



Lesson Plan

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OVERVIEW & PURPOSE

The .NET Framework is a software development framework developed by Microsoft that provides a runtime environment and a set of libraries and tools for building and running applications on Windows operating systems. The framework includes a variety of programming languages, such as C#, F#, and Visual Basic, and supports a range of application types, including desktop, web, mobile, and gaming applications.

- It is used to develop Form-based applications, Web-based applications, and Web services. There is a variety of programming languages available on the .Net platform, VB.Net and C# being the most common ones. It is used to build applications for Windows, phones, web, etc. It provides a lot of functionalities and also supports industry standards.
- .NET Framework supports more than 60 programming languages of which 11 programming languages are designed and developed by Microsoft. The remaining Non-Microsoft Languages are supported by .NET Framework but not designed and developed by Microsoft.

EDUCATION INDEX

1. .Net Core
2. .Net Framework
3. Common Language Runtime (CLR)
4. Framework Class Library (FCL) and Base Class Library (BCL)
5. Core Languages (WinForms, ASP.NET, and ADO.NET)
6. Other Modules (WCF, WPF, WF, Card Space, LINQ, Entity Framework, Parallel LINQ, Task Parallel Library, etc.)
7. Introduction to Visual Studio Code IDE
8. Object Oriented Programming

9. Introduction to C#

- Features and Examples
- Data Types and Variables
- Keywords and Operators
- Control Statements (if-else, switch, for, while, do-while, break, continue, goto, etc.)

10. Functions

- Function Description
 - Access Specifiers - Public, Protected, Private, Internal, and Protected Internal
 - Static, Non-Static, and Dynamic
 - Nomenclature
 - Parameters/Arguments
- The return keyword
- Call by Value, Call by Reference, and Out parameter

11. Arrays

- Arrays to Functions
- Multi-dimensional Arrays
- Jagged Arrays
- String Arrays
- Params
- Array Class
- Command Line Arguments

12. Objects and Classes

- Constructor
- Destructor
- The keywords - this and static
- Static Class
- Static Constructor

- Structs and Enums
- 13. C# Properties
 - Inheritance
 - Association, Composition, and Aggregation
 - Polymorphism
 - Overloading
 - Overriding
 - The keywords - base and sealed
 - Abstraction
 - Encapsulation
 - Namespaces
- 14. Strings
- 15. Exception Handling
 - Try/Catch
 - Finally
 - Custom Exception
 - Checked and Unchecked
 - SystemException
- 16. File I/O
- 17. Collections
- 18. Generics
- 19. Delegates
- 20. Reflection
- 21. Anonymous Functions
- 22. Multithreading
- 23. Synchronization
- 24. Lambda Expressions
- 25. Dynamic Binding
- 26. Asynchronization
- 27. Await in Catch/Finally blocks
- 28. Setter/Getter Methods
- 29. Async Main
- 30. Default Expressions
- 31. Significance of Standard Comments
- 32. C++ vs C#
- 33. Java vs C#
- 34. Introduction to CRUD Functionalities

35. ADO.NET

- Introduction
- Data Providers
- SQL Server
- Connection
- Command
- DataReader
- DataAdapter
- DataTables
- Web Forms
- Model View Controller

36. ASP.NET

- Introduction
- Features
- Web Forms
- Web Pages
- Projects
- User Registration
- Events Handling
- Authentication
- Model Binding
- HTML Server Controls

37. ASP.NET MVC

- Project
- Controller
- Actions
- Action Selectors
- Action Filters
- Model
- Model Binding
- View
- Validation
- Entity Framework
- Authentication
- Bootstrap
- Routing
- Scaffolding

- ViewBag
- 38. ASP.NET Razor
 - Introduction
 - Code Expressions
 - Code Blocks
 - Control Structures
 - HTML Helpers
 - Partial Views
- 39. Advantages of .Net
- 40. Disadvantages of .Net

NECESSITIES

1. Knowledge of OOPs
2. Basics of C#
3. Basics of HTML
4. Visual Studio Code

ACTIVITY

Beginner ASP.NET Projects

- *Appointment Scheduler Project*
- *Cab Management System Project*
- *Discussion Forum Project*

Intermediate ASP.NET Projects

- *Mailing System*
- *IT Service Help Desk*
- *Online Job Portal Project*

Advanced ASP.NET Projects

- *Client-Server Communication System*
- *File Sharing System Project*
- *Online Text Editor*