
Deccansoft Software Services

(A Microsoft Learning Partner)

C# Programming Syllabus

Module 1: Introduction to .Net Framework

In this module we explained clearly about the .Net Framework that

- ❖ What is a .Net Framework and components in the .Net Framework
- ❖ Different .Net Framework versions and their Dependency
- ❖ The core of the .Net Framework and the Types of .Net Applications that we can develop
- ❖ What are Base class Libraries and what is a Namespace
- ❖ How the Compilation process and Execution Process is done
- ❖ What is Portable Executable and its extensions
- ❖ What is MSIL and why MSIL instructions are Platform Independent Instructions
- ❖ What is Metadata and which type of Information does the Metadata Stores
- ❖ What is CLR and What are the Components in CLR

Module 2: VS.Net and Entry point Method

In this module we concentrated on how to install a visual studio and the types of Editions in visual studio

Using a sample Application we understand

- ❖ Importance of Command Line arguments and how to pass values for arguments through Command prompt
- ❖ and through command Line arguments in the visual studio
- ❖ Different Entry point methods and Significance of the Return value in main
- ❖ How to resolve ambiguity of Main method
- ❖ How to develop an application without using Visual studio .Net

Module 3: C# Language Syntax

In this Module we concentrated on Introduction to C#, its Evolution and its versions History along with that

We understand

- ❖ Why we need a programming Language
- ❖ What are the Data Types we have in C# and how to declare a Variable
- ❖ How Data Types are Categorized into Value Type and Reference Type
- ❖ What is Implicit Casting and Explicit casting and how to handle Overflow checks
- ❖ .Difference between string and string Builder
- ❖ what is Boxing

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- ❖ what is Unboxing
- ❖ what is Type Inference
- ❖ what are constants and Enums
- ❖ what are the Operators we have in C#
- ❖ How the if, while, do while, switch condition will works
- ❖ What is the difference between for and foreach and where to use for loop and where to use foreach loop
- ❖ What is single dimension Array, multi dimension Array
- ❖ What is method overloading
- ❖ what are optional parameters and what will happen when we not provide any value for the parameter
- ❖ what are Named Arguments
- ❖ what is params Parameter
- ❖ How to Pass argument by value, ref and out
- ❖ How to improve our Programming skills and logical skills to become a extraordinary programmer

Module 4: OOPS – Concepts

In this module we concentrate on

- ❖ Introduction to OOPS and its principles
- ❖ what is a class
- ❖ what is an object
- ❖ what is a component
- ❖ what is Encapsulation and Data Abstraction
- ❖ what is an inheritance and advantages of inheritance
- ❖ what is a ployorphism

Module 5: OOPs - Programming Encapsulation

In this Module we understand that

- ❖ How to create a WindowsForms application
- ❖ How to create a class and how to declare field members in it
- ❖ How to Design GUI using Controls in the ToolBox
- ❖ How button click event works
- ❖ How Garbage collector will destroy the objects and what are the generations in Garbage Collector
- ❖ what is an instance Method and what is the use of this keyword inside a method
- ❖ what are properties and what does a get and set block do
- ❖ What is the difference between constructor and Destructor

- ❖ Where the static members allocate memory
- ❖ when the memory is allocated for static members
- ❖ How to access a static member
- ❖ what is the role of Static constructor and how it executes
- ❖ when to declare a class as static

Module 6: OOPs – Inheritance

In this module we concentrate on

- ❖ what is Protected keyword and how to bypass it through child class
- ❖ How to casting the reference types
- ❖ what does a "is" operator do
- ❖ what does "as" operator do
- ❖ what does "??" operator do
- ❖ What is static Binding and Dynamic Binding
- ❖ How to override a method
- ❖ what is an abstract class , abstract method
- ❖ when to declare a class as abstract
- ❖ what is the difference between abstract class and concrete class
- ❖ when to declare a method using new keyword
- ❖ what is a system.object class
- ❖ What are the methods in the object class

