



عنوان المحاضرة: The flowchart & its importance in programming

Introduction

Flowcharts or Process Flow Diagrams are visual diagrams that use symbols to outline the separate steps of a process in sequential order. In other words, A flowchart is a type of diagram that represent an algorithm, workflow or process, showing the steps as boxes of various kinds, and their order by connecting them with arrows. **Fig.1** show the flowchart.

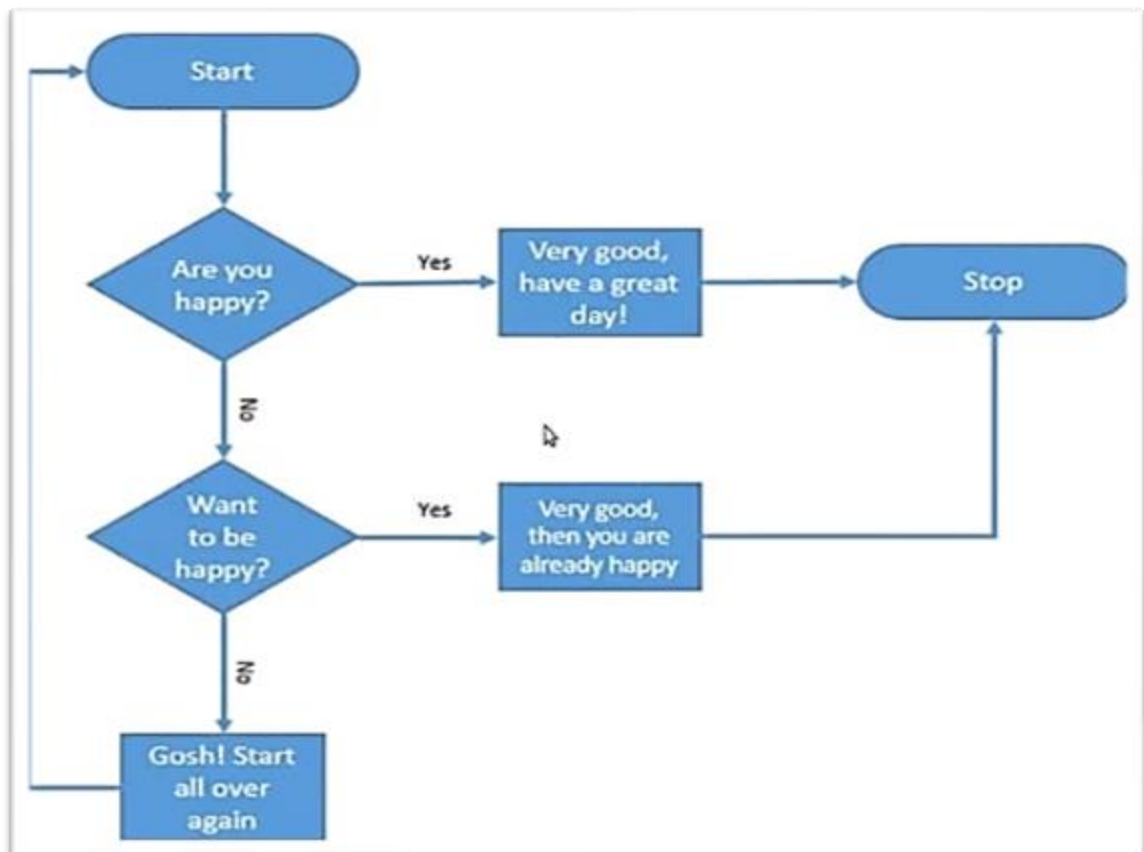


Fig.1: the flowchart



- The flowchart uses

The flowchart is so popular for planning work, one reason for the popularity of flowchart it helps you analyze a process from start to finish. That way, you can help ensure you don't forget to account for steps covering critical inputs, outputs, and procedures.

