Week 9: CI/CD + Testing
Full Stack RAG with Local LLM

Semester 2/2568

Agenda

1. Testing

2. CI/CD

3. Quiz 4 + Lab 8

Why Testing?

- Catch bugs early
- Ensure quality
- Enable refactoring
- Documentation

```python
from fastapi.testclient import TestClient
from api import app

client = TestClient(app)

def test_health():
    response = client.get("/health")
    assert response.status_code == 200

def test_search():
    response = client.post("/search",
        json={"query": "test"})
    assert response.status_code == 200
```

CI vs CD

CI:

- Automated build
- Automated testing
- On every commit

CD:

- Automated deploy
- Health checks
- Rollback

Jenkinsfile

```
pipeline {
    agent any
    stages {
        stage('Build') {
            steps { sh 'docker-compose build' }
        }
        stage('Test') {
            steps { sh 'pytest tests/' }
        }
        stage('Deploy') {
            steps { sh 'docker-compose up -d' }
        }
    }
}
```

GitHub Actions

```
name: CI/CD
on: [push]
jobs:
  build:
    runs-on: ubuntu-latest
    steps:
      - uses: actions/checkout@v3
      - run: docker-compose build
      - run: docker-compose up -d
      - run: curl http://localhost:8006/health
```

Quiz 4 (5%)

Topics: Docker Compose, CI/CD, Testing

Tasks:

1. Write pytest tests
2. Create Jenkinsfile
3. Create GitHub Actions
4. Document pipeline

Questions? Phase 1 Complete! Next: Project (Week 10-15)