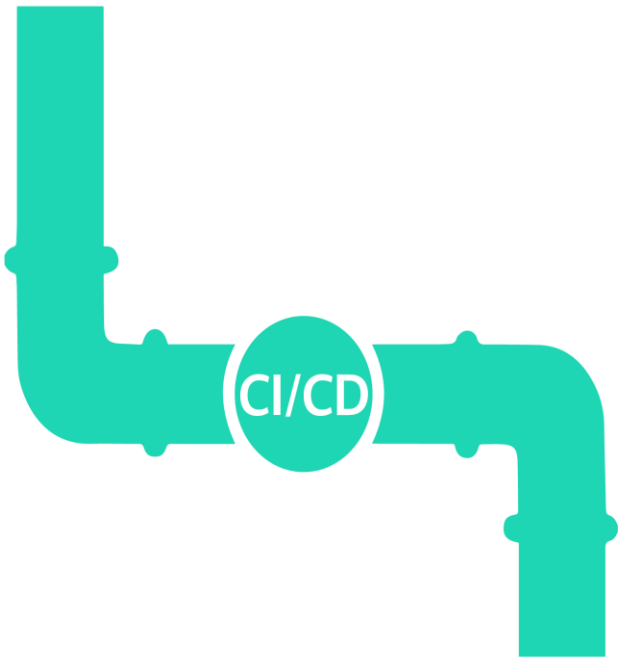


Project: Give Your Application Auto-Deploy Superpowers CI/CD

prepared by

Aya Rabih Mostafa

LinkedIn GitHub

What is our plan?

