CS423 DevOps

Assignment 3

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About the assignment and project:

The project was cloned from https://github.com/eljamaki01/ReactNodeTesting, it contained a React + Express app that was a simple shopping cart application. Very basic, but contained a front-end and back-end part with tests written for both.

The assignment object was to setup CI/CD deployment of a given app. The app had tests written and used ESLint. These provided code structure and guidelines.

We set up the GitHub workflows, two separate ones for testing and staging. These workflows triggered with relevant triggers and updated their deployed code in their respective servers.

Both of these workflows also contained the integral CI part where we ran jest and eslint to ensure our code quality is up to standard.

They also included notification via emails.

Difficulties we faced:

1. After installing node via nvm, libatomic1 was missing for some reason from the default install of the linux OS. We thought I was an issue with node but the fix was as simple as

```
sudo apt install libatomic1
```

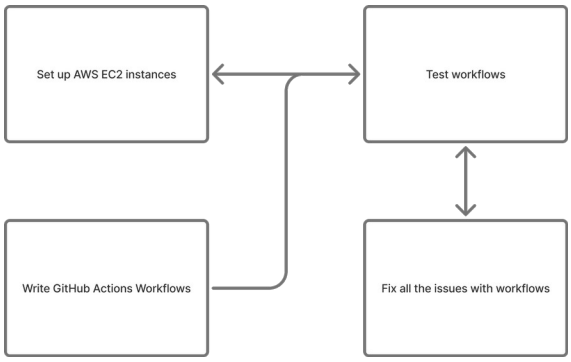
2. We both couldn't remember the mail trapping service that Sir used in class and that took some time to remember (we asked chatgpt because 10 minutes of googling didn't work, thanks AI). We used ethereal mail (mailtrap.io was not working)

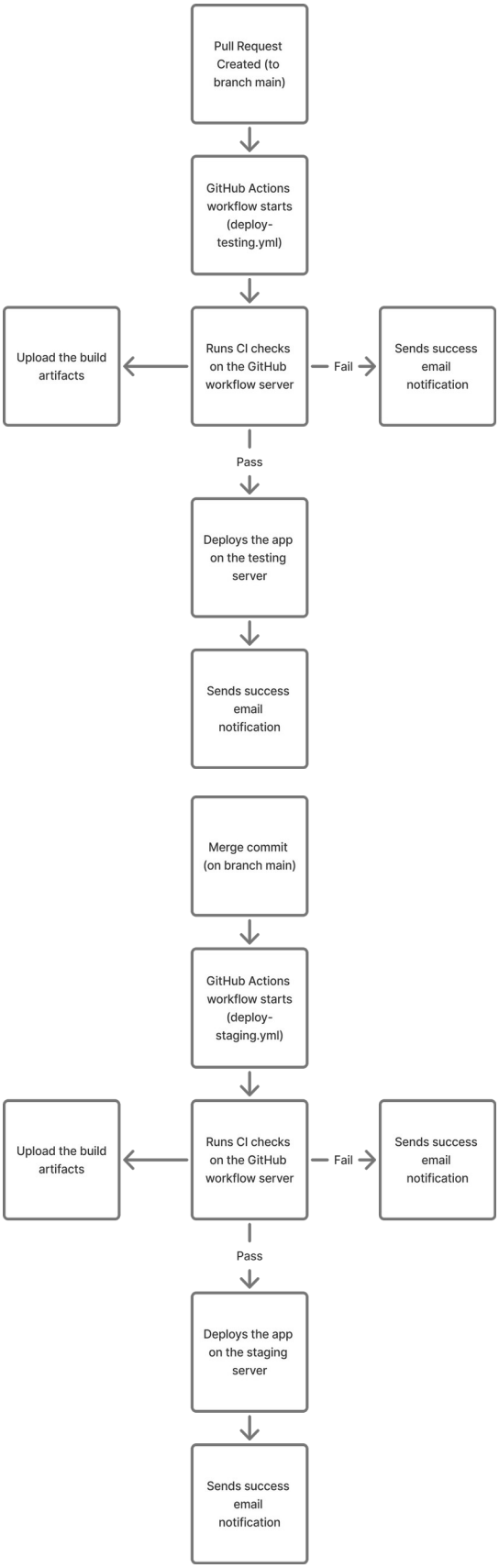
3. When using the actions script appleboy/ssh-action@v1.0.3, it took us 30 minutes to figure out that the script does not source the .bashrc located in the user folder. We had to insert this at the start of it so it could find npm and pm2

```
source ~/.bashrc || source ~/.profile || true
[ -s "$HOME/.nvm/nvm.sh" ] && source "$HOME/.nvm/nvm.sh" || true
```

