

Notes App CI/CD Project Report

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February 9, 2026

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1 Project Overview

The **Notes App** is a simple Node.js application to manage notes. The app allows:

- Listing all notes
- Adding a note
- Editing a note
- Deleting a note

We implemented a CI/CD pipeline using **GitHub Actions** and Docker.

2 Project Structure

```
.  
  app.js  
  tasks.js  
  tasks.test.js  
  package.json  
  package-lock.json  
  Dockerfile  
  .dockerignore  
  .gitignore  
  public/
```

3 GitHub Actions CI/CD Pipeline

We created a GitHub Actions workflow to automate build, test, security checks, Docker packaging, and deployment.

3.1 Workflow Stages

1. **Build:** Installs dependencies (including devDependencies), checks syntax of server files.
2. **Test:** Runs unit tests using Jest.
3. **Security:** Scans code for secrets using Gitleaks and audits npm dependencies.
4. **Package:** Builds Docker images and pushes to Docker Hub.
5. **Deploy:** Deploys the application to staging and production environments.

3.2 Workflow Code Sample

```
1 name: Notes App CI/CD
2
3 on:
4   push:
5     branches: [ main ]
6   pull_request:
7     branches: [ main ]
8
9 jobs:
10   build:
11     runs-on: ubuntu-latest
12     steps:
13       - uses: actions/checkout@v3
14       - uses: actions/setup-node@v3
15         with:
16           node-version: '18'
17       - run: npm install
18       - run: node -c app.js
19       - run: node -c tasks.js
```

4 Docker Setup

4.1 Dockerfile

```
1 FROM node:18-alpine
2 WORKDIR /app
3 COPY package*.json ./
4 RUN npm install
5 COPY . .
6 EXPOSE 3000
7 CMD ["node", "app.js"]
```

4.2 Docker Build and Run Commands

```
docker build -t notes-app:1.0 .
docker run -d -p 3000:3000 notes-app:1.0
```

5 Testing

Unit tests were written using Jest to verify core functionality:

- Adding a note
- Editing a note
- Deleting a note

- Listing notes

Example test command:

```
npm test
```

6 CI/CD Workflow Results

The workflow runs successfully with all stages passing. Screenshots from GitHub Actions show:

3 workflow runs				Event	Status	Branch	Actor
✓ changed to installing all including dev dependencies		main		2 minutes ago	...		
Notes App CI/CD #3: Commit 22e3b6a pushed by Yassine-El-Ghazi				1m 8s			
✗ Remove GitLab CI config		main		5 minutes ago	...		
Notes App CI/CD #2: Commit bdf9af4 pushed by Yassine-El-Ghazi				31s			
✗ Setup GitHub Actions CI/CD workflow		main		13 minutes ago	...		
Notes App CI/CD #1: Commit fc19518 pushed by Yassine-El-Ghazi				31s			

Figure 1: Workflow run history showing latest successful CI/CD run.

7 Conclusion

The Notes App project demonstrates:

- CI/CD automation with GitHub Actions
- Secure and tested Node.js application
- Dockerized deployment to staging and production