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Sign up

Formation? GitHub Actions

2 days (14 hours)

Presentation

Our GitHub Actions training course will enable your teams to automate CI/CD pipelines directly from GitHub, without deploying complex third-party tools.

In this course, you'll learn how to orchestrate multi-environment builds and deployments environments, create reusable workflows and composite actions.

You'll be able to manage hundreds of parallel jobs and workflows within a GitHub repository, with artifacts, caching and approval policies by environment.

You'll learn about GitHub Actions architecture, hosted/self-hosted runners, GITHUB_TOKEN, secrets management and security best practices.

You will be introduced to the latest stable version of the GitHub Actions ecosystem and its new features.

Objectives

- Automate and monitor CI/CD workflows
- Create reusable workflows and composite actions
- Deploy to Docker, Kubernetes and cloud services
- Understand key concepts: events, runners, permissions, secrets

Target audience

- System administrators

- Developers
- DevOps

Prerequisites

Basic knowledge of Git and continuous integration principles.

GitHub Actions training - Program

[Day 1 - Morning]

GitHub Actions fundamentals and architecture

- Positioning GitHub Actions in a modern CI/CD chain
- Workflow anatomy: workflow, jobs, steps, actions, runners
- YAML files: structure, reuse, best practices
- Marketplace: official vs. community actions
- Practical workshop: Creating a CI pipeline (lint + tests) on pull request

Triggers & cross-platform execution

- Events: push, pull_request, schedule, workflow_dispatch
- Linux / Windows / macOS runners, containers and matrix
- Artifacts & cache: accelerate builds
- Logs, debugging, selective job restarts
- Practical workshop: Matrix builds with cache and artifacts

[Day 1 - Afternoon] Pipeline

security

- Workflow permissions, GITHUB_TOKEN, least privilege
- Secrets & variables: environments, protection, approvals
- Supply chain: pinning, provenance, CodeQL (overview)
- Branch rules and required checks
- Practical workshop: hardening a workflow (permissions, secrets, approvals)

[Day 2 - Morning]

Deployments & environments

- Patterns: build once, promote, blue/green, canary
- CD to Docker Registry, Kubernetes, VM, GH Pages
- Hosted vs. self-hosted runners: costs & maintenance
- Rollback, promotion, artifact retention
- Practical workshop: CI ? CD to containerized staging

[Day 2 - Afternoon] Industrialization

& reuse

- Reusable workflows and composite actions
- Monorepo strategies: targeting by path & conditions
- Performance: parallelism, needs, timeouts, concurrency
- Observability: job summary, annotations
- Practical workshop: Extracting a reusable shared workflow

Operation & reliability

- Incident management: retry, continue-on-error, fail-fast
- Maintenance: action version tracking, breaking changes
- Self-hosted runners: sizing, updates, secrets, auto-scaling (overview)
- FinOps: optimize cache, job granularity, durations
- Practical workshop: Runbook & workflow health dashboard

Companies concerned

This course is aimed at both individuals and companies, large or small, wishing to train their teams in a new advanced IT technology, or to acquire specific business knowledge or modern methods.

Positioning on entry to training

Positioning at the start of training complies with Qualiopi quality criteria. As soon as enrolment is finalized, the learner receives a self-assessment questionnaire which enables us to assess his or her estimated level of proficiency in different types of technology, his or her expectations and personal objectives with regard to the forthcoming training course, and his or her level of proficiency in the various technologies.

expectations and personal objectives for the training to come, within the limits imposed by the selected format. This questionnaire also enables us to anticipate any connection or security difficulties within the company (intra-company or virtual classroom) which could be problematic for the follow-up and smooth running of the training session.

Teaching methods

Practical training: 60% hands-on, 40% theory. Training material distributed in digital format to all participants.

Organization

The course alternates theoretical input from the trainer, supported by examples, with brainstorming sessions and group work.

Validation

At the end of the session, a multiple-choice questionnaire verifies the correct acquisition of skills.

Certification

A certificate will be awarded to each trainee who has completed the entire course.