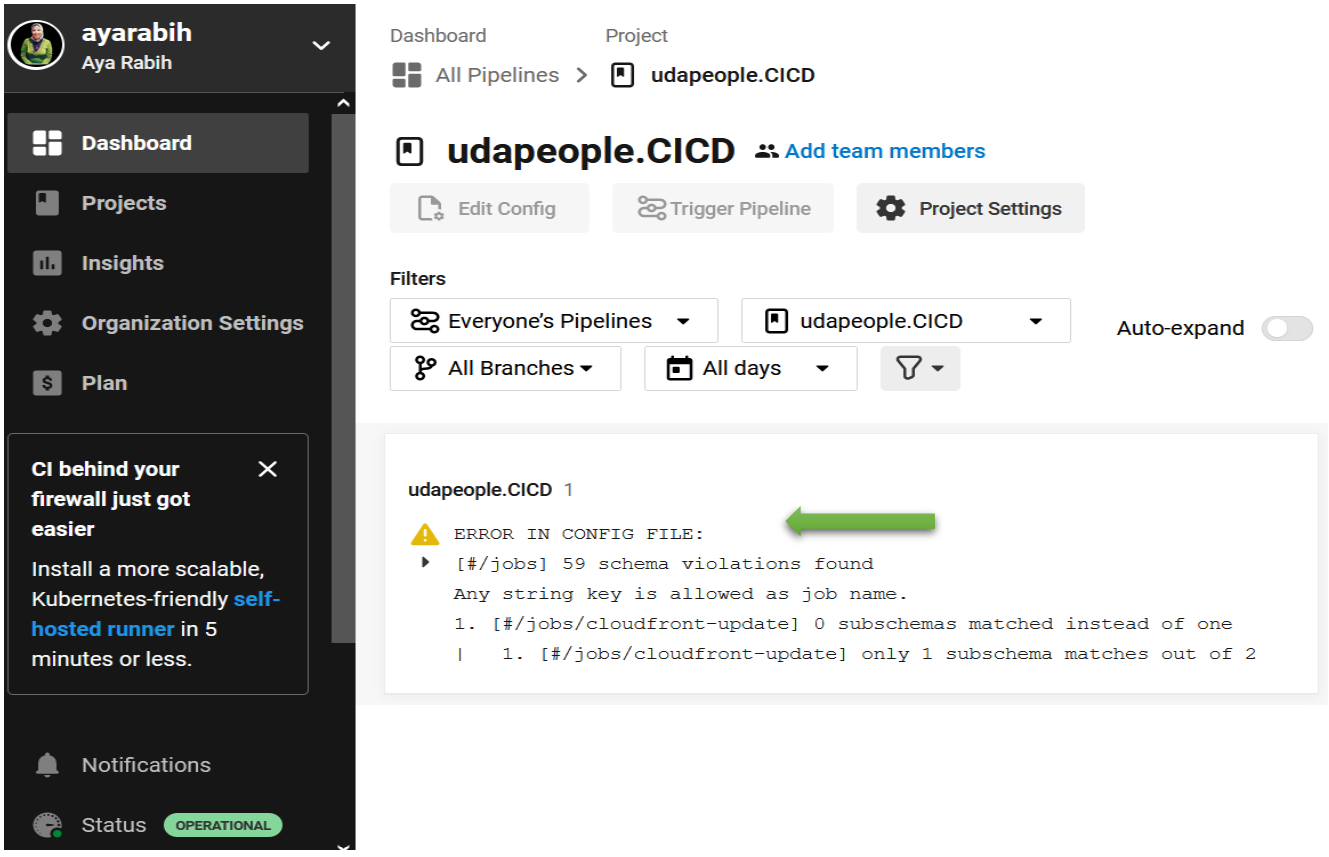
Let's start to run project

Step 1

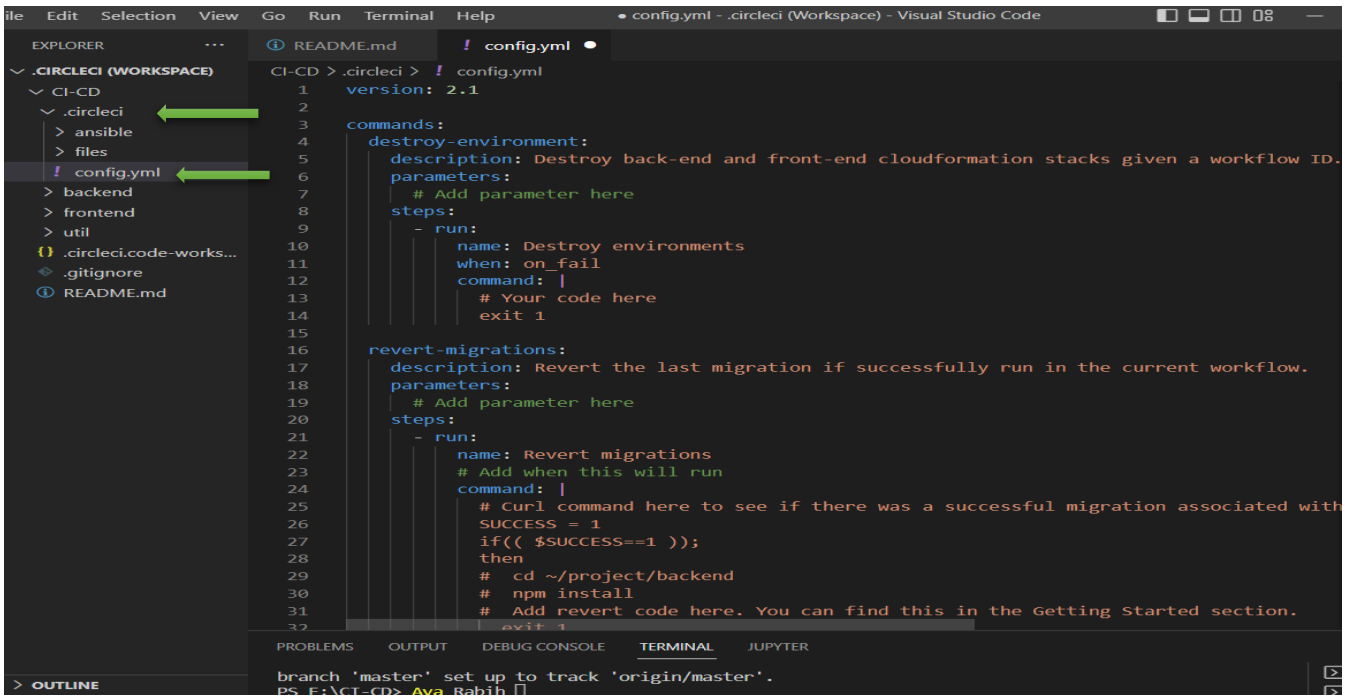
- **We will start in our project**
- First you should install git tool in this link https://git-scm.com/
- Second you should install node.js tool in this link
- Third you should install nvm tool in this link https://github.com/coreybutler/nvm-windows/releases/tag/1.1.9
- Command to git connect with git hub and your project
  1. Git init
  2. git remote add origin https://github.com/ayarabih/udapeople.CICD.git
  3. git add.
  4. git commit -m "initial commit"
  5. git push -u origin master
- now we upload our project in GitHub and we will get in second steps

