

Functions

*CE 311 K - Introduction to Computer
Methods*

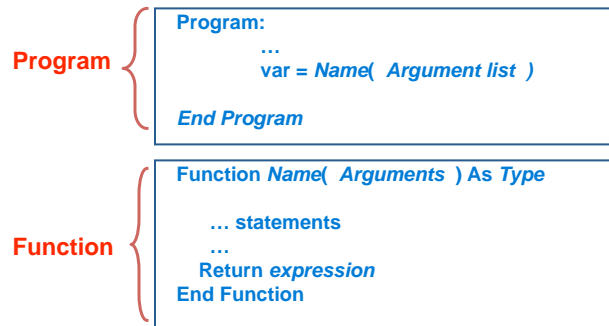
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Introduction

- Functions
- Named Constants
- Structured Programming

Functions

- A block of statements (with a name) located between **Function** and **End Function** statements
- Executed (called) when name appears in a program along with arguments



Example – FtoC

```

Private Sub Button1_Click(ByVal sender As System.Object, ByVal e As System.EventArgs) Handles Button1.Click
    Dim degF, degC As Double
    degF = CDb1(TextBox1.Text)
    degC = FtoC(degF)
    TextBox2.Text = CStr(degC)
End Sub

Function FtoC(ByVal T_F As Double) As Double
    Dim T_C As Double
    T_C = (5 / 9) * (T_F - 32)
    Return T_C
End Function

```

Call Function →

Return Value →

Example – Bank Account

$$F = P \left(1 + \frac{r}{c} \right)^{c/n}$$

```

Private Sub Button1_Click(ByVal sender As System.Object, ByVal
    Dim p, r, c, n As Double
    InputData(p, r, c, n)
    DisplayBalance(p, r, c, n)
End Sub

Sub InputData(ByRef p As Double, ByRef r As Double, _
    ByRef c As Double, ByRef n As Double)
    p = Cdbl(TextBox1.Text)
    r = Cdbl(TextBox2.Text)
    c = Cdbl(TextBox3.Text)
    n = Cdbl(TextBox4.Text)
End Sub

Sub DisplayBalance(ByVal p As Double, ByVal r As Double, _
    ByVal c As Double, ByVal n As Double)
    Dim balance As Double
    balance = FVal(p, r, c, n)
    TextBox5.Text = FormatCurrency(balance)
End Sub

Function FVal(ByVal p As Double, ByVal r As Double, _
    ByVal c As Double, ByVal n As Double)
    Dim i, m As Double
    i = r / c
    m = c * n
    Return p * ((1 + i) ^ m)
End Function

```

Example – Bank Account

The screenshot shows a Windows application window titled "Form1" with a light beige background. It contains several input fields and buttons:

- Deposit:** Input field with the value "60000".
- Annual interest rate:** Input field with the value "0.04".
- Number of times interest compounded per year:** Input field with the value "365".
- Number of Years:** Input field with the value "5".
- Buttons:** Two buttons labeled "Go!" and "Stop" are positioned below the input fields.
- Future value of balance:** An output field at the bottom showing the calculated value "\$73,283.36".

Named Constants

- We often need to use constants, like PI in our computations.

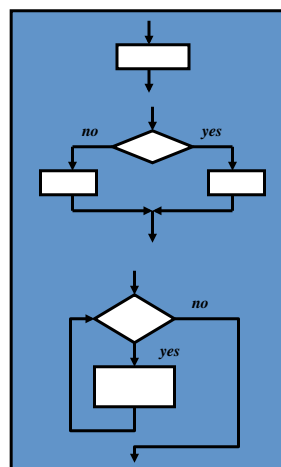
Const Constant_Name As Data_Type = value

- Example:

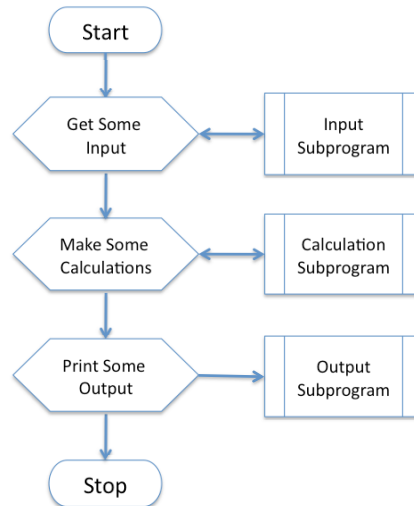
Const PI As Double = 3.14159

Structured Programming

- Sequence
- Selection
- Repetition



Structured Programming



Summary

- Functions
- Named Constants
- Structured Programming