knowledgeplus
PROMOTING IT

VB Note Lesson 8

Information System

Functions

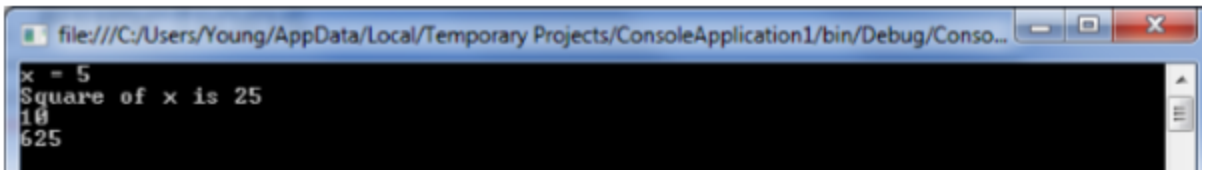
Functions are similar to subroutines, except that they always return a value. They are normally used in either **assignments** (A:=TaxA(370);) or **expressions** (IF taxA(15000) THEN....)

The function names doubles as a procedure name and a variable.

```
Function square(ByVal x As Integer) As Integer
    square = x * x
End Function
```

Square is the function name, that is expecting an integer to be passed(byref) to it. The result is assigned to the function name which is dimensioned as an integer. The function name can be used as a variable containing the result within other procedures.

```
Module Module1

    Function square(ByVal x As Integer) As Integer
        square = x * x
    End Function

    Function sum(ByRef a As Integer, ByRef b As Integer) As Integer
        sum = a + b
    End Function

    Sub Main()
        Dim number As Double = 5

        Console.WriteLine("x = " & number)
        Console.WriteLine("Square of x is " & square(number))

        Console.WriteLine(sum(3, 7))
        Console.WriteLine(square(sum(16, 9)))

        Console.ReadLine()
    End Sub

End Module
```



Programming languages, such as VB.net and spreadsheets, have many functions built-in. Examples include

SUM(range)	Spreadsheet: to add a block of cell values.
lcase(string)	VB: converts a string to upper case
ROUND(integer)	Round the integer up
RANDOM	Generate a random number

Programming Projects

- Write a function to convert temperatures from Fahrenheit to Celsius. The function should take one integer parameter (the temperature in Fahrenheit) and return a real result (the temperature in Celsius). The formula for conversion is

  Centigrade = (Fahrenheit — 32) * (5 / 9)

- Write a function that converts a string passed as a parameter into a capitalised string. See page 46 for details on string manipulation)
- Write a function that returns the total number of seconds, calculated from a whole number of hours, minutes and seconds provided as 3 parameters.
- Write your own random function RandomNumber that returns values in the range from 1 to the integer supplied as parameter. Tip: use the Maths library (see page 18)
- Write a tables tester. The program chooses 2 random numbers and asks the user what is the product of these 2 numbers. If the user gets the answer wrong, the correct answer should be displayed. The program should ask 10 questions and then display a score out of 10 and a suitable message.