step 2

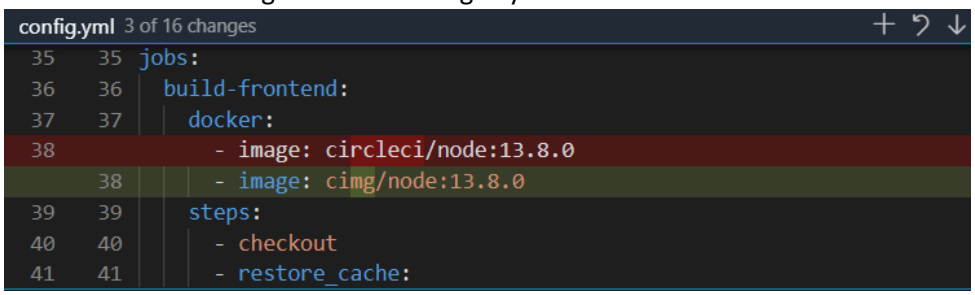
- we will open this link https://app.circleci.com it is tool for circles and select our project



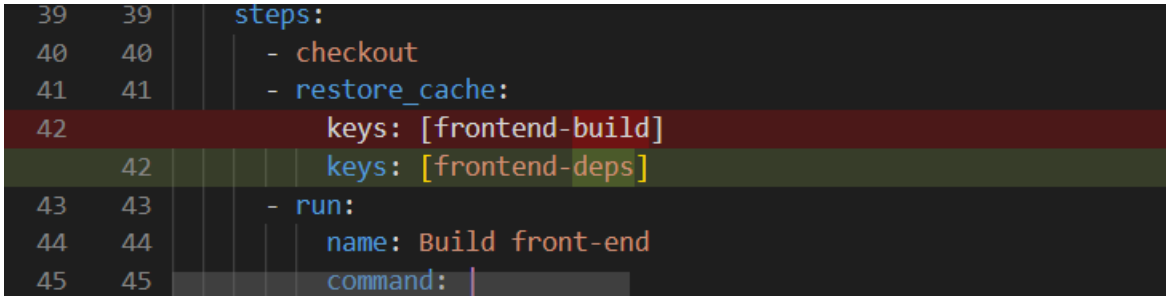
- Now we will use image node:13.8.0



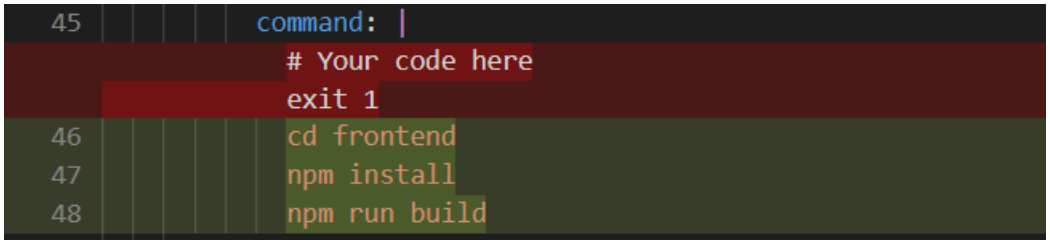
- Now we will change circleci to cimg keys frontend



