**GitHub Actions – Use Cases**

**Overview**

This document outlines key use cases of GitHub Actions, focusing on CI/CD workflows such as building and scanning Docker images, and integrations with tools like Jenkins.

**📌 Use Cases**

Refer to the official GitHub documentation or training resources for a more detailed list of GitHub Actions use cases. Some commonly implemented scenarios include:

* Continuous Integration/Deployment for applications
* Building, testing, and publishing Docker images
* Static and dynamic security scanning
* Infrastructure provisioning with Terraform
* Automated issue and PR workflows
* Secret scanning and policy enforcement

**🐳 Building Docker Images and Pushing to Docker Hub**

GitHub Actions can be used to automate the process of building and publishing Docker images.

**Reference Implementation:**

* Build the Docker image using a Dockerfile
* Authenticate to Docker Hub using secrets
* Push the image to Docker Hub

**Example Workflow**

name: Build and Push Docker Image

on:

push:

branches:

- main

jobs:

docker:

runs-on: ubuntu-latest

steps:

- name: Checkout code

uses: actions/checkout@v3

- name: Log in to Docker Hub

uses: docker/login-action@v2

with:

username: ${{ secrets.DOCKER\_USERNAME }}

password: ${{ secrets.DOCKER\_PASSWORD }}

- name: Build and push Docker image

uses: docker/build-push-action@v5

with:

context: .

push: true

tags: your-dockerhub-username/your-image-name:latest

**🔍 Scanning Docker Images**

To ensure container security, integrate image scanning tools like Trivy or Docker Scout within the workflow.

**Steps to Implement:**

* Install the scanner (e.g., Trivy)
* Run a scan on the built Docker image
* Fail the workflow on critical vulnerabilities (optional)

**Example Snippet (Using Trivy)**

- name: Run Trivy vulnerability scanner

uses: aquasecurity/trivy-action@master

with:

image-ref: your-dockerhub-username/your-image-name:latest

format: 'table'

exit-code: '1'

severity: 'CRITICAL,HIGH'

**🧺as Jenkins Integration (Training)**

GitHub Actions can complement Jenkins or be integrated with Jenkins pipelines. For example:

* Trigger Jenkins builds via GitHub Webhooks
* Sync GitHub PRs with Jenkins pipelines
* Use GitHub Actions to perform pre-validation before triggering Jenkins workflows

**Training Recommendation:**

* Hands-on exercises in Jenkins for job creation and webhook setup
* Practice integrating GitHub and Jenkins using GitHub Plugin for Jenkins