M55621A - Mastering Github Copilot for Developers

Duration: **1 Day (8 hrs)**

Level: **200 - Intermediate / 300 - Advanced**

Vendor: **Microsoft, GitHub**

Legacy MOC Code: **None**

Course Overview

This course is designed to be interactive, with hands-on activities making up 50% of the time. It provides both beginner and intermediate developers with the skills to leverage GitHub Copilot effectively.

Course Objectives:

- Understand the capabilities and limitations of GitHub Copilot.
- Learn how to integrate Copilot into your development workflow.
- Maximize productivity using Copilot for coding, debugging, and documentation.
- Explore real-world use cases and best practices.

Audience Profile

This course is designed for developers, DevOps professionals, software engineers, and IT professionals who use or plan to use GitHub as a core part of their software development and version control processes. Participants range from beginners seeking foundational GitHub skills to experienced professionals looking to enhance their collaboration, automation, and CI/CD workflows.

Course Outline

Lesson 1: Introduction to GitHub Copilot

- Overview of AI & LLMs
    - What is AI & LLMs and how does it help developers?
- Overview of GitHub Copilot
    - What is GitHub Copilot?
    - Benefits of AI-powered coding assistance.
    - Supported programming languages and tools.
- Setting Up Copilot
    - Prerequisites: GitHub account, supported IDEs (VS Code, JetBrains).
    - Installing and configuring GitHub Copilot.
    - Troubleshooting common installation issues.
- Lab:
    - Install and configure GitHub Copilot in a development environment.

    - Generate your first suggestions using simple code snippets.

Lesson 2: Using GitHub Copilot for Coding Writing Code

- Using code completion
- Autocomplete features.
- Writing functions and classes.
- Generating repetitive patterns and boilerplate code.
- Enhancing Code with Copilot
    - Refactoring suggestions.
    - Exploring language-specific features (Python, JavaScript, etc.).
- Lab:
    - Write and refactor a simple program using Copilot.
    - Experiment with multi-line code suggestions.

Lesson 3: Advanced Features and Customization

- Prompt engineering in GitHub Copilot
    - Controlling suggestion frequency and relevance.
    - Providing effective prompts for better suggestions.
        - Breaking down complex tasks
- Debugging and Testing with Copilot
    - Using Copilot for unit test generation.
    - Debugging tips with AI assistance.
- Lab:
    - Generate and execute unit tests.
    - Debug an application with Copilot's suggestions.

Lesson 4: Real-World Use Cases and Best Practices

- Use Cases
    - Code and Security Reviews
    - Generating documentation.
    - Building APIs and data pipelines.
    - Accelerating front-end and back-end development.
- Best Practices
    - Combining Copilot with traditional tools.
    - Avoiding over-reliance on AI.
        - Remembering you are ultimately responsible for the code
        - Static Analysis & Pay attention to compiler warnings
    - Ethical considerations and intellectual property.
- Lab:
    - Work on a real-world mini-project using GitHub Copilot.