- Change key frontend build to deps to be more logic



- Change command to install npm and run it



- So we will change steps and command and key for frontend and backend

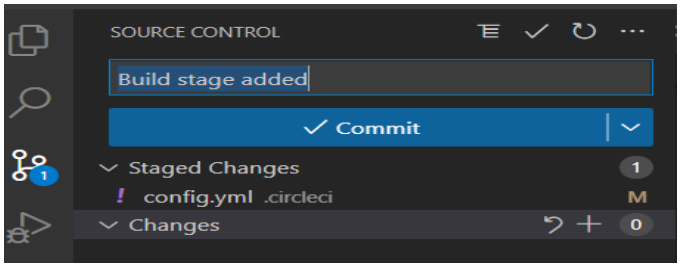
#Frontend

```yaml
build-frontend:
  docker:
    - image: cimg/node:13.8.0
  steps:
    - checkout
    - restore_cache:
        keys: [frontend-deps]
    - run:
        name: Build front-end
        command: |
          cd frontend
          npm install
          npm run build
    - save_cache:
        paths: [frontend/node_modules]
        key: frontend-deps
```

#Backend

```yaml
build-backend:
  docker:
    - image: cimg/node:13.8.0
  steps:
    - checkout
    - restore_cache:
        keys: [backend-deps]
    - run:
        name: Back-end build
        command: |
          cd backend
          npm install
          npm run build
    - save_cache:
        paths: [backend/node_modules]
        key: backend-deps
```

- Now we will run by command #Build stage added



- Start to run

Pipeline	Status	Workflow	Branch / Commit	Start	Duration	Actions
udapeople.CICD 2	Running	default	master b0ae504 Build stage added	11s ago	10s	

udapeople.CICD 1

ERROR IN CONFIG FILE:

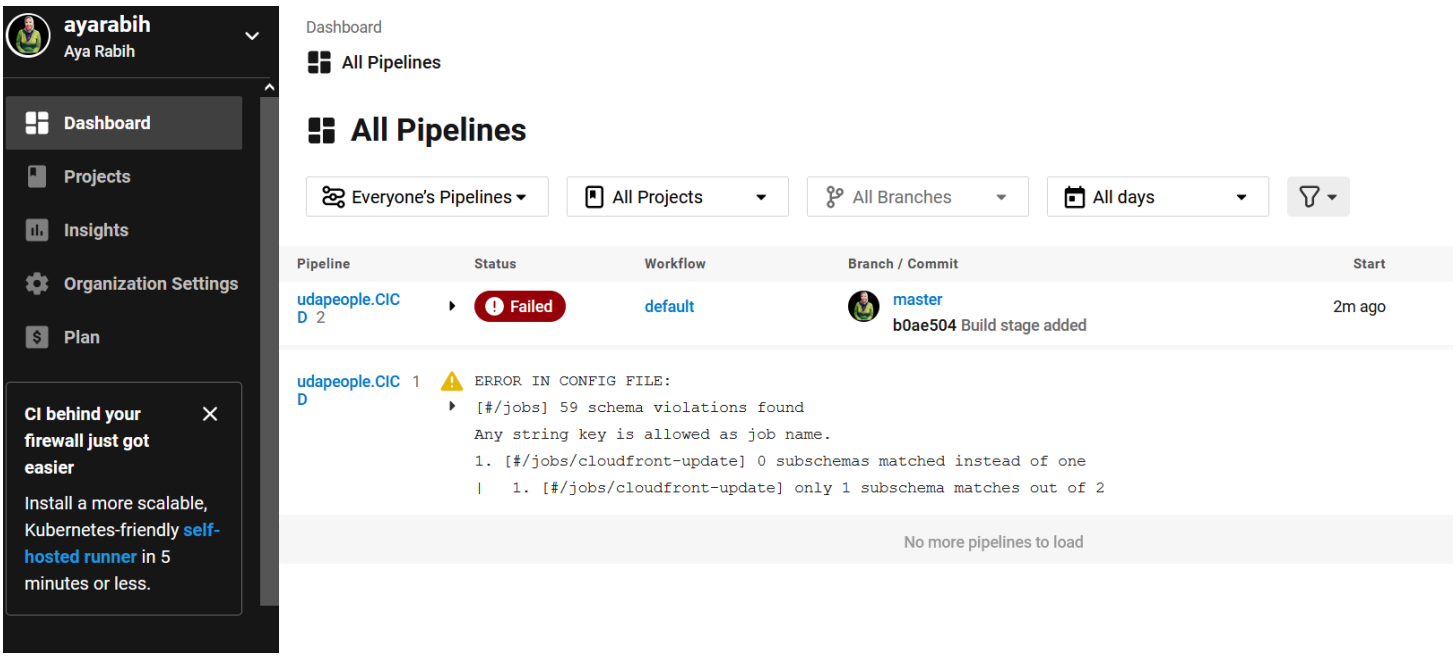
[#/jobs] 59 schema violations found

Any string key is allowed as job name.