Module 7: OOPS - Interface and Polymorphism

In this module we concentrate on

- ❖ what is an interface
- ❖ How does multiple inheritance is working with interfaces
- ❖ How to solve if two interfaces having same method name
- ❖ What is publicly implemented and Explicitly implemented
- ❖ why does the .net doesn't support multiple inheritance using classes
- ❖ How to implement an interface by inheriting it

Module 8: Collections and Generics

In this module we concentrate on the Introduction to Collections and

- ❖ What are the Types of collections and what is IEnumerable, ICollection, IList, IDictionary
- ❖ What is ArrayList, HashTable, SortedList, Queue, Stack
- ❖ How to iterate using IEnumerable

- ❖ How sort using IComparer and IComparable
- ❖ What are the advantages of Generics and how they work at Runtime
- ❖ what are Generic methods and Generic collection classes
- ❖ What is List and Dictionary

Module 9: Assemblies and GAC

In this module we concentrate on the Assemblies

- ❖ What is difference between DLL and EXE
- ❖ How to build a class library
- ❖ How to use a Class Library in another Application
- ❖ What is Namespace
- ❖ Internal Access Specifier
- ❖ Types of Assemblies
- ❖ Global Assembly Cache

Module 10: Exception Handling

In this module we concentrate on how to handle when an Exception raised using sample application we understand that

- ❖ What is an Exception and types of Exceptions
- ❖ How to handle Exception using try and catch blocks
- ❖ How to throw an Exception using throw ex and throw
- ❖ What is finally Block
- ❖ How to define custom Exception class

Module 12: IO Streams

In this module we concentrate on IO Streams and we understand

- ❖ What is a Stream and Types of Streams
- ❖ what are standard IO streams
- ❖ How Files can be Handled using FileMode, FileAccess, FileShare
- ❖ What is Binary Reader and Binary Writer
- ❖ How to work with File System
- ❖ What is Serialization and Deserialization

Module 13: Unsafe Code

In this module we concentrate on what is unsafe code and how pointers will work in C#

Module 14: Reflection and Attributes

In this module we concentrate on Reflections and Attributes and we understand

- ❖ What is Reflection
- ❖ How to read type information Using Reflection
- ❖ How to work with Attributes
- ❖ what are Pre-defined Attributes
- ❖ what are Custom Attributes
- ❖ How to read custom attributes Using Reflection

Module 15: Extended C# Language Features

In this module we concentrate on Extended C#Language Features

- ❖ What is Operator Overloading
- ❖ What is the partial class, partial methods
- ❖ What are Extension Methods
- ❖ what are Anonymous Types
- ❖ what are Tuples
- ❖ what is caller Information
- ❖ what is configuration File

Module 16: New Features of C# 6

In this module we concentrate on New Features of CSharp 6.0 and we understand

- ❖ what is String Interpolation
- ❖ what is Null Conditional Operator
- ❖ what is Auto Property Initializer
- ❖ what is Dictionary / Index Initializer
- ❖ what is Expression-bodied function members
- ❖ what is Static Using
- ❖ what is name of Expression
- ❖ what are Exception Filters
- ❖ what is Declaration Expressions
- ❖ How does await keyword works in catch and finally block

Module 17: Developing GUI Application Using WinForms

In this module we concentrate on Introduction to WindowsForms and we understand

- ❖ What are Windows Forms and how they bring Rich GUI to the Application
- ❖ what are the controls that have in the WindowsForms

- ❖ what are the important properties of the controls
- ❖ what are the important Events that each control have
- ❖ What are the Container controls
- ❖ what are Graphical Objects
- ❖ what are GDI objects
- ❖ What is MenuStrip, ContextMenuStrip, ToolStrip And StatusStrip
- ❖ How to work with Model Dialog
- ❖ How to develop a Notepad Application
- ❖ What is Modeless dialog Box
- ❖ What is Multiple Document Interface
- ❖ What is Form Inheritance
- ❖ How to Add Login Facility to the Application
- ❖ How to work with the Resource files
- ❖ what is NotifyIcon Control
- ❖ What is Timer control
- ❖ How to Drag and Drop the Files
- ❖ What is a Treeview
- ❖ What is a ListView

