

Software Dev: Git, OOP & REST APIs

Learn to build software using Git, object-oriented programming, clean coding practices, REST APIs and Agile collaboration.

3 Days

DURATION

11

MODULES

30

TOPICS

1

HANDS-ON ACTIVITIES

COURSE OVERVIEW

This course covers the foundations of software development, including the software development lifecycle, programming paradigms, and version control with Git, alongside problem-solving through algorithms and pseudocode. It then addresses core programming concepts such as data structures, control structures and object-oriented programming, together with clean coding practices, design patterns, debugging and unit testing, applied through a mini project. Finally, it explores working with REST APIs and JSON, databases, HTML, CSS and JavaScript basics for web development, and collaboration through Agile, Scrum, code reviews, pair programming and project management tools.

WHO THIS COURSE IS FOR

Software Developers

Programmers

Web Developers

Development Team Members

Junior Engineers

LEARNING OBJECTIVES

- Explain the software development lifecycle and programming paradigms
- Apply Git commands and workflows such as branches and pull requests
- Break down problems using algorithms, flowcharts and pseudocode
- Implement programs using data structures and control structures
- Apply object-oriented programming principles and design patterns
- Write clean, documented code following naming conventions
- Debug and test code using unit tests and IDE tools
- Build applications that consume REST APIs and databases

11 Modules, 30 Topics

DAY 1 Foundations of Software Development

01

Introduction to Software Development

TOPICS

- Overview of software development lifecycle (SDLC)
- Key programming paradigms (procedural, object-oriented, functional)
- Common development tools and environments

02

Version Control with Git

TOPICS

- Understanding Git and its importance
- Basic Git commands (clone, commit, push, pull, branch, merge)
- Git workflows (feature branches, pull requests)

HANDS-ON

- Setting up and using GitHub

03

Problem-Solving & Logical Thinking

TOPICS

- Understanding algorithms and flowcharts
- Breaking down problems into smaller components
- Writing pseudocode before implementation

04

Hands-on Coding Challenges

TOPICS

- Implementing simple programs in Python/JavaScript
- Debugging common syntax and logical errors

05

Core Programming Concepts

TOPICS

- Data structures (arrays, lists, dictionaries, sets)
- Control structures (loops, conditionals, functions)
- Object-Oriented Programming (OOP) principles

06

Writing Clean & Maintainable Code

TOPICS

Code readability and documentation · Naming conventions and best practices · Introduction to design patterns

07

Debugging and Testing

TOPICS

Common debugging techniques · Writing and running unit tests · Using debugging tools in IDEs

08

Mini Project

TOPICS

- Building a small application (e.g., To-Do List, Calculator)
- Implementing best practices from previous sessions

09

Working with APIs & Databases

TOPICS

Introduction to REST APIs & JSON · Making API requests using Fetch/Axios · Introduction to databases (SQL vs NoSQL)

10

Web Development Basics

TOPICS

Overview of HTML, CSS, JavaScript · Basics of responsive design and accessibility

Collaboration & Agile Methodologies

TOPICS

- Agile and Scrum fundamentals
- **Working in teams:** Code reviews, Pair programming
- Using project management tools (Jira, Trello)

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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