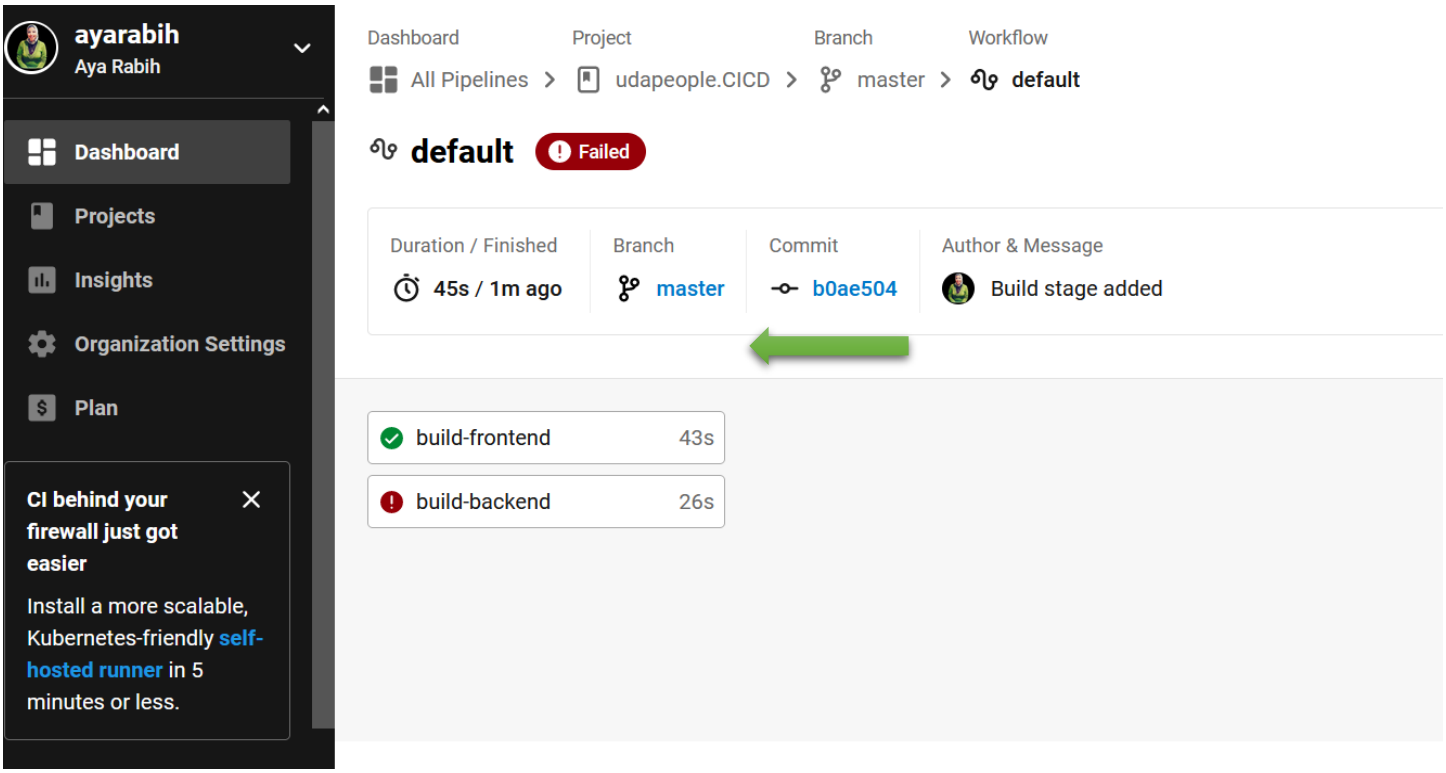
1. [#/jobs/cloudfront-update] 0 subschemas matched instead of one