Module 18: ADO.NET Part1 - Managed Provider Objects

In this module we concentrate on Introduction to Ado.net, Architecture of ADO.net and we understand that

- ❖ What is a Managed Provider and important objects in it?
- ❖ How to Install SQL server and Management Studio
- ❖ How to establish a connection to Database
- ❖ what is Connection Pooling
- ❖ How to insert, Update, Delete the data in the Database from the Application
- ❖ How to Fetch Data from the Database using Select command
- ❖ How to implement Login to the Application using Database
- ❖ what is MultipleActiveResultSets
- ❖ what is Parameterized Prepared Statement
- ❖ How to write stored procedures in Backend
- ❖ How to Execute stored procedures from front end Application
- ❖ what are the Transactions
- ❖ How to Manage the Transactions using Transaction Scope
- ❖ What is Asynchronous Execution of SQL Commands
- ❖ How to write Provider independent code

- ❖ what is utility class

Module 19: ADO.NET Part2 - DataSet Object Model

In this module we concentrate on

- ❖ What are DataAdapter events
- ❖ How to handle Concurrency issues if multiple users performing operations on same Data
- ❖ How to sort and filter the data using DataView
- ❖ what are the constrains in the DataTable and how to Add the constrain to the DataTable
- ❖ what is a DataRelation object
- ❖ How to create DataSet/ DataTable Dynamically without using DataAdapter
- ❖ what is Typed Dataset

Module 20: N-Tier Layered Architecture Applications

In this module we concentrate on N-Tier Layered Architecture

- ❖ Introduction to N-Tier
- ❖ what is a Tier and what is a Layer
- ❖ what is the Role of Presentation layer, Data layer, Business object Layer, DAO layer
- ❖ How to design a GUI for the Application
- ❖ How to use Helper class and Enum
- ❖ How to pass the data from one Layer to another Layer

Module 21: XML

In this module we concentrate on XML and we understand

- ❖ What is a XML and XML parser
- ❖ what is DOM parser
- ❖ How to perform CRUD operations on XML DOM
- ❖ How to get the reference to nodes in XmlDocument using XPath
- ❖ How XML works with DataSet
- ❖ What is XML Textwriter and XML TextReader
- ❖ what is XPath Document and XPath Navigator

Module 22: Windows Services

In this module we concentrate on Windows Service and we understand that

- ❖ What is a Windows service
- ❖ How to create a new windows service Template
- ❖ How to Install/Deploy windows service in the OS
- ❖ How to Launch a Windows Service

- ❖ How to develop an Application for controlling the Service

Module 23: Delegates & Events

In this module we concentrate on Delegates and their working and we understand that

- ❖ What is a Delegate
- ❖ How to create a chat application using Delegates
- ❖ How to raise an event using Delegates
- ❖ what are Anonymous Methods

Module 24: User Control and Custom Control

In this module we concentrate on User Control and we understand that

- ❖ what is User Control
- ❖ what is composite control
- ❖ How to inherit the User Control
- ❖ what is a custom control

Module 25: MultiThreading

In this module we concentrate on MultiThreading and we understand

- ❖ What is process and Thread
- ❖ what is difference between MultiThreading and Multitasking
- ❖ what is scheduling and types of scheduling
- ❖ How to set the Thread priority
- ❖ How to suspend, Resume, Interrupt, Abort and get the status of Thread
- ❖ what is cross Thread operation
- ❖ what is Thread pool
- ❖ what is Thread Synchronization
- ❖ What is critical section
- ❖ what is Mutex
- ❖ what is Semaphore
- ❖ what is Task parallel programming
- ❖ what is Async Programming

Module 26: Debugging and Diagnostics

In this module we concentrate on Debugging and Diagnostics and we understand

- ❖ What is Debugging
- ❖ what is Build Configuration (Debug and Release)
- ❖ what are List of Debugging Windows

- ❖ what is Break Point Hit Count and Condition
- ❖ what are Debugging Exceptions
- ❖ What is Diagnostics
- ❖ what is Debug and Trace Classes
- ❖ what are Types of Listeners
- ❖ what is Boolean and Trace Switch