

.NET Coding Bootcamp Syllabus

Programming Fundamentals

1. System Data Types
2. Value and Reference types, Nullable types
3. String, Immutable types, String Builder
4. Arrays, Enum
5. Iteration constructs
6. Decision constructs
7. Methods and parameter modifiers
8. Methods overloading, default parameter

Object-oriented programming

1. class, constructor, memory allocation
2. this keyword
3. Encapsulation
4. Static classes and members
5. readonly and const keywords
6. Exception Handling
7. Nested types
8. Inheritance and Polymorphism
9. Object class, Boxing and Unboxing
10. Abstract class
11. Interface

Advanced Programming

1. Operator Overloading, Indexer Methods, Extension Methods
2. Generic Programming
3. Reflection, Attributes
4. IEnumerable and IEnumerator Interfaces
5. Delegates, Events, Lambda Expressions
6. LINQ
7. Garbage Collectors, GC class
8. Async programming with Threads
9. TPL, async, await

Algorithms and Data Structures

1. Measuring Performance
2. Linked List
3. Stack
4. Queue
5. Binary Trees
6. Hash Tables
7. Sorting Algorithms
8. Set Collection and Algorithms

Design Patterns

1. Overview of Design pattern and SOLID principles
2. Repository Pattern
3. Unit of work
4. Dependency Injection (DI)
5. Singleton

T-SQL and SQL Server

1. Introduction to SQL
2. Single-Table Queries
3. Joins
4. Subqueries
5. Table Expressions
6. Set Operators
7. Data Modification (CRUD)

ADO.NET

1. Commands
2. Data Reader
3. Data Set
4. Transactions

Entity Framework

1. EF Mapping
2. EF Entities
3. Data Context

4. EF Database First
5. EF Code First

Front-end programming

1. HTML5, CSS3
2. JavaScript Fundamentals

ASP.NET Core

1. MVC Pattern
2. Routes and URLs
3. Controllers and Actions
4. Views, Layouts, HTML Helpers and Data Validation
5. Data Access Layer
6. Middleware
7. Authentication and Authorization
8. Configuration files and security

Development and collaboration

1. Unit Testing
2. Git and GitHub