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Visual Basic - Advanced

Module 2 - Modules and Procedures in Visual Basic

What is a Module?

A **Module** in Visual Basic is like a **container** that holds **related code** - including procedures, functions, and variables - that you can use across your program.

Why Use Modules?

- To organize code neatly
- To re-use code across forms
- To separate logic into meaningful sections

Example:

Module MathOperations

```
Public Sub GreetUser()
```

```
    MessageBox.Show("Welcome to the Marks Calculator!")
```

```
End Sub
```

```
Public Function AddNumbers(a As Integer, b As Integer) As Integer
```

```
    Return a + b
```

```
End Function
```

```
End Module
```

You can now use GreetUser() or AddNumbers() from anywhere in your project!

What is a Procedure?

A **Procedure** is a **block of code** that **does a task** but **does not return a value**.

Format:

```
Sub ProcedureName()
```

```
    ' code here
```

```
End Sub
```

Example - Procedure:

```
Sub ShowWelcomeMessage()
```

```
    MessageBox.Show("Hello, student!")
```



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End Sub

What is a Function?

A Function is similar to a procedure, but it returns a value after doing a task.

Format:

Function FunctionName() As DataType

' code here

Return value

End Function

Example - Function:

Function Square(num As Integer) As Integer

Return num * num

End Function

Practical Use in a Program

Let's say you have a Windows Forms App to calculate marks:

You create a Module:

Module MarksHelper

Public Function GetAverage(m1 As Integer, m2 As Integer, m3 As Integer) As

Double

Return (m1 + m2 + m3) / 3

End Function

End Module

In your form's button click:

Private Sub btnCalculate_Click(sender As Object, e As EventArgs) Handles

btnCalculate.Click

Dim avg As Double = GetAverage(80, 75, 90)

lblResult.Text = "Average Marks: " & avg

End Sub

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GetAverage() is a function inside a module, and you're using it in your form.

Summary Table

Concept	What It Does	Returns Value?	Where Used
Module	Holds reusable procedures & functions	Not directly	Across multiple forms
Procedure	Performs a task (like showing a message)	✗ No	In form or module
Function	Performs a task and returns a value	✓ Yes	In form or module

Benefits:

- Keeps code **clean and reusable**
- Makes large programs **easier to manage**
- Allows **separation of logic** for better organization

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