Appendix: Lab Review Answer Key

Lab 1: Visualize the DevOps lifecycle and CI/CD flow

1. Which phase of the DevOps lifecycle does Continuous Integration (CI) primarily span across?

    A. PLAN → CODE → BUILD

    B. CODE → BUILD → TEST

    C. TEST → RELEASE → DEPLOY

    D. DEPLOY → OPERATE → MONITOR

Answer

B. CODE → BUILD → TEST

Lab 2: Implement a single-stage GitHub Actions pipeline

1. Which section of the GitHub Actions workflow defines when the workflow should be triggered?

    A. jobs

    B. steps

    C. on

    D. runs-on

Answer

C. on

Lab 3: Build and Optimize Your Application with GitHub Actions

1. Which approach reduces pipeline execution time the most?

    A. Sequential job execution

    B. Parallel job execution with caching

    C. Manual job triggers

    D. Longer timeouts

Answer

B. Parallel job execution with caching

Lab 4: Dockerize an app and automate image build and push with GitHub Actions

1. What is the primary security benefit of adding a non-root user in the Dockerfile?

    A. Reduces image size

    B. Improves build performance

    C. Minimizes attack surface if container is compromised

    D. Enables better logging

Answer

C. Minimizes attack surface if container is compromised

Lab 5: Write unit tests and automate testing with GitHub Actions

1. What is the purpose of the **pytest.raises()** context manager?

    A. To generate test data automatically

    B. To test that a function raises a specific exception

    C. To skip tests that might fail

    D. To measure test execution time

Answer

B. To test that a function raises a specific exception

Lab 6: Automate Docker image deployment with GitHub Actions

Lab 7: Automate remote deployment with Ansible Playbooks

1. What is the primary advantage of using Ansible roles over standalone playbooks?

    A. Roles execute faster than playbooks

    B. Roles provide reusable, modular automation components

    C. Roles require fewer system resources

    D. Roles automatically handle all errors

Answer

B. Roles provide reusable, modular automation components