GH - 900T00 : GitHub Foundations

Course Outline

GitHub Foundations – Part 1 of 2

1. Introduction to Git
- Understand the concept of version control
- Learn about distributed version control systems like Git
- Create and configure a new Git project
- Track and manage code changes
- Recover from simple coding mistakes using Git

Lab:
- Try out Git

2. Introduction to GitHub
- Explore the core features of GitHub
- Understand repository management
- Learn the GitHub flow: branches, commits, and pull requests
- Collaborate through issues and discussions
- Manage notifications and subscriptions

Lab:
- Guided tour of GitHub

3. GitHub Account Types and Plans
- Distinguish between Personal, Organization, and Enterprise accounts
- Understand different plans: Free, Pro, Team, Enterprise
- Learn features of GitHub Mobile and GitHub Desktop
- Get a brief overview of billing and payments

4. Code Scanning on GitHub
- Describe code scanning and its importance
- Enable code scanning using GitHub and third-party tools
- Implement CodeQL via GitHub Actions and other CI tools
- Set up scheduled and event-based scanning workflows

5. Introduction to GitHub Copilot
- Use GitHub Copilot for autocomplete-style code suggestions
- Trigger Copilot in different ways
- Compare Individual, Business, and Enterprise versions
- Configure and troubleshoot Copilot

Lab:
- Use Copilot for AI-powered code suggestions in VS Code

6. Coding with GitHub Codespaces
- Understand GitHub Codespaces and their lifecycle
- Customize Codespaces to suit your workflow

- Compare GitHub.dev vs Codespaces

Lab:

- Code with Codespaces and Visual Studio Code

7. Managing Projects with GitHub

- Differentiate between Projects and Projects (Classic)
- Build and organize Projects at the organization level
- Control visibility, access, and automation features

8. Communicating with Markdown

- Use Markdown for formatting text, lists, images, and links
- Learn where and how to use Markdown in GitHub
- Explore GitHub-flavored Markdown (GFM)

Lab:

- Communicate effectively using Markdown

GitHub Foundations – Part 2 of 2

1. Contributing to Open Source

- Discover and contribute to open-source projects
- Create pull requests
- Learn open-source communication and review best practices
- Join and engage with open-source communities

Lab:

- Create your first pull request

2. Managing an InnerSource Program

- Compare user-owned and organization-owned repositories
- Plan GitHub organization structure
- Create discoverable, well-documented repositories
- Use templates and build transparency
- Measure and distribute InnerSource success

Lab:

- InnerSource fundamentals

3. Securing a Repository

- Use GitHub tools for a secure development workflow
- Enable security detection for private repositories
- Use Dependabot to manage outdated/vulnerable dependencies
- Create a SECURITY.md file
- Remove exposed sensitive data from commits and history

Lab:

- Secure your repository's supply chain

4. Introduction to GitHub Administration

- Understand GitHub's organizational structure and permissions
- Explore authentication and identity management strategies

- Use GitHub as an identity provider

5. Authentication & Authorization

- Learn GitHub's Authentication and Authorization model
- Manage user access via supported identity providers
- Understand the impact of enabling SAML SSO
- Use Team Synchronization for streamlined member management

6. Managing Repository Changes

- Review the purpose of branches and pull requests
- Create and manage pull requests
- Understand pull request statuses and merging

Lab:

- Review pull requests

7. Organizing Repository History

- Search issues, pull requests, and history for relevant information
- Understand GitHub connections and relationships for easier collaboration

Lab:

- Connect the dots in a GitHub repository

8. Using GitHub Copilot with Python

- Enable GitHub Copilot in VS Code
- Write effective prompts for useful suggestions
- Use Copilot to enhance a Python project

Labs:

- Set up Copilot in Visual Studio Code
- Update a Python web API with GitHub Copilot