

KOENIG SOLUTIONS · COURSE OUTLINE

Design Patterns Using .NET

Learn to apply object-oriented design principles and implement creational, structural and behavioural design patterns using .NET.

4

MODULES

27

TOPICS

3

HANDS-ON ACTIVITIES

COURSE OVERVIEW

This course begins with object-oriented design thinking, covering composition, aggregation, inheritance, encapsulation, interface versus implementation, and dependency inversion, along with the classification of design patterns into creational, structural and behavioural types. It then covers creational patterns, including Factory, Abstract Factory, Builder, Prototype and Singleton. It proceeds to structural patterns such as Adapter, Bridge, Composite, Decorator, Façade, Flyweight and Proxy. Finally, it addresses behavioural patterns, including Chain of Responsibility, Command, Interpreter, Iterator, Mediator, Memento, Observer, State, Strategy, Visitor and Template Method.

WHO THIS COURSE IS FOR

.NET Developers

Software Architects

Application Developers

Software Engineers

LEARNING OBJECTIVES

- Explain object-oriented concepts such as encapsulation and inheritance
- Describe the classification of design pattern categories
- Apply the Factory and Abstract Factory design patterns
- Implement the Builder, Prototype and Singleton design patterns
- Apply structural patterns such as Adapter, Composite and Decorator
- Implement the Façade, Flyweight and Proxy design patterns
- Apply behavioural patterns such as Observer, Strategy and Mediator
- Implement the Command, Iterator and Template Method design patterns

4 Modules, 27 Topics

01

Introduction to OO Design Thinking

TOPICS

- Design Patterns makes use of OOPs concepts - Composition, Aggregation, Inheritance, Encapsulation
- Interface-vs-Implementation
- Dependency Inversion
- Patterns Classification – Creational, Structural, Behavioural

02

Demo

Introduction of Creational Pattern

IMPLEMENTING THE LIST OF CREATIONAL PATTERNS

- Understanding & Implementing the Factory Design Pattern
- Advantages of using Abstract Factory Design Pattern
- Overview of Builder Design Pattern & how it is different from Abstract factory Design Pattern
- Cloning of an object using Prototype Design Pattern
- Understanding & Implementing the Singleton

03

Demo

Introduction of Structural Pattern

IMPLEMENTING THE LIST OF STRUCTURAL PATTERNS

- Overview of Adapter Design Pattern & Understand when to use it
- Introduction of Bridge Design Pattern
- Compose objects using Composite Design Pattern
- Add additional functionalities using Decorator Design Pattern
- Create object without constructor call using Façade Design Pattern
- Implementing Flyweight Design Pattern
- Understanding Proxy Design Pattern

Introduction of Behavioural Pattern

IMPLEMENTING THE LIST OF BEHAVIOURAL PATTERN

- Overview of Chain of Responsibility Design Pattern
- Understanding the Command Design Pattern
- Usage of Interpreter Design Pattern
- Introduction of Iterator Design Pattern
- Allow objects to communicate using Mediator Design Pattern
- Overview of Memento Design Pattern
- Understanding the Observer Design Pattern
- Alter the behaviour of an object using State Design Pattern
- Overview of Strategy Design Pattern
- Overview of Visitor Design Pattern
- Implementing the Template Method Design Pattern

HANDS-ON ACTIVITIES

Practise What You Learn

#	MODULE	ACTIVITY
02	Introduction of Creational Pattern	Implementing the Factory, Abstract Factory, Builder, Prototype & Singleton Design Pattern
03	Introduction of Structural Pattern	Implementing the Adapter, Composite, Decorator, Façade, Flyweight & Proxy Pattern
04	Introduction of Behavioural Pattern	Chain of Responsibility, Mediator, Observer, Template Method

WHAT IS INCLUDED

Everything You Need to Succeed

- Koenig course material for every module
- Delivery by certified instructors and subject matter experts
- Hands-on exercises throughout the course
- Course completion certificate from Koenig

ABOUT KOENIG

Who We Are

Established in 1993, Koenig Solutions is a globally recognised training provider with 35+ technology partnerships, 5,000+ training programmes and a network of certified instructors and subject matter experts, supporting individuals and enterprise teams worldwide.

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