Full stack dot net developer Road Map

By/ Mohammed Sallam

1. Basics

- **CS50 Course :**
  - https://www.youtube.com/watch?v=pSc6RGEBLAQ&list=PLknwE mKsW8OvMsFbU9zo8oJCprAsgc4LO
  - https://www.youtube.com/watch?v=YoXxevp1WRQ&list=PLhQjrB D2T382_R182iC2gNZI9HzWFMC_8
  - https://www.youtube.com/watch?v=PGXC1-RCgeA&list=PLnrlZUDQofUv7JE4QIahAyztrQU9bnJmd
- **Programming Language (C#) :**
  - (C# and OOP ITI)https://www.youtube.com/watch?v=cCJQe1RGm-I&list=PLesfn4TAj57XLhtaF9ZS_z0dOKQPXKMcE&index=1
  - https://www.youtube.com/watch?v=P1j1PI0YL-M&list=PL4n1Qos4Tb6SWPbJNpiznp-Ok4A8J_23l
  - https://www.youtube.com/watch?v=DZHohhJDjHk&list=PLsV97AQ t78NT0H8J71qe7edwRpAirfqOI
- **Object-oriented programming (OOP).**
  - https://www.youtube.com/watch?v=vo_vktaAK9o&list=PL4n1Qos4 Tb6QqbzOaDvrEAW8C9LN9VSzj
- **Data Structure & Algorithms**
- **Data Base**
  - (ITI)https://www.youtube.com/watch?v=Q5lAC_wBHzE&list=PLesfn 4TAj57V5vvJKvYxofwY2hbyjk9-E

2. Dot net roadmap

- **LINQ**
  - (ITI)https://www.youtube.com/watch?v=Y5JiJ1aKWZQ&list=PLesfn 4TAj57XPaxXcGQ2mmBGyfvrvV_Aa
  - https://www.youtube.com/watch?v=XLIqOBr7Cm0&list=PL4n1Qos 4Tb6Sj1Y4xJuJoWCuqleeG2yt6
- **Entity Framework Core**

- (ITI)
  https://www.youtube.com/watch?v=rNfYrgoERjk&list=PLesfn4TAj57WisNpNGLPCS1donYYAEQSI
- https://www.youtube.com/watch?v=I9eMtI_RnUQ&list=PL62tSREI9C-cHV28v-EqWinveTTAos8Pp

- **ASP.NET MVC**
  - Learn from ITI course then View this course
    https://www.youtube.com/watch?v=tTZq_CwGqog&list=PL62tSREI9C-c-Zw9Pafbd7VQTfZMtn8yQ

- **ASP.NET web API**
  - https://www.youtube.com/watch?v=tIXbua3zqU8&list=PLesfn4TAj57VzTrrGkOKWbNOOrUCdSQGo

- **Create Full Project Using API**

3. **Front-end**
   - **HTML5**
     - https://www.youtube.com/watch?v=6gjg5n9kyBU&list=PLDoPjvoNmBAyXCAQMLhDRZsLi_HurqTBZ

   - **CSS3**
     - https://www.youtube.com/watch?v=aBlZ_2rGeb4&list=PLDoPjvoNmBAyEyQaHOHO1HJtmSgGt07VC

   - **Java Script**
     - https://www.youtube.com/watch?v=GM6dQBmc-Xg&list=PLDoPjvoNmBAx3kiplQR_oeDqLDBUDYwVv

   - **Bootstrap**
     - https://www.youtube.com/watch?v=auFVttzUoo8&list=PLDoPjvoNmBAw24EjNUp_88S1VeaNK8Cts

   - **Angular**
     - (ITI)
       https://www.youtube.com/watch?v=DSibq5YiFp4&list=PLesfn4TAj57WJFn86KXOInQAsCdJlp6vl

   - **Create Full Project**

4. **Create Full Project Backend and Front-End**

5. **Advanced Topics**
   - **Learn Architecture patterns (3-Tier, N-Tier, Clean Architecture, …..)**
     - **You can learn it after learning MVC**
   - **Learn SOLID**
     - **https://www.youtube.com/watch?v=-hbWDYRSjqk&list=PLnqAlQ9hFYdflFSS4NigVB7aSoYPNwHTL**

   - **Learn Design Pattern**
     - **https://www.youtube.com/watch?v=aSDdHSW6_bU&list=PLsV97AQt78NTrqUAZM562JbR3ljX19JFR**
   - **Unit Testing.**
   - **DevOps.**
   - **Microservices.**
   - **Memory Management.**
   - **Software Engineering.**
   - **Agile methodology.**

