

INFOSOFT IT SOLUTIONS

Training | Projects | Placements

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ASP.NET

Introduction to ASP.NET

- Overview of ASP.NET: Evolution and versions (Web Forms, MVC, Core)
- ASP.NET Architecture: Components (Model, View, Controller), Request Processing Pipeline
- Setting up ASP.NET Development Environment: Visual Studio, .NET Framework/Core SDK

Getting Started with ASP.NET Core

- Introduction to ASP.NET Core: Features, benefits, and cross-platform capabilities
- Creating your first ASP.NET Core project: Project structure, files, and folders
- ASP.NET Core Middleware: Request processing pipeline, Middleware components

ASP.NET Core MVC Fundamentals

- MVC Architecture: Model, View, Controller
- Creating Controllers and Actions: Handling HTTP requests, Action methods
- Views and Razor Syntax: Creating dynamic views using Razor syntax

Working with Models and Data

- Model Binding: Binding HTTP request data to Action method parameters
- Entity Framework Core (EF Core): Overview and setup for database access
- CRUD Operations with EF Core: Reading, Writing, Updating, and Deleting data

Routing and URL Patterns

- ASP.NET Core Routing: Configuring route patterns, Route constraints
- Attribute Routing: Applying route attributes to Controller actions
- Generating URLs: Using URL helpers and Routing middleware

Working with Views and Layouts

- Creating Views: Razor views, Layouts, Partial views
- ViewBag, ViewData, and TempData: Sharing data between Controller and View
- View Models: Strongly-typed views using View Models

Forms and Data Validation

- HTML Forms in ASP.NET Core: Handling form submissions
- Data Annotations: Validation attributes for model validation
- Client-side Validation: Using jQuery and unobtrusive JavaScript

Authentication and Authorization

- Authentication in ASP.NET Core: Implementing authentication schemes (Cookies, JWT)
- Authorization: Role-based and Policy-based authorization
- Identity Framework: Managing users, roles, and claims

ASP.NET Core Web API

- Introduction to ASP.NET Core Web API: Building APIs using MVC principles
- RESTful API Design: HTTP methods (GET, POST, PUT, DELETE), URI conventions
- Versioning APIs: Versioning strategies for backward compatibility

Testing and Debugging ASP.NET Applications

- Unit Testing in ASP.NET Core: Testing Controllers and Services
- Debugging Techniques: Using breakpoints, Watches, and Visual Studio debugging tools
- Integration Testing: Testing API endpoints and database interactions

Advanced Topics in ASP.NET Core

- Dependency Injection (DI): Configuring services and injecting dependencies
- Middleware and Filters: Implementing custom Middleware and Action filters
- Logging and Error Handling: Implementing logging providers and exception handling middleware

Real-time Applications with SignalR

- Introduction to SignalR: Real-time Web functionality in ASP.NET Core
- Implementing SignalR: Creating real-time applications with WebSocket-based communication
- SignalR Hubs: Hub methods, Clients, Groups, and connection management

Performance Optimization and Scaling

- ASP.NET Core Performance Best Practices: Caching, Response Compression

- Load Balancing and Scalability: Deployment strategies for high availability
- Monitoring and Profiling: Performance monitoring tools and techniques

Deployment and DevOps with ASP.NET Core

- Publishing ASP.NET Core Applications: Deployment to IIS, Azure, Docker
- Continuous Integration and Continuous Deployment (CI/CD): Using Azure DevOps, GitHub Actions
- Containerization: Dockerizing ASP.NET Core applications

Security Best Practices

- OWASP Top 10 Security Risks: Mitigation strategies in ASP.NET Core
- Cross-Site Scripting (XSS) and Cross-Site Request Forgery (CSRF) protection
- Secure Coding Practices: Input validation, Authentication, and Authorization best practices

ASP.NET Core and Cloud Services

- Integrating ASP.NET Core with Cloud Services: Azure services (Azure SQL, Azure Storage, Azure Functions)
- Serverless Computing: Implementing serverless architectures

Emerging Trends and Future of ASP.NET Core

- ASP.NET Core and Microservices Architecture
- AI Integration with ASP.NET Core: Machine Learning and AI-driven applications
- IoT and Edge Computing: Integrating ASP.NET Core with IoT devices and edge computing platforms

Project Work and Capstone

- Designing and Implementing ASP.NET Core Projects: Hands-on projects covering various application scenarios

- Capstone Project: Demonstrating proficiency in ASP.NET Core development through a comprehensive project

Career Development and Job Preparation

- Building a Career in ASP.NET Development: Skills and certifications
- Interview Preparation: ASP.NET-related interview questions and scenarios
- Freelancing and Consulting Opportunities in ASP.NET development