

# **PROG0101 FUNDAMENTALS OF PROGRAMMING**

## **Chapter 6 Branching**

## Topics

- Branching Statement
- IF Statement
- Switch Statement

## Branching Statement

- A program consists of a number of statements which are usually executed in sequence.
- Programs can be much more powerful if we can control the order in which statements are run.
- The Branching Statements or Control Statements let the program makes a decision about what to do next.

## IF Statement

- The **IF Statement** is a powerful decision making statement and is used to control the flow of execution of statements.
- It is basically a two-way decision statement and is used in conjunction with an expression.

## IF Statement

- It allows the computer to evaluate the expression first and then, depending on whether the value of the expression (relation or condition) is ' true ' (non-zero) or ' false ' (zero), it transfers the control to a particular statement.
- This point of program has two paths to follow, one for the true condition and the other for the false condition.
- The if statement may be implemented in different forms depending on the complexity of the conditions to be tested.

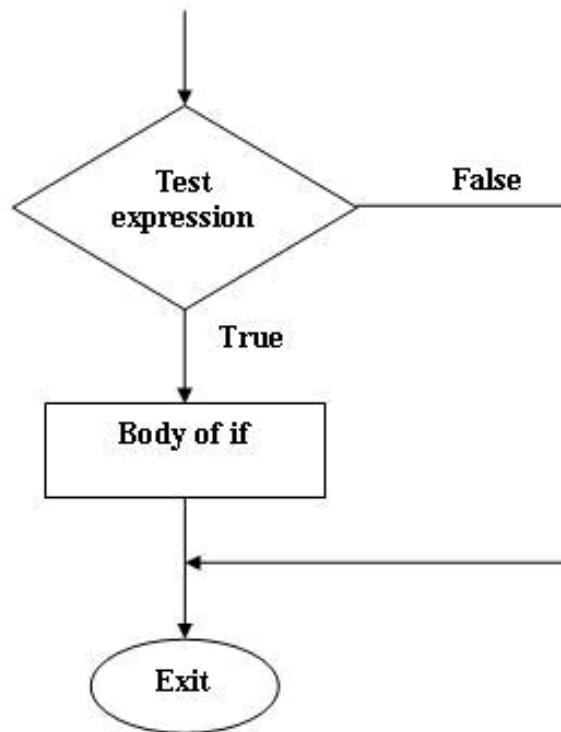
## IF Statement

- Two types of IF Statement:
  - Simple IF Statement
  - IF-ELSE Statement

## Simple IF Statement

- The statement-block may be a single statement or a group of statements.
- If the test expression is true, the statement-block will be executed; otherwise the statement-block will be skipped and the execution will jump to statement-x.
- Remember, when the condition is true both the statement-block and the statement-x are executed in sequence.