Important Courses and websites can help you learn

cSharp

https://drive.google.com/drive/folders/1EEY9r2-uoWocQBX4HGm2CDyMBOTMKUaI

Database

https://elengmenofiaedu-my.sharepoint.com/personal/ahmed_ibrahiem141934_el-eng_menofia_edu_eg/_layouts/15/onedrive.aspx?id=%2Fpersonal%2Fahmed%5Fibrahiem141934%5Fel%2Deng%5Fmenofia%5Fedu%5Feg%2FDocuments%2FDB%20%2D%20ITI%20Summer%20Training%20Records&ga=1

EntityFramework&Linq

https://drive.google.com/drive/folders/1HYZthU3eb5vQuK44YtAshuHVivft7Wke

MVC

https://mega.nz/folder/ZPFBTaqS#ZoLwhfnHddAMB19s3kx-cQ/folder/FT912LgB

Api

https://mega.nz/folder/ZPFBTaqS#ZoLwhfnHddAMB19s3kx-cQ/folder/ZDl3lB7K

Web Sites

Microsoft : https://learn.microsoft.com/en-us/dotnet/

w3schools : https://www.w3schools.com/html/

Tutorialspoint : https://www.tutorialspoint.com/index.htm

tutorialsteacher: https://www.tutorialsteacher.com/

sqlservertutorial: https://www.sqlservertutorial.net/

Udemy : https://www.udemy.com/

As a .NET full-stack software engineer, there are numerous topics you should be familiar with. I'll provide an extensive list, covering the basics of C# and .NET, as well as advanced topics including design patterns and architecture.

Here's the comprehensive list:

1. C# Basics:
Variables, Data Types, and Operators
Control Structures (if, else, switch, loops)
Arrays, Lists, and Collections
Methods and Functions
Classes and Objects
Properties and Indexers
Inheritance and Polymorphism
Interfaces and Abstract Classes
Exception Handling
Events and Delegates
LINQ (Language Integrated Query)

2. .NET Basics:
Common Language Runtime (CLR)
Common Type System (CTS)
Assemblies and the Global Assembly Cache (GAC)
.NET Framework Class Library (FCL)
Namespaces and Assemblies

3. .NET Core and .NET 5+
Understanding the transition from .NET Framework to .NET Core and .NET 5+
.NET Core SDK and Runtime
.NET CLI (Command-Line Interface)
Cross-platform development with .NET Core and .NET 5+

4. Web Development:
ASP.NET Web Forms vs. ASP.NET MVC vs. ASP.NET Core
Razor Pages
Model-View-Controller (MVC) pattern
ASP.NET Core Middleware
Routing
Views and ViewModels
Razor syntax
Authentication and Authorization (Identity Framework)
Web API (ASP.NET Core Web API)
Consuming APIs (HttpClient)
WebSockets and SignalR

5. Front-End Development:
HTML, CSS, and JavaScript basics
Front-end frameworks and libraries (e.g., Angular, React, Vue.js)
RESTful API consumption from JavaScript
AJAX and Fetch API
Front-End build tools (e.g., Webpack)

6. Database Access:
ADO.NET basics
Entity Framework Core (ORM)
Code-First and Database-First approaches
LINQ to Entities
Migrations

7. Testing:
Unit Testing with MSTest, xUnit, or NUnit
Mocking frameworks (e.g., Moq)
Test-Driven Development (TDD)

8. Design Patterns:
Creational Patterns (e.g., Singleton, Factory, Builder)
Structural Patterns (e.g., Adapter, Decorator, Proxy)
Behavioral Patterns (e.g., Observer, Strategy, Command)
Architectural Patterns (e.g., MVC, MVVM)

9. Architectural Concepts:
N-tier architecture
Domain-Driven Design (DDD)
Dependency Injection and Inversion of Control (IoC)
SOLID principles
Clean Architecture

10. Advanced Topics:
Asynchronous Programming (async/await)
Parallel Programming (Task Parallel Library - TPL)
Performance optimization techniques
Caching strategies
Real-time applications using WebSockets and SignalR
Microservices and Service-Oriented Architecture (SOA)

11. DevOps:
CI/CD pipelines with tools like Azure DevOps, Jenkins, or GitHub Actions
Containerization (Docker)
Deployment strategies
Monitoring and logging (e.g., Application Insights)

Remember that this is a comprehensive list, and it's not necessary to be an expert in all areas. However, having a solid understanding of these topics will certainly make you a well-rounded .NET full-stack developer. You can prioritize and focus on the topics that align with your current job requirements or personal interests.

Happy learning!

Keep Learning and don't give up

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