Flows:

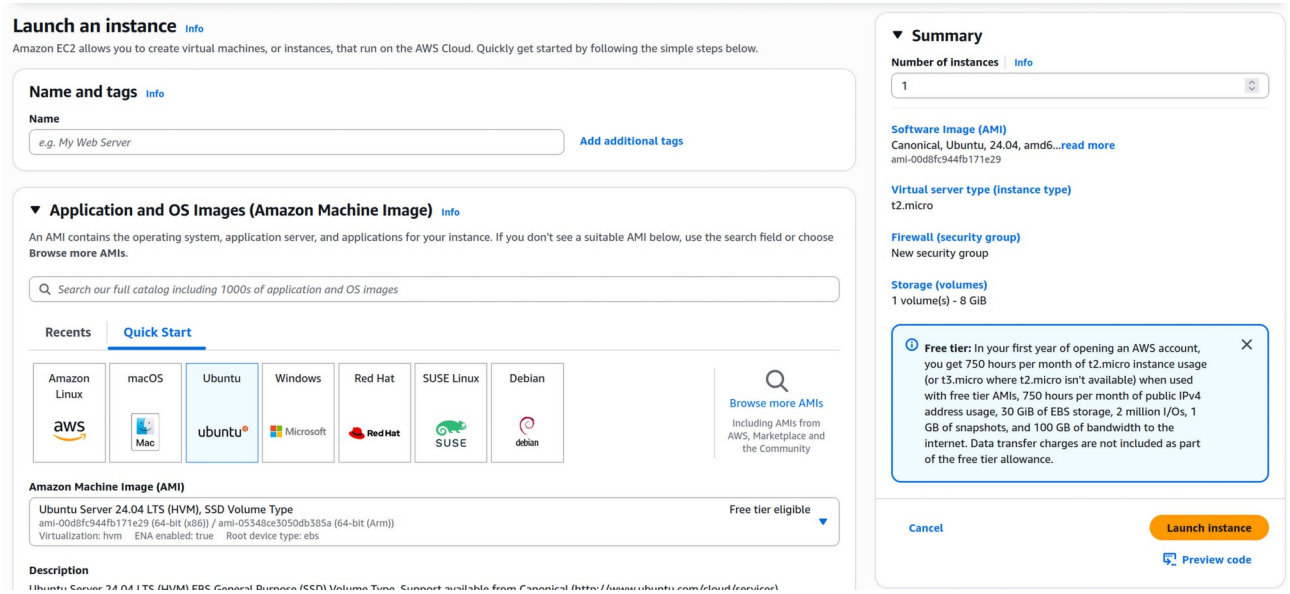
Not sure if we are asked to present what we did, or what is the CI/CD process of the application after the assignment but here's both.

