BRIGHT INFOTECH

.Net Full Stack Course Details

1. Introduction to Full Stack Development

- **What is Full Stack Development?**
  - Definition and Importance
  - Front-End vs. Back-End vs. Full Stack
- **Overview of .NET Framework**
  - History and Evolution
  - .NET Core vs. .NET Framework
  - Introduction to .NET 5/6+

2. Front-End Development

- **HTML5 and CSS3**
  - Basics of HTML5: Elements, Attributes, Forms, and Semantic Tags
  - Basics of CSS3: Selectors, Properties, Flexbox, Grid, and Media Queries
  - Responsive Web Design
- **JavaScript**
  - JavaScript Basics: Variables, Data Types, Functions, and Events
  - DOM Manipulation
  - ES6+ Features: Arrow Functions, Classes, Promises, and Modules
- **Front-End Frameworks**
  - Introduction to Angular/React/Vue.js (choose one)
  - Component-Based Architecture
  - State Management (Redux/Vuex/Ngrx)
  - Building Single Page Applications (SPAs)

3. Version Control with Git

- **Git Basics**
  - Installation and Setup
  - Git Commands: Clone, Commit, Push, Pull, and Merge
- **Working with GitHub/GitLab**
  - Creating and Managing Repositories
  - Branching and Merging Strategies
  - Pull Requests and Code Reviews

4. Introduction to .NET

- **.NET Basics**
  - Understanding the .NET Ecosystem
  - .NET CLI (Command Line Interface)
  - Creating a Simple .NET Application
- **C# Programming Language**
  - C# Syntax and Basics: Variables, Data Types, Control Structures
  - Object-Oriented Programming (OOP) in C#: Classes, Objects, Inheritance, Polymorphism, Encapsulation
  - Exception Handling
  - LINQ (Language Integrated Query)

5. Back-End Development with ASP.NET Core

- **ASP.NET Core Basics**
  - Introduction to ASP.NET Core
  - Setting up an ASP.NET Core Project
  - Middleware and Routing
  - Controllers and Actions
- **Entity Framework Core**
  - Introduction to ORM (Object-Relational Mapping)
  - Setting up Entity Framework Core
  - Code First vs. Database First Approach
  - Migrations and Seeding Data
  - Querying Data with LINQ
- **Web APIs**
  - Building RESTful Services with ASP.NET Core
  - Attribute Routing
  - Data Transfer Objects (DTOs)
  - Consuming APIs with HttpClient

6. Database Management

- **Introduction to Databases**
  - Relational vs. NoSQL Databases
  - Basics of SQL
- **Working with SQL Server**
  - Setting up SQL Server
  - Creating and Managing Databases
  - Writing SQL Queries
  - Stored Procedures and Functions

7. Authentication and Authorization

- **Security Basics**
  - Authentication vs. Authorization
  - Implementing Authentication in ASP.NET Core
  - Using Identity Framework

    - Role-Based Authorization and Claims

8. Front-End and Back-End Integration

- **Connecting Front-End to Back-End**
    - Making API Calls from Front-End
    - Handling Data with Services
    - State Management in SPAs
- **Real-Time Communication**
    - Introduction to SignalR
    - Implementing Real-Time Features

9. Deployment and DevOps

- **Deployment Basics**
    - Understanding Deployment Processes
    - Deploying .NET Applications to IIS, Azure, AWS
- **CI/CD Pipelines**
    - Introduction to Continuous Integration and Continuous Deployment
    - Setting up CI/CD Pipelines with Azure DevOps/GitHub Actions
- **Containerization with Docker**
    - Introduction to Docker
    - Dockerizing .NET Applications
    - Working with Docker Compose

10. Testing and Debugging

- **Unit Testing**
    - Introduction to Unit Testing
    - Writing Unit Tests with xUnit/NUnit
    - Mocking Dependencies with Moq
- **Integration Testing**
    - Writing Integration Tests
    - Testing APIs
- **Debugging Techniques**
    - Debugging in Visual Studio
    - Common Debugging Tools and Techniques

11. Capstone Project

- **Project Planning and Design**
    - Identifying a Full Stack Project
    - Requirement Gathering and Analysis
- **Implementation**
    - Front-End Development
    - Back-End Development
    - Database Design and Integration
- **Testing and Deployment**

    - Writing Tests and Ensuring Code Quality
    - Deploying the Project
- **Presentation**
    - Creating a Project Presentation
    - Demonstrating the Project

12. Soft Skills and Best Practices

- **Code Reviews and Pair Programming**
    - Conducting and Participating in Code Reviews
    - Best Practices for Pair Programming
- **Agile and Scrum Methodologies**
    - Introduction to Agile Principles
    - Working in Scrum Teams
- **Professional Development**
    - Building a Portfolio
    - Preparing for Technical Interviews