## Simple IF Statement

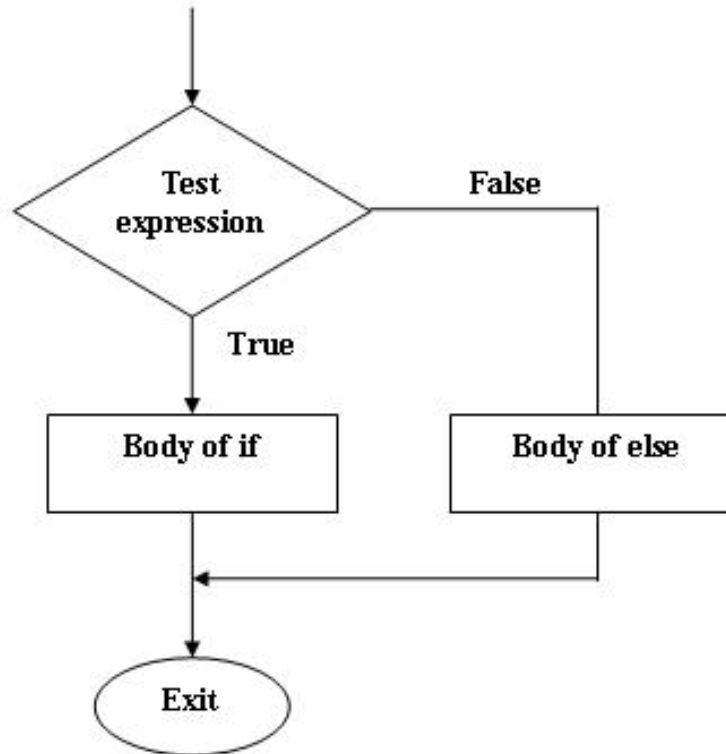




## IF-ELSE Statement

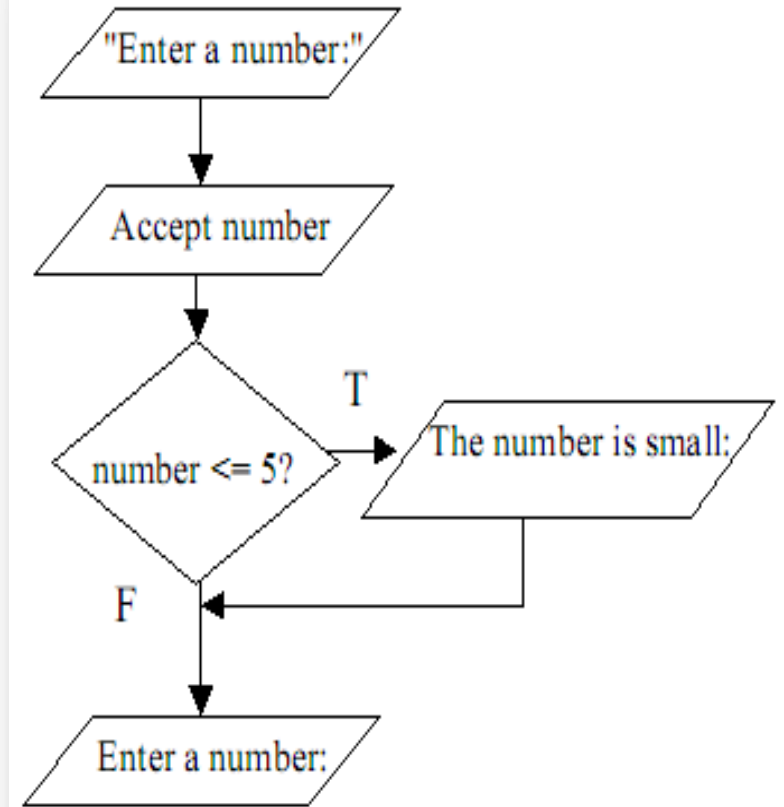
- The if....else statement is an extension of the simple if statement.
- If the test expression is true , then the true-block statement(s), immediately following the if statement are executed; otherwise the false-block statement(s) are executed.
- In either case, either true-block or false-block will be executed, not both.

