outcome** is if the car is going too fast or too slow. The system is designed to add fuel, or take it away and so keep the car's speed constant. The **output** (the car's new speed) is then fed back into the system via the speed sensor.