EXERCISE 8 - SWED

1.

Virtual Machine (VM): Emulates an entire operating system with its own kernel. Docker Container: Runs applications in isolated processes using the host OS kernel.

VMs are heavy, slower to start, and include a full OS. Containers are lightweight, start fast, and share the host OS.

2.
c)
CI ensures that developers merge their changes frequently, and every commit is automatically tested, enabling fast feedback and reducing integration issues.

4.b) Jenkins
Jenkins is widely used for building, testing, and deploying applications in a CI/CD pipeline. (Kubernetes is for container orchestration, not CI/CD specifically.)

5.

Unit Tests: Test individual functions or components in isolation to ensure functional correctness.

Integration Tests: Verify that multiple components work together as expected.

API/Service Tests: Validate (RESTful) service interfaces, often using mock-ups or staging environments.

End-to-End or UI Tests: Simulate real user interactions across the entire system, often using tools such as Selenium.

Performance/Load Tests: Measure system behaviour under stress to detect bottlenecks.

Security Tests: Scan for vulnerabilities or misconfigurations

Smoke Tests: Quick, high-level tests to ensure the system isn't fundamentally broken after a change.

Regression Tests: Re-run existing test suites to ensure new changes don't break existing features

2.

docker file execution:
cd "$HOME\OneDrive\Bureau\WebMonitor"
docker build -t webmonitor .
docker run --rm webmonitor https://netflix.com

output expected: