Introduction to visual basic dot net

The Kick Start Session

The hitch…

Three BURNING questions in mind…

- **Why we are learning Vb.net?**
- **What would we do with it?**
- **What will the course outcome?**

Introduction to Visual Programming –Vb.Net

Topics covered…..

- ✓ What is VB.NET,
- ✓ Characteristics of VB.NET,
- ✓ VB.NET as a language in .NET Framework

What is VB.NET

Visual Basic.NET is a computer programming language developed by Microsoft. It was first released in 2002 to replace Visual Basic 6. It is a programming language to develop GUI based applications.

Characteristics of VB.NET

- It is an object-oriented programming language that follows various oops concepts such as abstraction, encapsulation, inheritance, and many more. It means that everything in VB.NET programming will be treated as an object.
- This language is used to design user interfaces for window and web-based applications.
- It supports a rapid application development tool kit. In which a developer does not need to write all the codes as it can get various code automatically from its libraries. For example, when we create a form in Visual basic.net, it automatically calls events of various form in that class.
- It is not a case sensitive language like other languages such as C++, java, etc.
- It also supports the multithreading concept, in which you can do multiple tasks at the same time.
- It provides simple events management in .NET application.
- A Window Form enables us to inherit all existing functionality of form that can be used to create a new form. So, in this way, it reduced the code complexity.
- Automatic initialized a garbage collection.

.Net Framework

- The Microsoft .NET Framework is a platform for building, deploying, and running Web Services and applications.
- .NET Framework provides an execution environment, simplified development and deployment, and integration with a variety of programming languages, including Visual Basic and Visual C#.
- Two major components:
  - .Net Class library
  - CLR

.Net Class library

- The .Net Framework Class Library (FCL) includes a huge collection of reusable classes.
- The .Net Framework class library (FCL) organized in a hierarchical tree structure and it is divided into Namespaces.
- The System Namespaces is the root for types in the .NET Framework.
- We can identify any Class in the .NET Framework Class Library (FCL) by using the full Namespaces of the class

CLR(Common Language Runtime)

- The Common Language Runtime (CLR) is a an Execution Environment .
- Common Language Runtime (CLR)'s main tasks are to convert the .NET Managed Code to native code.
- Common Language Runtime (CLR) manages Memory Management that is allocation of Objects and Buffers , Garbage Collection (GC) - Clean up the unused Objects and buffers , Exception Handling

Components of CLR:

- **CTS (Common type system)**
- **CLS (Common language specification)**
- **MSIL(microsoft intermediate language)**

CTS (Common type system)

- In .NET, every Data Type is internally represented by a class or structure. All the classes and structures related to Data Types are collectively known as CTS.
- Every language provides its own keywords for Data Types but internally all the languages which run under .NET framework use the classes and structures available in CTS.
- **For example**, C# has int Data Type and VB.Net has Integer Data Type. Hence a variable declared as int in C# or Integer in vb.net, finally after compilation, use the same structure Int32 from CTS.

CTS (Common type system)

- Common Type System (CTS) describes a set of types that can be used in different .Net languages in common .
- Common Type System (CTS) provides base set of Data Types which is responsible for cross language integration.
- The Common Language Runtime (CLR) can load and execute the source code written in any .Net language, only if the type is described in the Common Type System (CTS)