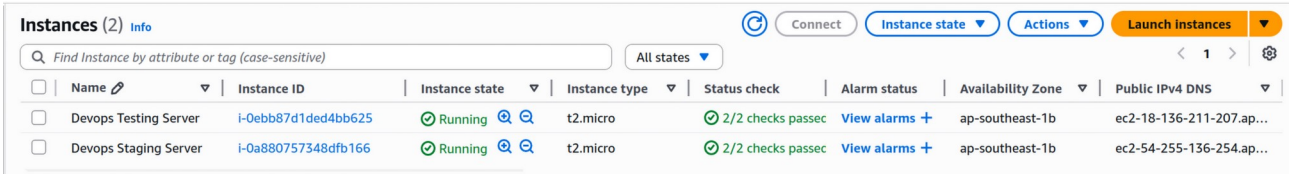



Pull Request Created (to branch main)
GitHub Actions workflow starts (deploy-testing.yml)
Runs CI checks on the GitHub workflow server
Upload the build artifacts
Fail
Sends success email notification
Pass
Deploys the app on the testing server
Sends success email notification
Merge commit (on branch main)
GitHub Actions workflow starts (deploy-staging.yml)
Runs CI checks on the GitHub workflow server
Upload the build artifacts
Fail
Sends success email notification
Pass
Deploys the app on the staging server
Sends success email notification

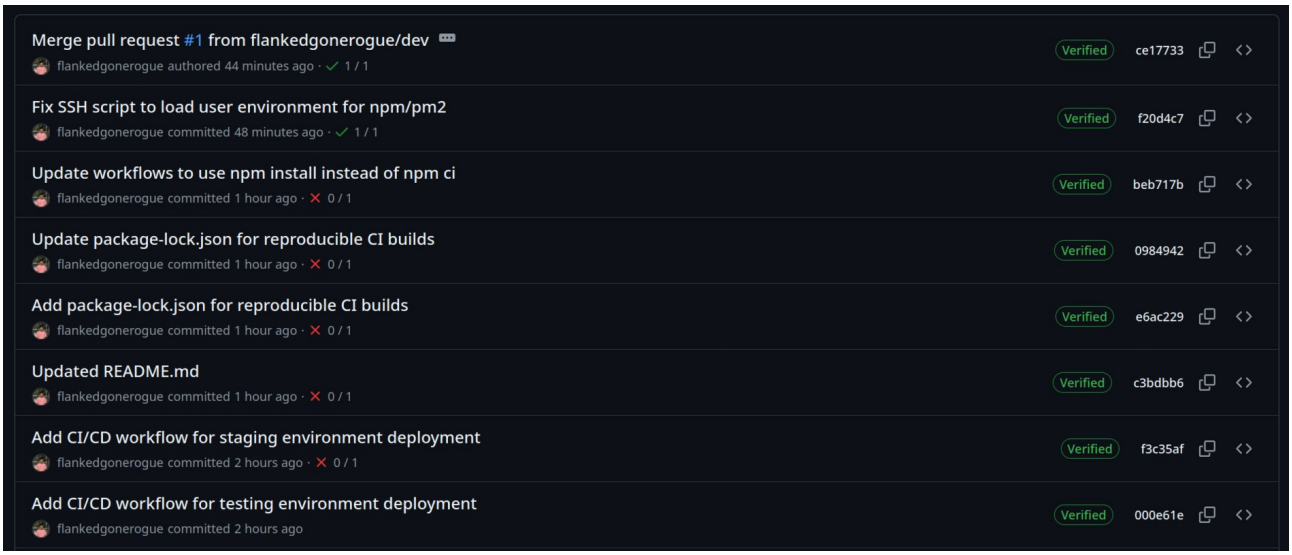
Screenshots:

