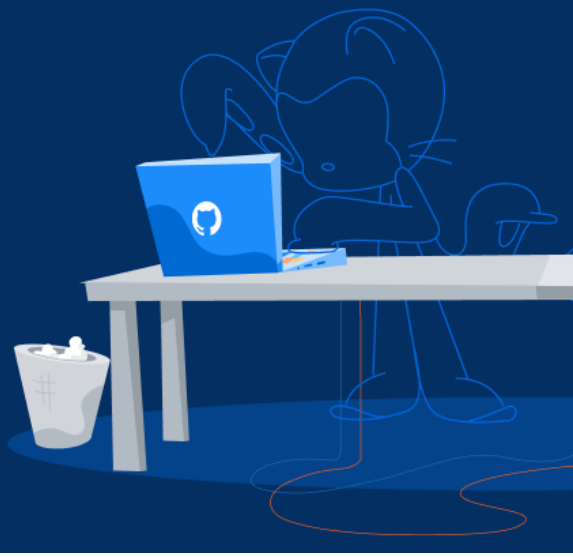
GitHub

Exam GH-100

GitHub Foundational Exam Study Guide



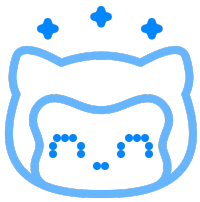
Purpose

This study guide is intended to provide candidates with resources and courses to prepare for the GH-100: GitHub Certified Practitioner Exam.

Resources

A collection of documentation, guides, books, or other material to provide you the necessary information

Courses



Hands-on, interactive courses at lab.github.com

Exam information

Audience profile

The exam is designed for candidates looking to demonstrate foundational knowledge on the considerations, benefits, and options of GitHub software as a service. This exam also covers basic knowledge of Git concepts. The exam is intended for candidates with both technical (i.e., developers, engineers) or non-technical backgrounds (i.e., project managers, documentation specialists).

Recommended GitHub knowledge

Basic working knowledge of GitHub is required

Recommended general IT knowledge

Candidates should have a basic understanding of IT services an their uses including basic understanding of software development concepts.

Objective Domains (functional groups)

The domains listed below are intended to illustrate how we are assessing the skills, knowledge, and abilities. It is not an exhaustive list and is not definitive. Percentages allocates to each domain are approximations.

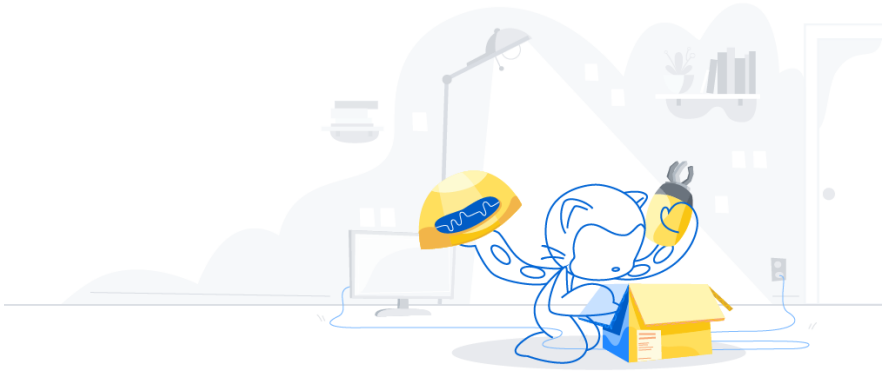
Domain	% of Examination
Domain 1: Describe foundational Git and GitHub concepts	35%
Domain 2: Describe the benefits of the GitHub community	15%
Domain 3: Describe the components of modern software development practices on GitHub	25%
Domain 4: Describe GitHub distribution and consumption models	5%
Domain 5: Describe security, compliance, privacy, and trust options in GitHub	20%

