# Course Content

## Course Description:

This module examines the features and capabilities of GitHub Copilot. You review the Copilot products available from GitHub, and examine the benefits, account types, features, and limitations of GitHub Copilot. After completing a step-by-step installation of the GitHub Copilot extensions for Visual Studio Code, you examine the capabilities provided by the GitHub Copilot and GitHub Copilot Chat extensions. You also complete an exercise that demonstrates how to configure the GitHub Copilot extensions in Visual Studio Code.

## Course Objectives:

- Describe GitHub Copilot product features and benefits.
- Use GitHub Copilot to generate code explanations, inline code comments, and project documentation.
- Use GitHub Copilot and GitHub Copilot Chat to develop new code.
- Use GitHub Copilot and GitHub Copilot Chat to create unit tests.
- Use GitHub Copilot Chat to improve code quality, reliability, performance, and security.
- Use GitHub Copilot to accelerate development of an end-to-end project.
- Explain unfamiliar code, generate project documentation, develop a new app feature, develop unit tests, and implement improvements using GitHub Copilot.

## Prerequisites:

- An active subscription for GitHub Copilot is required for either a personal GitHub account or a GitHub account managed by an organization or enterprise.
- One or more years of code development experience is recommended.
- Some experience developing C# applications in Visual Studio Code with the C# Dev Kit extension is recommended.

## Topics:

**Get started with GitHub Copilot**

- Examine AI tools from GitHub, OpenAI, and Microsoft
- Examine GitHub Copilot tools, benefits, and limitations
- Exercise - Install GitHub Copilot extensions for Visual Studio Code
- Examine the autocomplete features of the GitHub Copilot extension
- Examine the AI assistance features of the GitHub Copilot Chat extension
- Exercise - Configure GitHub Copilot extensions for Visual Studio Code

## Generate documentation using GitHub Copilot tools

- Examine the "document" and "explain" features of GitHub Copilot Chat
- Exercise - Generate code explanations using GitHub Copilot Chat
- Exercise - Generate project documentation by using GitHub Copilot Chat
- Exercise - Generate inline code documentation by using GitHub Copilot Chat
- Exercise – Complete the "code documentation" challenge
- Review the "code documentation" solution

## Develop code features using GitHub Copilot tools

- Examine the code development features of GitHub Copilot
- Examine GitHub Copilot best practices
- Exercise - Create code by using code line completions
- Exercise - Create code by using GitHub Copilot Inline Chat
- Exercise - Complete the creation of new code challenge
- Review the new code solution
- Exercise - Complete the code logic challenge
- Review the code logic solution
- Exercise - Convert code from one programming language to another

## Develop unit tests using GitHub Copilot tools

- Examine the unit testing tools and environment
- Exercise - Create unit tests by using GitHub Copilot Chat
- Exercise - Create unit tests for specific conditions by using GitHub Copilot
- Exercise - Complete the "create unit tests" challenge
- Review the "create unit tests" solution

## Implement code improvements using GitHub Copilot tools

- Examine GitHub Copilot support for code improvements
- Exercise - Improve code quality by using GitHub Copilot Chat
- Exercise - Improve code reliability and performance by using GitHub Copilot Chat
- Exercise - Improve code security by using GitHub Copilot Chat
- Exercise - Complete the "app improvement" challenge
- Review the "app improvement" solution

## Guided project - Accelerate app development using GitHub Copilot tools

- Prepare the development environment
- Exercise - Analyze and document code using GitHub Copilot tools
- Exercise - Develop code features using GitHub Copilot tools
- Exercise - Develop unit tests using GitHub Copilot tools
- Exercise - Refactor and improve code sections using GitHub Copilot tools

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# NASBA Information

**Level:** Intermediate
**Attendance Requirement:** To be awarded the full credit hours, you must sign in and attend the entire course.
**Fields:** Computer Software & Applications
**CPEs: 7.80**

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