1. Creating the instances

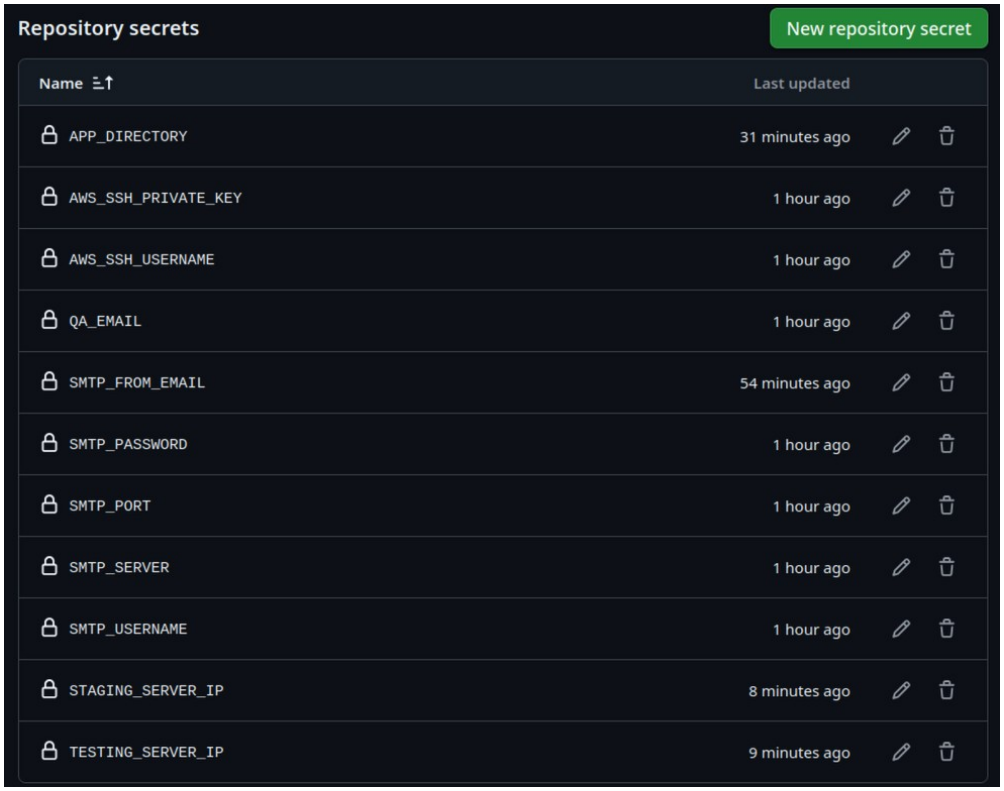




2. Writing and pushing the workflows



3. Storing the secrets



4. Setting up the instances

```
ubuntu@ip-172-31-25-24:~/app$ curl -o- https://raw.githubusercontent.com/nvm-sh/nvm/v0.40.3/install.sh | bash
  % Total    % Received % Xferd  Average Speed   Time    Time     Time  Current
                                 Dload  Upload   Total   Spent    Left  Speed
100 16631  100 16631    0     0   307k      0 --:--:-- --:--:-- --:--:--  312k
=> Downloading nvm from git to '/home/ubuntu/.nvm'
=> Cloning into '/home/ubuntu/.nvm'...
remote: Enumerating objects: 384, done.
remote: Counting objects: 100% (384/384), done.
remote: Compressing objects: 100% (328/328), done.
remote: Total 384 (delta 42), reused 181 (delta 28), pack-reused 0 (from 0)
Receiving objects: 100% (384/384), 392.50 KiB | 9.81 MiB/s, done.
Resolving deltas: 100% (42/42), done.
* (HEAD detached at FETCH_HEAD)
  master
=> Compressing and cleaning up git repository

=> Appending nvm source string to /home/ubuntu/.bashrc
=> Appending bash_completion source string to /home/ubuntu/.bashrc
=> Close and reopen your terminal to start using nvm or run the following to use it now:

export NVM_DIR="$HOME/.nvm"
[ -s "$NVM_DIR/nvm.sh" ] && \. "$NVM_DIR/nvm.sh"  # This loads nvm
[ -s "$NVM_DIR/bash_completion" ] && \. "$NVM_DIR/bash_completion"  # This loads nvm bash_completion
ubuntu@ip-172-31-25-24:~/app$ bash
To run a command as administrator (user "root"), use "sudo <command>".
See "man sudo_root" for details.

ubuntu@ip-172-31-25-24:~/app$ nvm install node
Downloading and installing node v25.2.1...
Downloading https://nodejs.org/dist/v25.2.1/node-v25.2.1-linux-x64.tar.xz...
######################################################################################################################
Computing checksum with sha256sum
Checksums matched!
Now using node v25.2.1
Creating default alias: default -> node (-> v25.2.1)
```

```
ubuntu@ip-172-31-25-24:~$ git clone https://github.com/flankedgonerogue/devops-assignment.git ./app
Cloning into './app'...
remote: Enumerating objects: 154, done.
remote: Counting objects: 100% (154/154), done.
remote: Compressing objects: 100% (85/85), done.
remote: Total 154 (delta 68), reused 150 (delta 64), pack-reused 0 (from 0)
Receiving objects: 100% (154/154), 805.53 KiB | 12.20 MiB/s, done.
Resolving deltas: 100% (68/68), done.
ubuntu@ip-172-31-25-24:~$ cd app
```

```
ubuntu@ip-172-31-25-24:~/app$ npm install -g pm2

added 133 packages in 7s

13 packages are looking for funding
  run `npm fund` for details
```

