GH-900: GitHub Foundations

IMPORTANT: This course is designed to be delivered in one full day. The activities are approximately 70% instructional led and 30% student interactive exercises and/or instructor demos.

Learning objectives

After completing this course, students will be able to:

- Understand what version control is and learn about distributed version control systems like Git.
- Recognize the differences between Git and GitHub and understand their roles in the software development lifecycle.
- Identify the fundamental features of GitHub, including repository management and the GitHub flow.
- Explore the collaborative features of GitHub by reviewing issues and discussions.
- Learn how to manage your GitHub notifications and subscriptions.
- Gain an understanding of how to configure and use GitHub Copilot to enhance productivity and code quality

Audience profile

Audience profile for this course is the following:

- Software developers who want to learn about version control, Git, and GitHub.
- Documentation writers who collaborate on various projects and need to manage changes effectively.
- Teams that work on collaborative projects and need to track changes, manage project history, and facilitate collaboration will benefit from this course.
- Individuals who are new to Git and GitHub and want to gain a solid understanding of their fundamental features and collaborative tools are the primary audience.

Audience prerequisites

Candidates should have the following:

- Basic understanding of software development concepts and practices.
- Familiarity with command-line interfaces and basic commands.
- Experience with version control systems, although not necessarily Git.
- Willingness to engage in hands-on exercises and practical applications.
- Experience of working with Microsoft Azure services.

Student training content

The student training content for this course is in Microsoft Learn and the exercises (hands-on or demonstrations) are included within the Learn modules.

Course Outline

Learning Path: GitHub Foundations Part 1 of 2

Module 1: Introduction to Git

- Introduction
- What is version control?
- Exercise - Try out Git
- Basic Git commands

Module 2: Introduction to GitHub

- Introduction
- What is GitHub?
- Components of the GitHub flow
- GitHub is a collaborative platform
- GitHub platform management
- Exercise - A guided tour of GitHub

Module 3: Introduction to GitHub's products

- Introduction
- GitHub accounts and plans
- GitHub Mobile and GitHub Desktop
- GitHub billing

Module 4: Configure code scanning on GitHub

- Introduction
- What is code scanning?
- Enable code scanning with third party tools
- Configure code scanning
- Configure code scanning exercise

Module 5: Introduction to GitHub Copilot

- Introduction
- GitHub Copilot, your AI pair programmer
- Interact with Copilot
- Set up, configure, and troubleshoot GitHub Copilot
- Exercise - Develop with AI-powered code suggestions by using GitHub Copilot and VS Code

Module 6: Code with GitHub Codespaces

- Introduction
- The Codespace lifecycle
- Personalize your Codespace
- Codespaces versus GitHub.dev editor
- Exercise - Code with Codespaces and Visual Studio Code

Module 7: Manage your work with GitHub Projects

- Introduction
- Projects versus Projects Classic
- How to create a project
- How to organize your project
- How to organize and automate your project
- Insight and automation with projects

Module 8: Communicate effectively on GitHub using Markdown

- Introduction
- What is Markdown?
- Exercise - Communicate using Markdown4

Learning Path: GitHub Foundations Part 2 of 2

Module 9: Contribute to an open-source project on GitHub

- Introduction
- Identify where you can help
- Contribute to an open-source repository
- Exercise - Create your first pull request

Module 10: Manage an InnerSource program by using GitHub

- Introduction
- How to manage a successful InnerSource program
- Exercise - InnerSource fundamentals

Module 11: Maintain a secure repository by using GitHub best practices

- Introduction
- How to maintain a secure GitHub repository
- Automated security
- Exercise - Secure your repository's supply chain

Module 12: Introduction to GitHub administration

- Introduction
- What is GitHub administration?
- How does GitHub authentication work?
- How does GitHub organization and permissions work?

Module 13: Authenticate and authorize user identities on GitHub

- Introduction
- User identity and access management
- User authentication
- User authorization
- Team synchronization

Module 14: Manage repository changes by using pull requests on GitHub

- Introduction
- What are pull requests?
- Exercise - Reviewing pull requests

Module 15: Search and organize repository history by using GitHub

- Introduction
- How to search and organize repository history by using GitHub
- Exercise - Connect the dots in a GitHub repository

Module 16: Using GitHub Copilot with Python

- Introduction
- What is GitHub Copilot?
- Exercise - Set up GitHub Copilot to work with Visual Studio Code
- Use GitHub Copilot with Python
- Exercise - Update a Python web API with GitHub Copilot

Exercises and Demos (11 exercises, 4 hours)

Exercises are to be used as hands-on activities for individual students which are led by the instructor, or demonstrations led by the instructor. The decision to lead hands-on activities or perform demonstrations is the instructor's responsibility.

Module 1: Introduction to Git

- Exercise - Try out Git

Module :2 Introduction to GitHub

- Exercise - A guided tour of GitHub

Module 5: Introduction to GitHub Copilot

- Exercise - Develop with AI-powered code suggestions by using GitHub Copilot and VS Code

Module 6: Code with GitHub Codespaces

- Exercise - Code with Codespaces and Visual Studio Code

Module 8: Communicate effectively on GitHub using Markdown

- Exercise - Communicate using Markdown

Module 9: Contribute to an open-source project on GitHub

- Exercise - Create your first pull request

Module 10: Manage an InnerSource program by using GitHub

- Exercise - InnerSource fundamentals

Module 11: Maintain a secure repository by using GitHub best practices

- Exercise - Secure your repository's supply chain

Module 14: Manage repository changes by using pull requests on GitHub

- Exercise - Reviewing pull requests

Module 15: Search and organize repository history by using GitHub

- Exercise - Connect the dots in a GitHub repository

Module 16: Using GitHub Copilot with Python

- Exercise - Update a Python web API with GitHub Copilot