

Visual Basic.Net

(Introduction to VB.NET)

For

BCA Students

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Introduction to VB.NET

Visual Basic .NET (VB.NET) is an object-oriented computer programming language implemented on the .NET Framework. It is an evolution of classic Visual Basic language, it is not backwards-compatible with VB6, and any code written in the old version does not compile under VB.NET.

Like all other .NET languages, VB.NET has complete support for object-oriented concepts. Everything in VB.NET is an object, including all of the primitive types (Short, Integer, Long, String, Boolean, etc.) and user-defined types, events, and even assemblies. All objects inherit from the base class Object.

VB.NET is implemented by Microsoft's .NET framework. Therefore, it has full access to all the libraries in the .Net Framework. The following reasons make VB.Net a widely used professional language –

- Modern, general purpose.
- Object oriented.
- Component oriented.
- Easy to learn.
- Structured language.
- It produces efficient programs.
- It can be compiled on a variety of computer platforms.
- Part of .Net Framework.

Strong Programming Features VB.Net

- Boolean Conditions
- Automatic Garbage Collection
- Standard Library
- Assembly Versioning
- Properties and Events
- Delegates and Events Management
- Easy-to-use Generics
- Indexers
- Conditional Compilation
- Simple Multithreading

Integrated Development Environment (IDE) For VB.Net

Microsoft provides the following development tools for VB.Net programming –

- Visual Studio (VS)
- Visual Basic Express (VBE)
- Visual Web Developer

The last two are free. Using these tools, you can write all kinds of VB.Net programs from simple command-line applications to more complex applications. Visual Basic Express and Visual Web Developer Express edition are trimmed down versions of Visual Studio and has the same look and feel. They retain most features of Visual Studio.

Although the .NET Framework runs on the Windows operating system, there are some alternative versions that work on other operating systems. Mono is an open-source version of the .NET Framework which includes a Visual Basic compiler and runs on several operating systems, including Linux and Mac OS. The most recent version is VB 2019.

The stated purpose of Mono is not only to be able to run Microsoft .NET applications cross-platform, but also to bring better development tools to Linux developers. Mono can be run on many operating systems including Android, BSD, iOS, Linux, OS X, Windows, Solaris and UNIX.

Structure of VB.Net program

A VB.Net program basically consists of the following parts –

- Namespace declaration
- A class or module
- One or more procedures
- Variables
- The Main procedure
- Statements & Expressions
- Comments

WAP to print the words "Hello World" –

Imports System

Module Module1

 "This program will display Hello World

 Sub Main()

 Console.WriteLine("Hello World")

 Console.ReadKey()

 End Sub

End Module

When the above code is compiled and executed, it produces the following result –

Hello, World!

Various parts of the above program –

- The first line of the program **Imports System** is used to include the System namespace in the program.
- The next line has a **Module** declaration, the module *Module1*. VB.Net is completely object oriented, so every program must contain a module of a class that contains the data and procedures that your program uses.
- Classes or Modules generally would contain more than one procedure. Procedures contain the executable code, or in other words, they define the behaviour of the class. A procedure could be any of the following –
 - Function
 - Sub
 - Operator
 - Get
 - Set
 - AddHandler
 - RemoveHandler
 - RaiseEvent
- The next line('This program) will be ignored by the compiler and it has been put to add additional comments in the program.
- The next line defines the Main procedure, which is the entry point for all VB.Net programs. The Main procedure states what the module or class will do when executed.
- The Main procedure specifies its behaviour with the statement **Console.WriteLine("Hello World")** *WriteLine* is a method of the *Console* class defined in the *System* namespace. This statement causes the message "Hello, World!" to be displayed on the screen.
- The last line **Console.ReadKey()** is for the VS.NET Users. This will prevent the screen from running and closing quickly when the program is launched from Visual Studio .NET.

Compile & Execute VB.Net Program

If you are using Visual Studio.Net IDE, take the following steps –

- Start Visual Studio.
- On the menu bar, choose File → New → Project.
- Choose Visual Basic from templates
- Choose Console Application.
- Specify a name and location for your project using the Browse button, and then choose the OK button.
- The new project appears in Solution Explorer.
- Write code in the Code Editor.
- Click the Run button or the F5 key to run the project. A Command Prompt window appears that contains the line Hello World.

You can compile a VB.Net program by using the command line instead of the Visual Studio IDE –

- Open a text editor and add the above mentioned code.
- Save the file as **helloworld.vb**
- Open the command prompt tool and go to the directory where you saved the file.
- Type **vbc helloworld.vb** and press enter to compile your code.
- If there are no errors in your code the command prompt will take you to the next line and would generate **helloworld.exe** executable file.
- Next, type **helloworld** to execute your program.
- You will be able to see "Hello World" printed on the screen.