Study guide

Domain 1 (35%): Describe foundational Git and GitHub concepts

Describe foundational Git commands and Git version control concepts	Resources	Courses
Describe what Git is	Git-scm.com book - What is Git	Introduction to GitHub (60 min)
Describe basic Git features like repositories, clones, branches, commits, and remotes	Git-scm.com Git commands Git-scm.com Reference	Managing merge conflicts (38 min)
Describe the different types of version control	Git-scm.com book - About version control Git-scm.com Reference Github help – Collaborating with issues and pull requests	
Describe how to solve merge conflicts	Git-scm.com book - Branching and merging Git-scm.com Reference	Managing merge conflicts (38 min)

Describe core GitHub concepts and features	Resources	Courses
Describe what GitHub is	Github Training – Getting started	
Describe features of a GitHub repository, such as issues and pull requests	GitHub help - Glossary	Introduction to GitHub (60 min)
Describe GitHub organization and teams	GitHub help - Glossary GitHub help – Organizations and teams	Introduction to GitHub (60 min)
Describe the GitHub branching workflow	Guides.GitHub.com - Flow GitHub help - GitHub flow	Introduction to GitHub (60 min) Reviewing pull requests (35 min)
Describe how code gets pushed to a GitHub repository	GitHub help - Pushing commits to a remote repository Git-scm.com book - Recording changes to the repository GitHub help - Committing changes to your project	Introduction to GitHub (60 min) -- using the command line course preference
Describe how code can be locally retrieved from a GitHub repository	GitHub help - Getting changes from a remote repository Git-scm.com book - Working with remotes	Introduction to GitHub (60 min) -- using the command line course preference
Define a Markdown	Guides.Github.com - Markdown	Communicating using Markdown (48 min)
Describe how Markdown is used across GitHub	Guides.Github.com - Markdown	Communicating using Markdown (48 min)
Locate endpoints of the GitHub API	GitHub help - Getting started with API	Getting started with GitHub Apps (53 min)



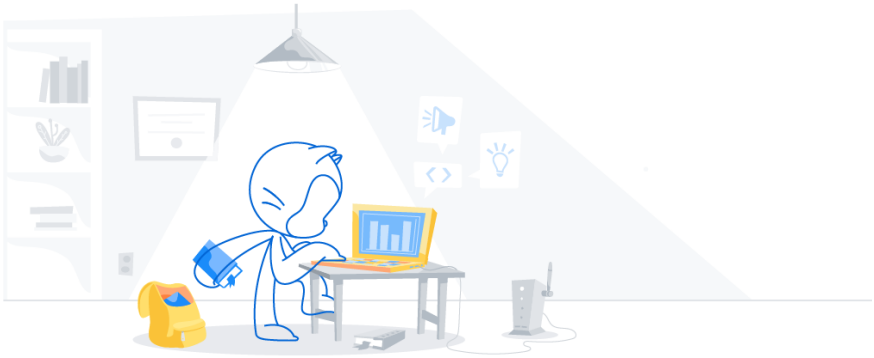
Domain 2 (15%): Describe the benefits of the GitHub community

Describe the benefits of open source software	Resources	Courses
Define open source	Opensource.com – Open Source	Community starter kit (80 min)
Describe the implications/parameters of assigning common open source licenses for your project	Opensource.Guide – Open source licenses Opensource.Guide - Legal	Community starter kit (80 min)
Identify how to sponsor a project	Opensource.Guide - Getting paid Opensource.Guide - Legal	Community starter kit (80 min)

Describe how to contribute to an open source repository within private organizations	Resources	Courses
Describe where to find open source projects	Opensource.Guide – How to contribute	
Identify how to contribute to an open source repository	Open source workflows: First contributions	
Describe how to communicate with project maintainers	Open source workflows: First contributions	

Describe how to apply the benefits of open source within private organizations	Resources	Courses
Describe the various files used for open source documentation such as README	Opensource Guide – Starting a project	Create an open source program (75 min) Community starter kit (80 min)
Define InnerSource	Resources.Github.com - InnerSource	InnerSource fundamentals (37 min)
Describe tenets of InnerSource communities	Resources.Github.com - InnerSource	
Describe the components of a good contributing guideline	Opensource Guide – Starting a project	
Describe a discoverable repository	Opensource Guide – Starting a project	
Describe when to use issue templates and pull request templates	GitHub help – Configuring issue templates for your repository	