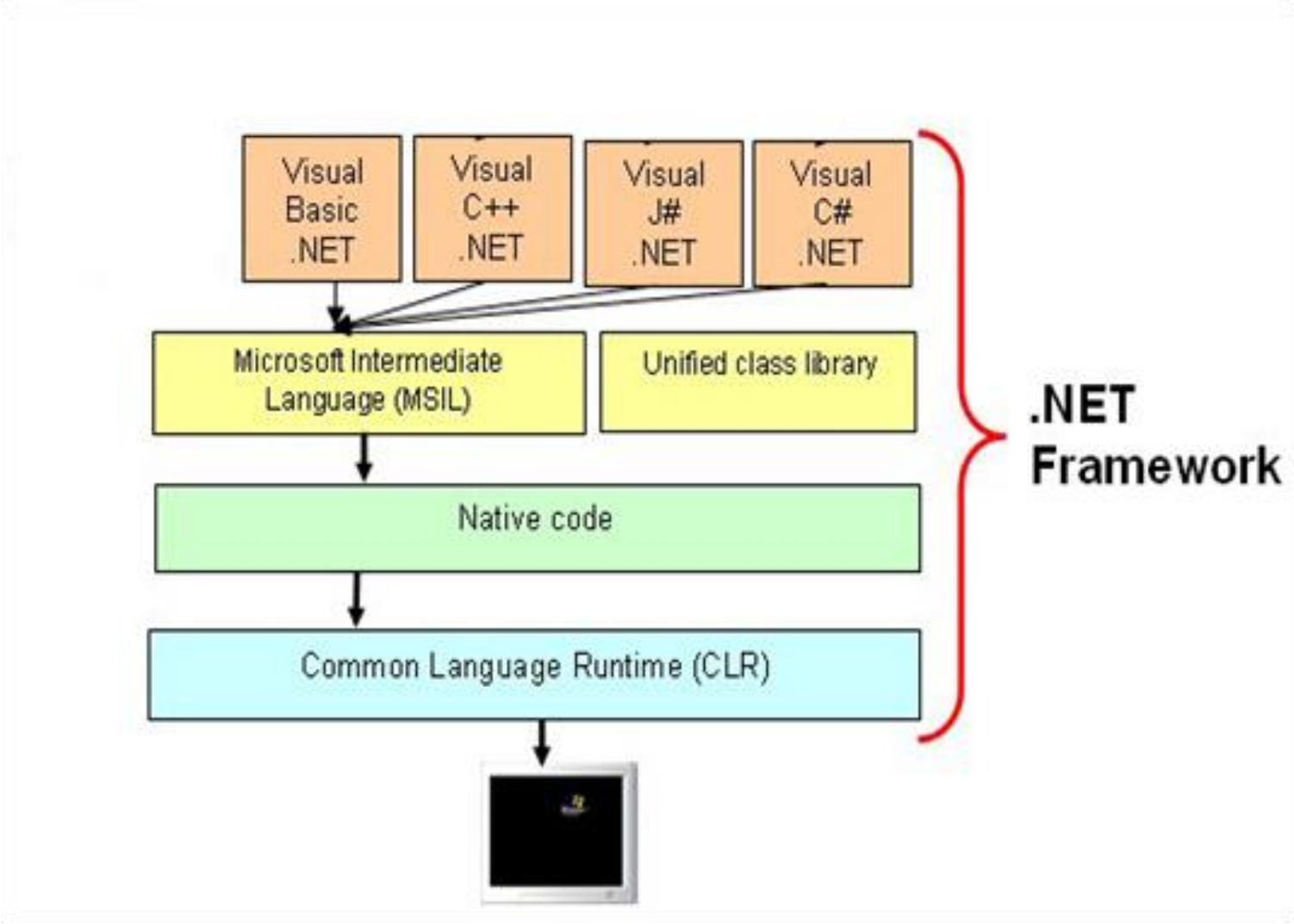
CLS (Common language specification)

- CLS stands for Common Language Specification and it is a subset of CTS. It defines a set of rules and restrictions that every language must follow which runs under .NET framework.

CLS (Common language specification)

- **For example**, one rule is that you cannot use multiple inheritance within .NET Framework. As you know C++ supports multiple inheritance but; when you will try to use that C++ code within C#, it is not possible because C# doesn't supports multiple inheritance.
- One another rule is that you cannot have members with same name with case difference only i.e. you cannot have add() and Add() methods. In case of C# it is case-sensitive but when you will try to use that in VB.NET, it is not possible because VB.NET is not case-sensitive.

MSIL(microsoft intermediate language)



MSIL(microsoft intermediate language)

- During the compile time , the compiler convert the source code into Microsoft Intermediate Language (MSIL) .
- Microsoft Intermediate Language (MSIL) is a CPU-independent set of instructions that can be efficiently converted to the native code. During the runtime the Common Language Runtime (CLR)'s Just In Time (JIT) compiler converts the Microsoft Intermediate Language (MSIL) code into native code to the Operating System.

Thank You