5. Testing the workflows

Deploy to Testing Server 4s

```
▸ Run appleboy/ssh-action@v1.0.3
/usr/bin/docker run --name a4cd386e354cdf575144b987966cc04c8e14c4_f32d66 --label a4cd38 --workdir /github/workspace --rm -e "NODE_VERSION" -e "INPUT_HOST" -e "INPUT_USERNAME" -e "INPUT_KEY" -e "INPUT_SCRIPT" -e "INPUT_PORT" -e "INPUT_PASSPHRASE" -e "INPUT_PASSWORD" -e "INPUT_SYNC" -e "INPUT_USE_INSECURE_CIPHER" -e "INPUT_CIPHER" -e "INPUT_TIMEOUT" -e "INPUT_COMMAND_TIMEOUT" -e "INPUT_KEY_PATH" -e "INPUT_FINGERPRINT" -e "INPUT_PROXY_HOST" -e "INPUT_PROXY_PORT" -e "INPUT_PROXY_USERNAME" -e "INPUT_PROXY_PASSWORD" -e "INPUT_PROXY_PASSPHRASE" -e "INPUT_PROXY_TIMEOUT" -e "INPUT_PROXY_KEY" -e "INPUT_PROXY_KEY_PATH" -e "INPUT_PROXY_FINGERPRINT" -e "INPUT_PROXY_CIPHER" -e "INPUT_PROXY_USE_INSECURE_CIPHER" -e "INPUT_SCRIPT_STOP" -e "INPUT_ENVS" -e "INPUT_ENVS_FORMAT" -e "INPUT_DEBUG" -e "INPUT_ALLENVS" -e "INPUT_REQUEST_PTY" -e "HOME" -e "GITHUB_JOB" -e "GITHUB_REF" -e "GITHUB_SHA" -e "GITHUB_REPOSITORY" -e "GITHUB_REPOSITORY_OWNER" -e "GITHUB_REPOSITORY_OWNER_ID" -e "GITHUB_RUN_ID" -e "GITHUB_RUN_NUMBER" -e
======CMD======
cd ***
git fetch origin
git checkout dev
git pull origin dev
npm install
npm run build-react
pm2 restart all || pm2 start index.js --name "react-node-app"
======END======
err: Already on 'dev'
out: Your branch is up to date with 'origin/dev'.
err: From https://github.com/flankedgonerogue/devops-assignment
err:  * branch            dev        -> FETCH_HEAD
out: Already up to date.
err: bash: line 5: npm: command not found
err: bash: line 6: npm: command not found
err: bash: line 7: pm2: command not found
err: bash: line 7: pm2: command not found
2025/12/21 16:07:23 Process exited with status 127
```

6. Ta-da apps running