Identify how to use community-created apps, workflows, and actions in a project	Resources	Courses
Define GitHub Apps, their use cases and where to find them	Developer.Github.com – About apps GitHub Help – Searching GitHub Marketplace	
Describe how to find a community-created action in a repository	Developer.GitHub.com – About GitHub Apps GitHub Help – Using actions from GitHub marketplace	
Describe how to find a GitHub Actions workflow within a repository	GitHub Help – Configuring and managing workflows	GitHub Actions: Hello World (37 min)



Domain 3 (25%): Describe the components of modern software development practices on GitHub

Describe code review principles	Resources	Courses
Define a pull request and its benefits	Guides.GitHub.com - Flow	Reviewing pull requests (35 min)
Describe how to create a pull request	GitHub Help – Creating a pull request	Reviewing pull requests (35 min)
Describe how to communicate on pull requests	Guides.GitHub.com - Flow	Reviewing pull requests (35 min)
Define a pull request review and types of pull request reviews (comment, approve, request changes)	GitHub Help – About pull request reviews	Reviewing pull requests (35 min)

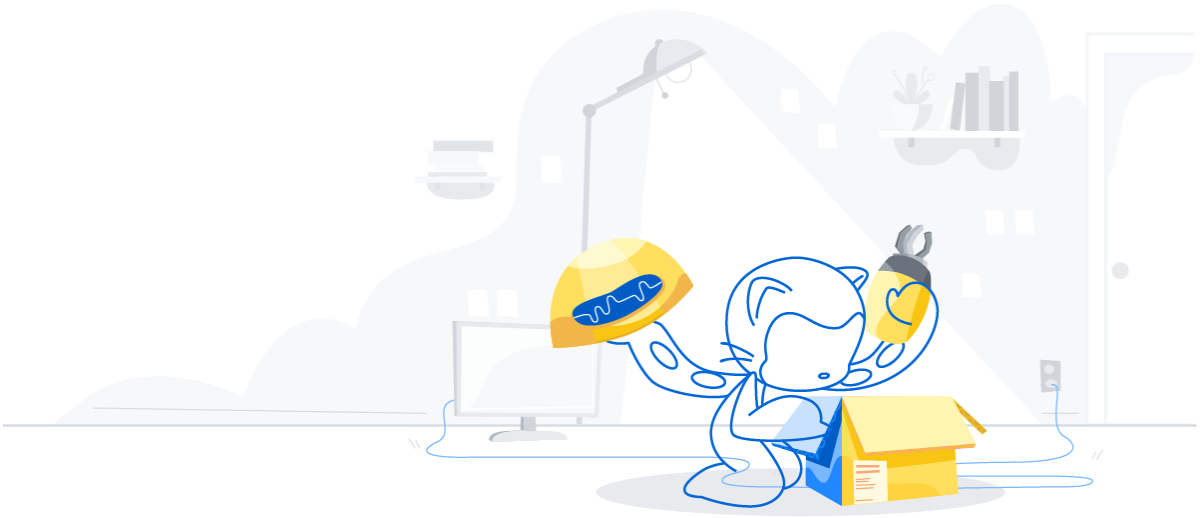
Describe the code-to-cloud process using GitHub	Resources	Courses
Describe GitHub Actions	GitHub Help – About GitHub Actions	GitHub Actions: Hello World (37 min)
Define components of GitHub Actions workflows, including events that trigger workflows, workflow files, workflow runs, and jobs	GitHub Help – Configuring and managing workflows GitHub Help – Events that trigger workflows	GitHub Actions: Hello World (37 min)
Define an action	GitHub Help - Actions	GitHub Actions: Hello World (37 min)
Describe GitHub Packages and when to use them	GitHub Help – GitHub Packages	GitHub Actions: Hello World (37 min)
Define a runner and the types of runners available for GitHub Actions	GitHub Help – Hosting your own runners	
Describe how to use encrypted secrets	GitHub Help – Creating and storing encrypted secrets	GitHub Actions: Continuous Delivery with AWS (94 min) GitHub Actions: Continuous Delivery with Azure (116 min)

