.NET Developer Roadmap 2024.

1. C#

- Classes
- Access modifiers
- Virtual keyword
- Generics
- Delegates/Events
- out keyword
- Reference and value types
- Operators
- Assemblies
- Parameter types
- Interfaces
- Casting
- Strings
- Statements and expressions
- Collections
- Boxing/Unboxing
- Async / await
- Using keyword
- Arrays

- Basics of C# 6-11
- .NET 7 and .NET 8
- .NET Framework 4.8
- dotnet CLI
- NuGet

- File I/O
- Collections
- Exceptions
- Networking
- Multithreading
- Security
- Cryptography

2. General Development skills

- Git
- Data structures & algorithms
- Clean code and refactoring
- SOLID, YAGNI, DRY, KISS principles
- Design Patterns
- Software architectures
- Architecture patterns

Design Patterns
- Singleton
- Factory Method
- Adapter
- Facade
- Decorator
- Proxy
- Command
- Template Method
- Strategy
- Observer
- Repository
- Creational
- Structural
- Behavioral

Software architectures
- Microservices
- Layered

Architecture patterns
- MVC
- MVP
- MVVM
- Domain-Driven Design

3. ASP. NET Core

- Web basics
- MVC
- APIs
- Web APIs
- Middlewares
- Filters & Attributes
- Authentication & Authorisation

Web basics
- How Internet works
- HTTP/HTTPS
- DNS

APIs
- REST
- GraphQL
- gRPC

Web APIs
- Minimal APIs
- Controllers

Authentication & Authorisation
- Cookies
- OIDC Middleware
- ASP.NET Core Identity
- OAuth 2.0
- JSON Web Tokens
- IdentityServer

4. Client-Side .NET

- Razor
- Blazor
- .NET MAUI
- WPF

5. Databases

- Database design
- SQL Syntax
- Stored procedures
- Relational
- NoSQL

Relational
- Postgres
- SQL Server
- Azure SQL
- MySQL/MariaDB

NoSQL
- MongoDB
- RavenDB
- Cosmos DB

6. ORM

- Entity Framework Core
- Dapper
- LINQ

Entity Framework Core
- Learn basics
- Code first & migrations
- Change tracker API
- Lazy/eager loading

7. Caching

- Memory Cache
- Redis
- Application-level

8. Logging

- Microsoft.Extensions.Logging
- Serilog
- NLog

9. Communication

- Real-time
- Synchronous
- Asynchronous

Real-time
- SignalR Core
- Web Sockets

Synchronous
- HTTP Client

Asynchronous
- MassTransit
- RabbitMQ
- Azure Service Bus
- Apache Kafka

10. Background tasks

- Native Backround Service
- HangFire
- Quartz

11. Testing

- Unit Testing
- Integration Testing
- Snapshot Testing
- End-to-End Testing
- Performance Testing

Unit Testing
- Frameworks
- Mocking
- FluentAssertions
- Test Data Generators
- WebApplicationFactory
- TestServer

Frameworks
- xUnit
- nUnit
- NSubstitute

Test Data Generators
- Bogus
- AutoFixture

Performance Testing
- Verify
- Playwright
- K6
- NBomber

12. Observability

- Monitoring
- Telemetry

Monitoring
- ELK Stack
- Datadog
- Prometheus
- Grafana

Telemetry
- OpenTelemetry
- Jaeger

13. Containerization

- Containers
- Orchestration

Containers
- Docker
- Azure Container Registry

Orchestration
- Kubernetes
- Helm

14. Cloud

- Azure
- aws
- Google Cloud

15. Continous Integration & Delivery

- CI/CD Concepts
- GitHub Actions
- GitLab CI
- Azure Pipelines
- Travis CI
- Jenkins

16. .NET Libraries

- MediatR
- Polly
- FluentValidation
- BenchmarkDotNet
- Refit
- YARP
- Swashbuckle

Legend

- Junior
- Medior
- Senior

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simplifying complex topics