

CS423 DevOps

Assignment 3

Abdur Rahman Goraya, 2022035

Ubaid ur Rehman, 2022599

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
```

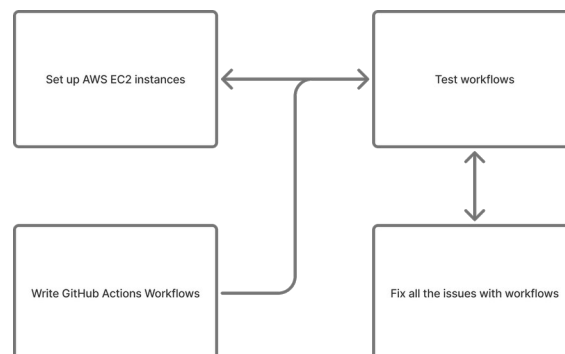
2. We both couldn't remember the mail trapping service that Sir used in class and that took some time to remember (we asked chatgpt because 10 minutes of googling didn't work, thanks AI). We used ethereal mail (mailtrap.io was not working)

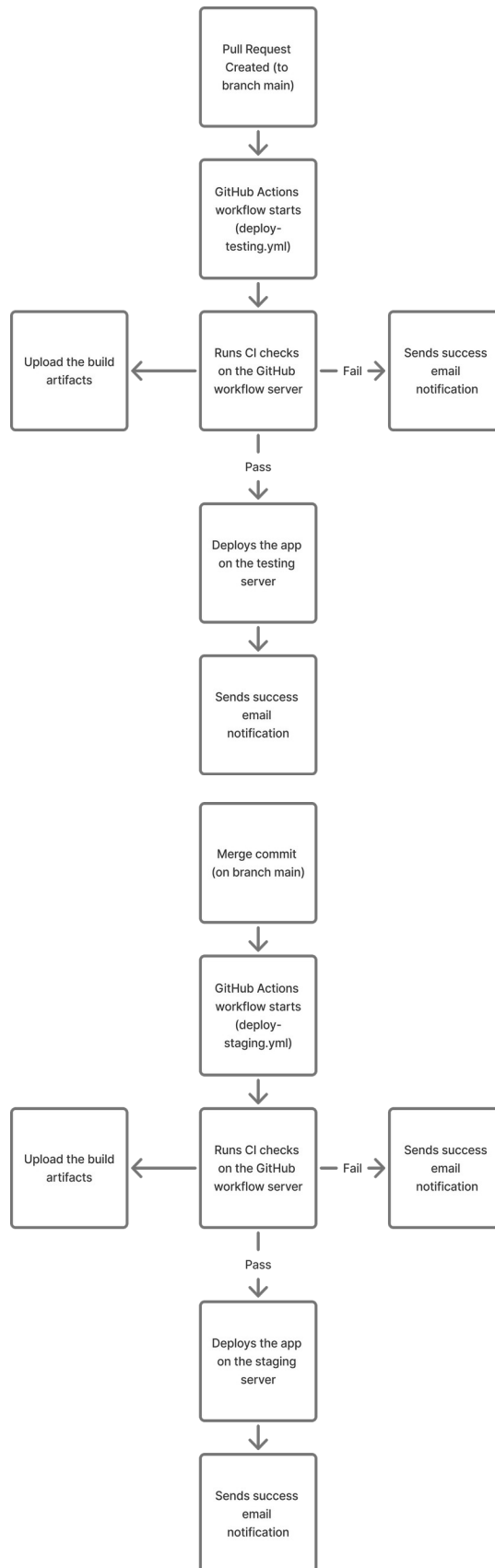
3. When using the actions script appleboy/ssh-action@v1.0.3, it took us 30 minutes to figure out that the script does not source the .bashrc located in the user folder. We had to insert this at the start of it so it could find npm and pm2

```
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.





Screenshots:

1. Creating the instances

Launch an instance

Amazon EC2 allows you to create virtual machines, or instances, that run on the AWS Cloud. Quickly get started by following the simple steps below.

Name and tags

Name

e.g. My Web Server

Add additional tags

Application and OS Images (Amazon Machine Image)

An AMI contains the operating system, application server, and applications for your instance. If you don't see a suitable AMI below, use the search field or choose [Browse more AMIs](#).

