Software Architecture: Meta and SOLID Principles in C#

Learn how to develop maintainable software systems applying Design Patterns based on Meta and SOLID Principles

Course Duration :2 Days

Prerequisites:
The candidate must have knowledge of C#.
The candidate must have knowledge on .net framework and visual studio 2019.

Module 1:SINGLE RESPONSIBILITY PRINCIPLE

- SOLID Intro
- SRP Definition. Problem Statement
- Demo of the Problem
- Refactoring to a Better Design
- More Examples of SRP Violations
- SRP Related Patterns

Module 2:OPEN/CLOSED PRINCIPLE

- Outline
- OCP Definition. Problem Statement
- Demo of the Problem
- Refactoring to a Better Design
- OCP Related Patterns
- Common Smells of OCP Violation

Module 3:LISKOV SUBSTITUTION PRINCIPLE

- Outline
- LSP Definition. Problem Statement
- Contracts
- Demo of the Problem
- Refactoring to a Better Design
- More Examples of LSP Violations
- Common Smells of LSP Violation

Module 4:INTERFACE SEGREGATION PRINCIPLE

- Outline
- ISP Definition. Problem Statement
- Demo of the Problem
- Refactoring to a Better Design
- Demo of the Problem. Example 2
- Refactoring to a Better Design. Example 2
- Common Smells, Fixes and Related Patterns

Module 5:DEPENDENCY INVERSION PRINCIPLE

- Outline
- DIP Definition. Problem Statement
- Dependencies
- Volatile and Stable Dependencies
- IoC and DI Definitions
- DIP Violation Demo
- Refactoring to a Better Design Applying Dependency Injection (DI)
- DI Techniques
- Architectural Implications
- Pure DI and IoC-Containers
- Building a Simple IoC-Container
- Demo of a Real-World App Built with an IoC-Container
- Common Smells of DIP Violations

Module 6:METAPRINCIPLES AND SOLID

- Outline
- DRY - Don't Repeat Yourself
- KISS - Keep it Simple, Stupid
- YAGNI - You Ain't Gonna Need It
- SoC - Separation of Concerns
- CQS - Command Query Separation Principle
- Principle of Least Astonishment
- Encapsulation and Information Hiding
- General Principles of Building APIs
- SOLID VS YAGNI
- OCP VS YAGNI
- SRP and ISP. What's the Difference?
- Architecture and Design