

DEVOPS

INTERMEDIATE

2 DAYS

GitHub Copilot for DevOps Automation

Build a strong foundation in using GitHub Copilot for real DevOps automation, from prompt patterns to production-ready script and YAML generation. Learn how to accelerate Docker, Kubernetes, CI/CD, and Terraform workflows while maintaining enterprise standards for security, validation, and troubleshooting.

Why GitHub Copilot?

Faster automation delivery

Teams build pipelines, scripts, and templates faster with Copilot-assisted scaffolding.

Better onboarding

Engineers ramp up faster with guided generation and explanations for DevOps artifacts.

Improved standardization

Create reusable templates and consistent patterns across projects and teams.

More time for engineering

Less time writing repetitive YAML and boilerplate, more time improving reliability and governance.

Reduced operational mistakes

Copilot helps spot common YAML and pipeline issues early when paired with validations and checks.

What you'll be able to do

- ✓ Understand what GitHub Copilot is and how it supports DevOps workflows.
- ✓ Use Copilot effectively for infrastructure and automation tasks: shell scripting, YAML automation, CI/CD pipelines, and IaC templates.
- ✓ Write better prompts with clear requirements, constraints, validations, expected outputs, and error handling.
- ✓ Generate and improve DevOps artifacts: GitHub Actions workflows, Dockerfiles, Kubernetes manifests, and starter Terraform modules.
- ✓ Use Copilot to troubleshoot automation failures faster: pipeline failures, broken YAML, and configuration issues.
- ✓ Apply secure and enterprise-ready practices: secrets handling, least privilege automation, and avoiding insecure defaults.
- ✓ Build a complete DevOps automation workflow with Copilot assistance.
- ✓ Create reusable templates that teams can standardize across projects.

Who this is for

- DevOps Engineers
- Cloud Engineers
- Platform Engineers
- SRE Teams
- Developers working with CI/CD pipelines
- Teams adopting GitHub Enterprise and GitHub Copilot

Curriculum

01 GitHub Copilot for DevOps Workflows

- What GitHub Copilot is and how it supports DevOps automation day to day
- Where Copilot helps most: scripts, YAML, Dockerfiles, Kubernetes, and IaC starters
- Enterprise expectations: review, validation, and human ownership of generated code
- Workspace setup and safe usage patterns for automation repos

02 Prompt Patterns for Automation and Infrastructure

- Writing prompts with clear requirements, constraints, and expected outputs
- Adding validation, error handling, and least-privilege constraints to prompts
- Iterating on generated artifacts instead of accepting first drafts
- Building a reusable prompt checklist for DevOps tasks
- **Hands-on:** Craft prompts that generate a script and a workflow skeleton to review standards

03 Generating Shell Scripts and Operational Utilities

- Using Copilot for checks, backups, cleanup, and operational glue scripts
- Improving readability, exit codes, logging, and failure handling
- Avoiding insecure defaults such as hardcoded secrets or overly broad permissions
- **Hands-on:** Generate and harden an operational utility script with Copilot assistance

04 Dockerfiles and Image Workflows with Copilot

- Generating Dockerfiles with multi-stage builds and non-root users in mind
- Improving image size, base-image choices, and build clarity
- Pairing Copilot output with image build and basic validation steps
- **Hands-on:** Create and refine a production-minded Dockerfile with Copilot

05 Kubernetes Manifests and Helm Starters

- Generating Deployments, Services, ConfigMaps, and basic Helm chart starters
- Adding probes, resources, and securityContext fields Copilot often misses
- Reviewing manifests for common misconfigurations before apply
- **Hands-on:** Generate a microservice manifest set and tighten it for production readiness

06 GitHub Actions Workflows with Copilot Assistance

- Scaffolding CI workflows for build, test, lint, and artifacts
- Adding environments, approvals, and secrets handling patterns
- Reusable workflow ideas and standardization across repositories
- **Hands-on:** Generate a GitHub Actions workflow and refine gates with Copilot

07 Terraform and IaC Template Generation

- Using Copilot for starter Terraform modules and variable/output structure
- Prompting for safer defaults and explicit resource boundaries
- Reviewing generated IaC for public exposure and overly permissive IAM
- **Hands-on:** Generate a starter Terraform module and fix insecure defaults

08 Troubleshooting YAML, Pipelines, and Config Failures

- Using Copilot to explain pipeline failures, YAML errors, and config mismatches
- Turning error logs into concrete fix candidates with validation steps
- Knowing when not to trust generated fixes without tests or dry-runs
- **Hands-on:** Diagnose a broken workflow or manifest with Copilot-assisted troubleshooting

09 Capstone: End-to-End DevOps Automation with Copilot

- Assemble Dockerfile, Kubernetes manifests, and a GitHub Actions workflow with Copilot help
- Apply secure practices: secrets handling, least privilege, and review gates
- Create a reusable template pack teams can standardize across projects
- **Hands-on:** Deliver an end-to-end automation workflow assisted by GitHub Copilot