Search our full catalog including 1000s of application and OS images

Recents

Quick Start

Amazon Linux

macOS

Ubuntu

Windows

Red Hat

SUSE Linux

Debian

Browse more AMIs

Including AMIs from AWS, Marketplace and the Community

Amazon Machine Image (AMI)

Ubuntu Server 24.04 LTS (HVM), SSD Volume Type
ami-00d8fc944fb171e29 (64-bit (x86)) / ami-05348ce3050db385a (64-bit (ARM))
Virtualization: hvm ENA enabled: true Root device type: ebs

Free tier eligible

Description

Ubuntu Server 24.04 LTS (HVM) EBS General Purpose (SSD) Volume Type. Support available from Canonical <https://ubuntu.com/cloud/faq>.

Summary

Number of instances 1

Software Image (AMI)
Canonical, Ubuntu, 24.04, amd64...[read more](#)
ami-00d8fc944fb171e29

Virtual server type (Instance type)
t2.micro

Firewall (security group)
New security group

Storage (volumes)
1 volume(s) - 8 GiB

Free tier: In your first year of opening an AWS account, you get 750 hours per month of t2.micro instance usage (or t3.micro where t2.micro isn't available) when used with free tier AMIs, 750 hours per month of public IPv4 address usage, 30 GiB of EBS storage, 2 million I/Os, 1 GB of snapshots, and 100 GB of bandwidth to the internet. Data transfer charges are not included as part of the free tier allowance.

Cancel Launch Instance Preview code

Instances (2)

Find Instance by attribute or tag (case-sensitive)

All states

	Name	Instance ID	Instance state	Instance type	Status check	Alarm status	Availability Zone	Public IPv4 DNS
<input type="checkbox"/>	Devops Testing Server	i-0ebb87d1ded4bb625	Running	t2.micro	2/2 checks passed	View alarms +	ap-southeast-1b	ec2-18-136-211-207.ap...
<input type="checkbox"/>	Devops Staging Server	i-0a880757348dfb166	Running	t2.micro	2/2 checks passed	View alarms +	ap-southeast-1b	ec2-54-255-136-254.ap...

2. Writing and pushing the workflows

Merge pull request #1 from flankedgonerogue/dev

flankedgonerogue authored 44 minutes ago · 1 / 1

Fix SSH script to load user environment for npm/pm2

flankedgonerogue committed 48 minutes ago · 1 / 1

Update workflows to use npm install instead of npm ci

flankedgonerogue committed 1 hour ago · 0 / 1

Update package-lock.json for reproducible CI builds

flankedgonerogue committed 1 hour ago · 0 / 1

Add package-lock.json for reproducible CI builds

flankedgonerogue committed 1 hour ago · 0 / 1

Updated README.md

flankedgonerogue committed 1 hour ago · 0 / 1

Add CI/CD workflow for staging environment deployment

flankedgonerogue committed 2 hours ago · 0 / 1

Add CI/CD workflow for testing environment deployment

flankedgonerogue committed 2 hours ago

Verified

ce17733

Verified

f20d4c7

Verified

beb717b

Verified

0984942

Verified

e6ac229

Verified

c3bdbb6

Verified

f3c35af



































Verified

000e61e

3. Storing the secrets

Repository secrets

New repository secret

Name 	Last updated		
 APP_DIRECTORY	31 minutes ago		
 AWS_SSH_PRIVATE_KEY	1 hour ago		
 AWS_SSH_USERNAME	1 hour ago		
 QA_EMAIL	1 hour ago		
 SMTP_FROM_EMAIL	54 minutes ago		
 SMTP_PASSWORD	1 hour ago		
 SMTP_PORT	1 hour ago		
 SMTP_SERVER	1 hour ago		
 SMTP_USERNAME	1 hour ago		
 STAGING_SERVER_IP	8 minutes ago		
 TESTING_SERVER_IP	9 minutes ago		

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

1 ▶ Run appleboy/ssh-action@v1.0.3
21 /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
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
22 =====CMD=====
23 cd ***
24 git fetch origin
25 git checkout dev
26 git pull origin dev
27 npm install
28 npm run build-react
29 pm2 restart all || pm2 start index.js --name "react-node-app"
30 =====END=====
32 err: Already on 'dev'
33 out: Your branch is up to date with 'origin/dev'.
34 err: From https://github.com/flankedgoneroque/devops-assignment
35 err: * branch          dev              -> FETCH_HEAD
36 out: Already up to date.
37 err: bash: line 5: npm: command not found
38 err: bash: line 6: npm: command not found
39 err: bash: line 7: pm2: command not found
40 err: bash: line 7: pm2: command not found
41 2025/12/21 16:07:23 Process exited with status 127
```

6. Ta-da apps running

