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INTRODUCTION TO VB.NET MANUAL

education

Department:
Education
REPUBLIC OF SOUTH AFRICA

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Developers School for Learning VB.Net

What is all of this?

This is a kind of interactive learning platform where those who want to learn .Net with VB.Net (Visual Basic.Net) can find help and support. The manual is divided into chapters each describing some areas of the VB Programming Language with the Microsoft.Net Platform. This is not a traditional passive tutorial where the author only writes and the reader only reads. There will be exercise problems at the end of each lesson, which you as the reader and student are supposed to solve after reading the lesson. The solutions to the exercises will be provided in the next lesson for you to reflect upon. There is also a dedicated message board coupled with the school where you can ask any questions relating to the lessons.

Learning path of the school

There will be three levels on this learning curve. In the first (beginner) level, we will be discussing the .Net Framework, VB.Net Language Fundamentals and Object Oriented Programming in VB.Net. In the second (intermediate) level, we will look in more details at Object Oriented constructs in VB.Net, such as inheritance, polymorphism, abstract classes, interfaces, structures, enumerations and exceptions. In the third (advanced) level we will look at a range of areas that you will need to be knowledgeable in to solve real world problems using VB.Net with the .NET Base Libraries. Later on topics, such as Collections, Delegates, Events, Windows Programming with lot of controls, Data Access with ADO.Net, Threads and Streams.

Tools you need to enter the school:

Most of the time these examples are written in the standard IDE; Visual Studio.Net. To follow precisely to the letter you will need this. There is a free Visual Studio.Net trial version available at http://msdn.microsoft.com/vstudio/products/trial/

The trial must be ordered on a CD and therefore it's appropriate to order it right away. You also need to download the .Net Framework, which can be downloaded freely from http://msdn2.microsoft.com/en-us/netframework/aa731542.aspx

The .Net Framework also contains the VB.Net Compiler so you can also use this to compile the examples given in the lessons using a text editor such as notepad if you do not have the IDE (As mentioned above) or just cant wait to start learning.

Introduction to .Net Framework & VB.NET

Pre Microsoft .Net Days...

There were days when computer programs were written using procedural languages like C, COBOL, Pascal, etc. Code was written around functions, i.e., logic is built to control which functions to perform. Then came the Object Oriented Programming (OOP) era where languages like C++ and Smalltalk became popular. Their code was written around data, i.e., logic was built by identifying the data in the system and performing functions around this data. The advent of the Object Oriented (OO) paradigm made it possible to build, manage, improve and debug bigger applications using components. However, resources (e.g. memory) were managed by programmer themselves and there was no runtime support provided by the programming language. This caused a lot of problems by assigning programmers a lot of responsibilities, the mishandling of which could easily crash the whole application (and sometimes Operating System (OS) itself).

The first commercially successful language to provide such runtime support was Java by Sun Microsystems (although such runtime support was present in languages like Smalltalk and even in VB). Java came with a runtime environment, called the Java Virtual Machine (JVM), which performs memory management, garbage collection, checking of runtime data types and memory access. Java also presented the idea of 'Platform independence' by providing their JVM implementation for different Operating Systems and H/w so a compiled java program can run on multiple Operating Systems and h/w without any change or re-compilation (at least in theory). Java did not stop here but also made drastic changes in other popular concepts that were present in most popular languages like C++ by eliminating pointers, multiple inheritance, operator overloading and templates. All this made Java a very popular language for both academic and professional development environments, especially for web applications. But does it mean that Java kills the C++? No! Java provides this ease and simplification at the penalty of performance by introducing the language translator in the runtime. Also, because of the platform independence of Java, it lacks in some Platform specific features like GUI and event handling.

Microsoft .Net

In the year 2000, Microsoft launched its new development environment, calling it Microsoft Visual Studio .Net. Microsoft .Net, at its core, is very much similar to J2EE (Java 2 Enterprise Edition), but offered more of a compromise between the traditional 'un-managed' and the newer 'managed' style of programming. It allows a programmer to run both managed (code managed by the .Net Runtime) and un-managed code (not managed by the .Net runtime). In managed code, .Net performs memory management, run-time type checking, memory access checking, and exception handling on behalf of your program. But