## IF-ELSE Statement



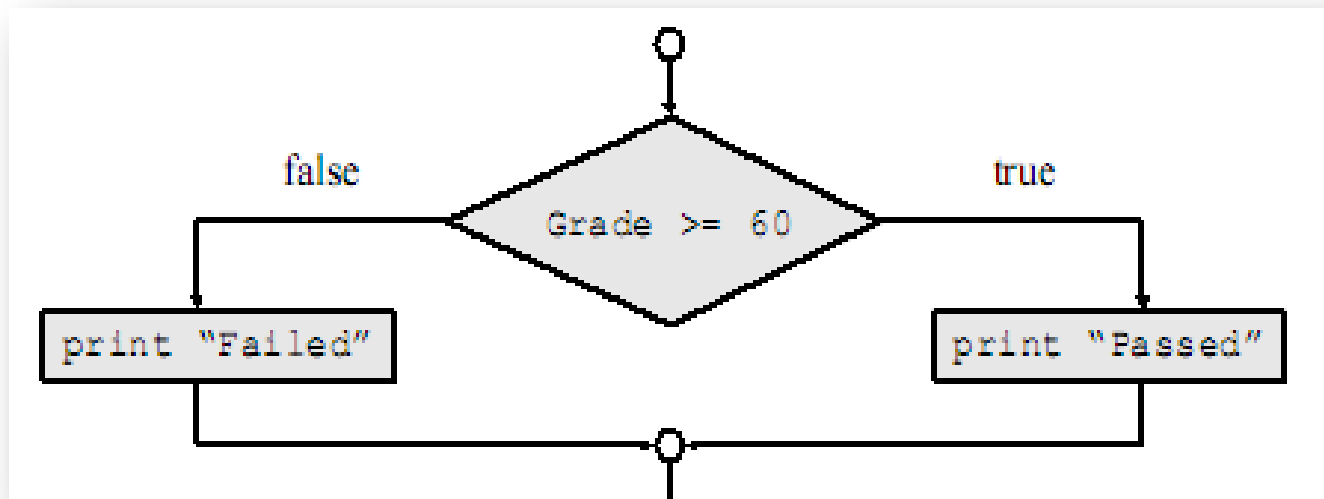
### Example 1

The flow chart shows a program which ask a user to enter a number, and then compare the number given either it is bigger or smaller than 5.



### Example 2

The flow chart shows a program to check whether the student “Passed” or “Failed”.



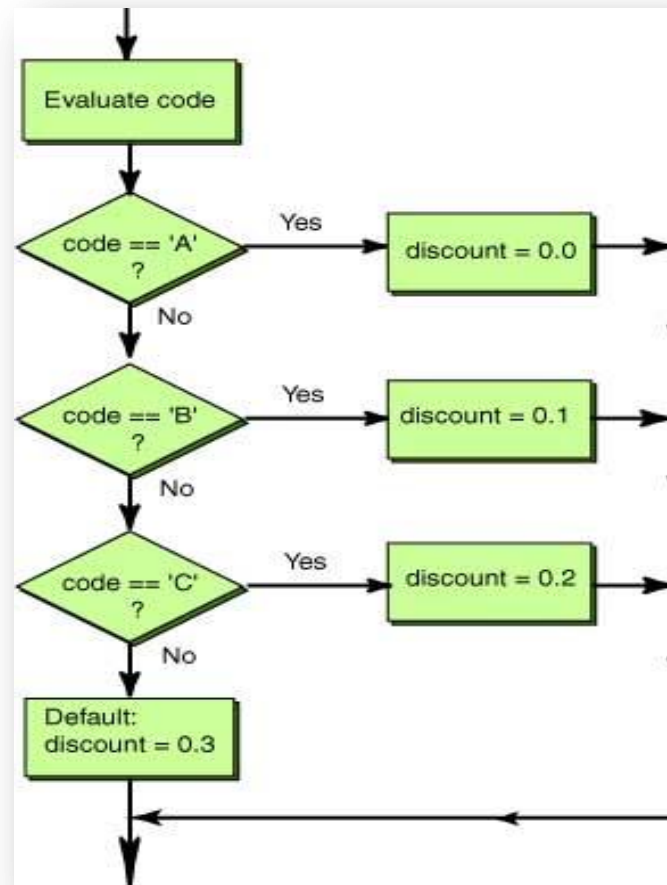
## SWITCH Statement

- In computer programming, a **Switch Statement** (also known as **Case Statement**) is a type of control statement that exists in most modern imperative programming languages.
- This is another form of the multi way decision.
- A switch statement is a selection statement that lets you transfer control to different statements within the switch body depending on the value of the switch expression.

## **SWITCH Statement**

- If the value of the switch expression equals the value of one of the case expressions, the statements following that case expression are processed.
- If not, the default label statements, if any, are processed.

### Example 1



### Example 2