- The flowchart symbols

A flowchart symbol is a graphical representation of a point in a workflow. These are some common flowchart symbols **Fig.2:**

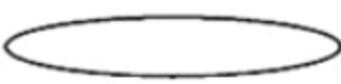


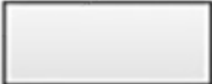

Name	Symbol	Function
Start/End		Used to markup the starting and ending point
Arrows		Used for connection
Input/Output		Used for input and output information
Process		Used to represent single step
Decision		Used for branching or decision making

Fig.2: the flowchart symbols

1- Start and End/Terminal

The terminal is an oval symbol used in a flowchart process to indicate when a program starts or stops.



2- Input/Output

Parallelogram shapes typically represent inputs and outputs. They indicate where a program receives or sends out information. Users rely on the shapes to describe actions like keying in data, displaying information on a screen, or printing it to a separate device.

3- Decision Making

The decision symbol, usually a diamond shape, illustrates the point where a choice must be made. The operation typically involves a yes/no decision or true/false. The path of program flow can change depending on the choice made by a user or an automation process.

4- Process

Process symbol, represented by a rectangle or square box, details specific functions within a program. For example, a programmer might add a process symbol to their flowchart to outline how their program will calculate of adding two numbers together.

5- Arrows

It refers to moving from one step to another within the flowchart.

Note:

- Flowchart is generally drawn from top to bottom
- All boxes of flowchart must connected with arrow
- Decision symbol have 2 exit points , (T/F) (Y/N) .



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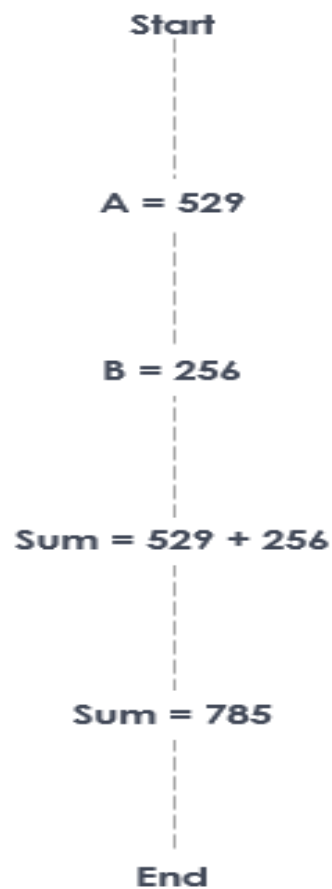
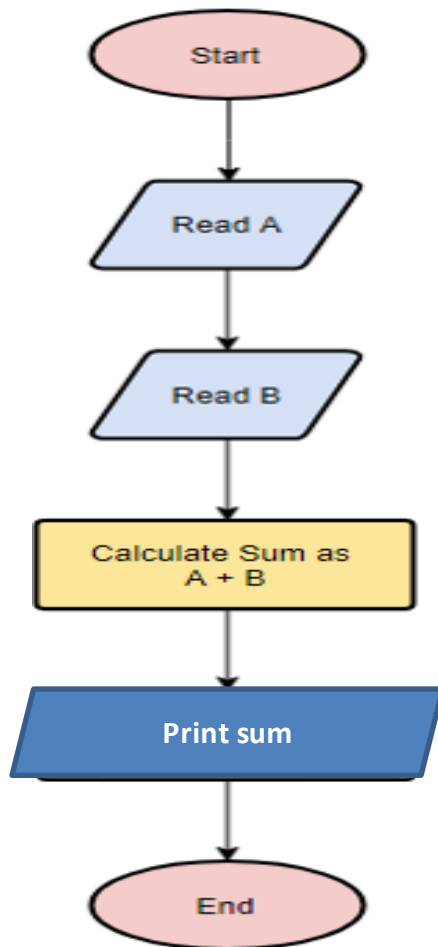
- Flowchart examples

There are a lot of examples about using a flowchart,

Some of that:

Exmp1/ find the sum of two numbers

Find the sum of 529 and 256





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Exmp.2/ check why the lamp is not working?

