KOENIG SOLUTIONS · COURSE OUTLINE

Design Patterns: Creational, Structural & Behavioral

Learn to apply creational, structural and behavioural design patterns to build well-organised, object-oriented software.

3 Days	5	37
DURATION	MODULES	TOPICS

COURSE OVERVIEW

This course begins with an introduction to object-oriented programming concepts and the Singleton pattern, before covering creational patterns such as Factory, Abstract Factory, Builder and Prototype. It then moves to structural patterns including Adapter, Bridge, Composite, Decorator, Façade, Flyweight and Proxy. The final module examines behavioural patterns such as Chain of Responsibility, Command, Observer, State, Strategy and Visitor, alongside the Null Object pattern. A concluding walkthrough introduces related concepts such as latency, throughput, availability, caching, data partitioning, indexes and replication.

WHO THIS COURSE IS FOR

- **Software Developers**
- **Software Architects**
- **Application Designers**
- **Backend Engineers**

LEARNING OBJECTIVES

- Explain core object-oriented programming concepts
- Apply the Singleton pattern to control object creation
- Implement creational patterns such as Factory and Builder
- Implement structural patterns such as Adapter and Decorator
- Apply behavioural patterns such as Observer and Strategy
- Compare creational, structural and behavioural pattern categories
- Describe concepts such as caching and data partitioning
- Identify concepts such as latency, throughput and replication

COURSE SYLLABUS

5 Modules, 37 Topics

01

Introduction

TOPICS

OOPS overview · The Singleton Pattern part 1 · The Singleton Pattern part 2 · The Singleton Pattern part 3

02

Creational Pattern

TOPICS

The Factory Pattern · The Factory Method Pattern · The Abstract Factory Pattern · The Singleton Pattern · The Builder Pattern · The Prototype Pattern · Summary of Creational Patterns

03

Structural Patterns

TOPICS

The Adapter Pattern · The Bridge Pattern · The Composite Pattern · The Decorator Pattern · The Façade Pattern · The Flyweight Pattern · The Proxy Pattern · Summary of Structural Patterns

04

Behavioural Patterns

TOPICS

- Chain of Responsibility Pattern
- The Command Pattern
- The Interpreter Pattern
- The Iterator Pattern
- The Mediator Pattern
- The Memento Pattern
- The Observer Pattern
- The State Pattern
- The Strategy Pattern
- The Template Pattern
- The Visitor Pattern
- Null Object pattern

Important Concepts: Quick Walkthrough

TOPICS

Latency and Throughput · Availability · Caching · Data Partitioning · Indexes · Replication

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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