Describe Continuous Integration (CI)	Resources	Courses
Define continuous integration (CI) and its benefits	GitHub Help – Continuous integration	GitHub Actions: Continuous Integration (134 min)
Define continuous delivery (CD) and its benefits	Martin Fowler – Continuous delivery	GitHub Actions: Continuous Delivery with AWS (94 min) GitHub Actions: Continuous Delivery with Azure (116 min)

Domain 4 (5%): Describe GitHub distribution and consumption models

Describe how GitHub is deployed and distributed	Resources	Courses
Describe GitHub Enterprise Cloud	GitHub Help – GitHub products	
Describe GitHub Enterprise Server	GitHub Help – GitHub products	
Describe GitHub Private Instances	GitHub Help – GitHub products	

Describe pricing, support and privacy options for GitHub products	Resources	Courses
Describe pricing for GitHub products, including GitHub Actions	GitHub Help – GitHub products GitHub Help – Billing for GitHub Actions	
Describe privacy expectations for GitHubs products like personal repositories, organizations, and team membership	GitHub Help – About organization membership	



Domain 5 (20%): Describe security, compliance, privacy, and trust options in GitHub

Define code review controls and approval processes	Resources	Courses
Choose when to use protected branches	GitHub Help – Configuring protected branches	
Define required pull request reviews	GitHub Help – About pull request reviews	Security strategy essentials (57 min)
Describe required status checks	GitHub Help – About status checks	
Describe code owners	GitHub Help – About code owners	Security strategy essentials (57 min)

Describe access control	Resources	Courses
Describe multi-factor authentication (MFA)	GitHub Help – Authenticating to GitHub	
Describe repository collaborators	GitHub Help – Managing organization settings	InnerSource fundamentals (37 min)
Describe organization and team membership	GitHub Help – Managing organization settings	InnerSource fundamentals (37 min)
Define an enterprise account	GitHub Help – Types of GitHub accounts	

Describe security and compliance concepts with GitHub	Resources	Courses
Define the use case for audit logs	GitHub Help – Audit logs	
Describe allowed IP list	GitHub Help – Managing allowed IP addresses	

Describe identity protection and management options	Resources	Courses
Describe how an identity provider can manage the identities of GitHub users and applications (through SSO and SAML)	GitHub Help – Authenticating to GitHub	
Describe how SSH keys are used for accessing GitHub repositories	GitHub Help – Authenticating to GitHub	
Describe personal access tokens (PAT)	GitHub Help – Authenticating to GitHub	

Describe scrubbing of sensitive data from GitHub repositories	Resources	Courses
Describe how to remove sensitive data from a Git repository (for example, git filter-branch or BFG repo cleaner)	Git-scm.com – Git-filter-branch	Security strategy essentials (57 min)
Describe the steps required to remove sensitive data from GitHub	GitHub Help – Removing sensitive data	Security strategy essentials (57 min)

Describe the security features of a GitHub repository	Resources	Courses
Describe how to detect and fix outdated dependencies with security vulnerabilities	GitHub Help – Managing security vulnerabilities	Security strategy essentials (57 min)
Describe security vulnerability alerts	GitHub Help – Managing security vulnerabilities	Security strategy essentials (57 min)
Describe automated code scanning	GitHub Help – Managing security vulnerabilities	Security strategy essentials (57 min)
Describe automated security updates	GitHub Help – Managing security vulnerabilities	Security strategy essentials (57 min)
Describe secret scanning	GitHub Help – About secret scanning	Security strategy essentials (57 min)
Describe a security policy	GitHub Help – Managing security vulnerabilities	Security strategy essentials (57 min)