KOENIG SOLUTIONS · COURSE OUTLINE

Accelerating Development with AI: Practical Workflows for Java, .NET, and Python

Learn to use AI tools like GitHub Copilot to generate, refactor and test code across Java, .NET and Python projects.

1 Day	6	18
8 HOURS	MODULES	TOPICS

COURSE OVERVIEW

This course empowers developers to harness AI-assisted coding tools—such as GitHub Copilot and Copilot Chat—to streamline development workflows, improve code quality, and accelerate delivery across Java and .NET based projects along with Python-based data science projects. Participants will gain hands-on experience applying AI to real-world scenarios.

WHO THIS COURSE IS FOR

- **Java Developers**
- **.NET Developers**
- **Python Developers**
- **Data Scientists**
- **Software Engineers**

PREREQUISITES

- Basic to Intermediate Programming Experience: Familiarity with at least one of the following languages: Java, C#, or Python.
- Understanding of Software Development Workflows: Experience with IDEs, version control (e.g., Git), and common development patterns.
- Familiarity with Unit Testing Concepts: Exposure to testing frameworks like JUnit (Java), xUnit/NUnit (C#), or pytest (Python).
- Basic Knowledge of Web Development: Understanding of REST APIs, HTTP methods, and client-server architecture.
- For Data Science Module: Comfort with Python syntax, data structures, and libraries like Pandas or NumPy

LEARNING OBJECTIVES

What You Will Learn

- Explain best practices for using AI-powered development tools
- Generate boilerplate code such as getters, setters and constructors in Java
- Write JUnit test cases for services, controllers and utility classes
- Develop Spring Boot components including controllers and repositories
- Refactor legacy C# code using AI-suggested idioms and simplifications
- Build ASP.NET Core controllers, services and middleware
- Design modular, object-oriented Python code with documentation
- Apply AI assistance to exploratory data analysis and model training

COURSE SYLLABUS

6 Modules, 18 Topics

01

Introduction

TOPICS

Overview of the session goals · Key expectations and learning outcomes

02

Best Practices

TOPICS

General best practices across languages · Efficiency and maintainability considerations · Leveraging AI-powered development

03

Java Use Cases

BOILERPLATE CODE GENERATION

- Automating creation of getters/setters, constructors, toString(), equals(), and hashCode() methods

UNIT TESTING ASSISTANCE

- Writing JUnit test cases for services, controllers, and utility classes

SPRING BOOT DEVELOPMENT

- Generating REST controllers, service layers, repository interfaces, and configuration classes

API INTEGRATION

- Writing code to consume REST APIs using RestTemplate or WebClient

04

.NET Use Cases

CODE REFACTORING AND CLEANUP

- Improving legacy code, suggesting better C# idioms, or simplifying logic

ASP.NET CORE WEB DEVELOPMENT

- Generating controllers, services, middleware, and routing logic

VISUAL INTERPRETATION UI

- Leveraging AI for UI design and enhancements

05

Data Science Use Cases

WRITE STRUCTURED, MODULAR & OBJECT-ORIENTED CODE WITH DOCUMENTATION

- Designing maintainable object-oriented Python code using reusable functions, modules, and classes

CREATE TEST CASES

- Generating unit tests to validate data processing functions

CODE INTERPRETATION – Q&A

- Understanding and explaining unfamiliar code snippets using AI-powered assistance (e.g., GitHub Copilot Chat)

DATA ANALYSIS & DATA SCIENCE CODE

- Writing code for EDA, feature engineering, model training, and evaluation

06

Summary & Wrap-up

TOPICS

Key takeaways from the session · Q&A and discussion on applying the concepts

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.

FLEXIBLE DELIVERY

Learn the Way That Suits You

Classroom Training | Live Online Classes (ILO) | Fly-Me-A-Trainer (FMAT) | Flexi (Self-Paced) | 1-on-1 Training

Ready to Get Started?

Talk to a learning advisor about schedules, group training and customised delivery.

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