| 1. [#/jobs/cloudfront-update] only 1 subschema matches out of 2

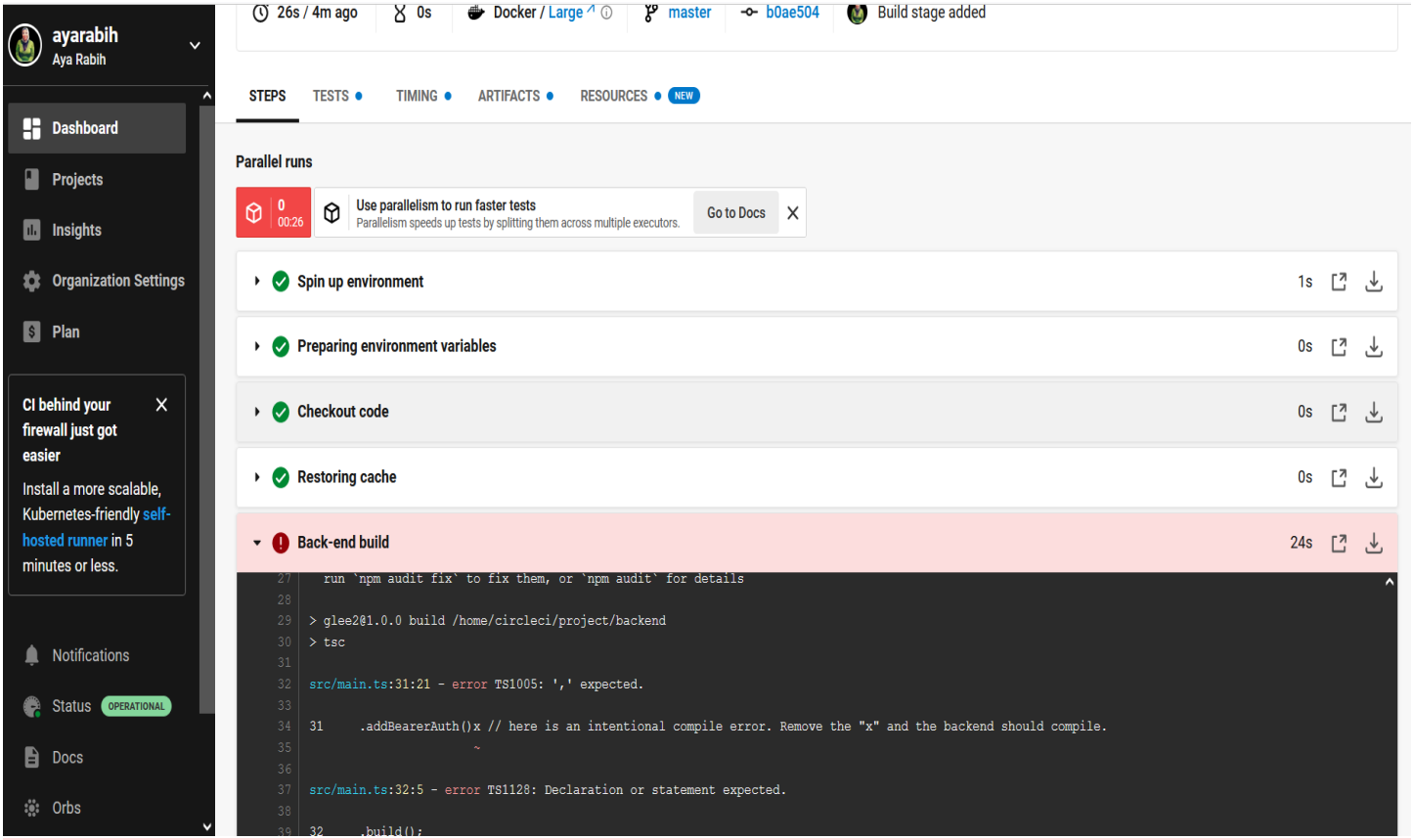
- we found error in our project



- Our error in build-backend



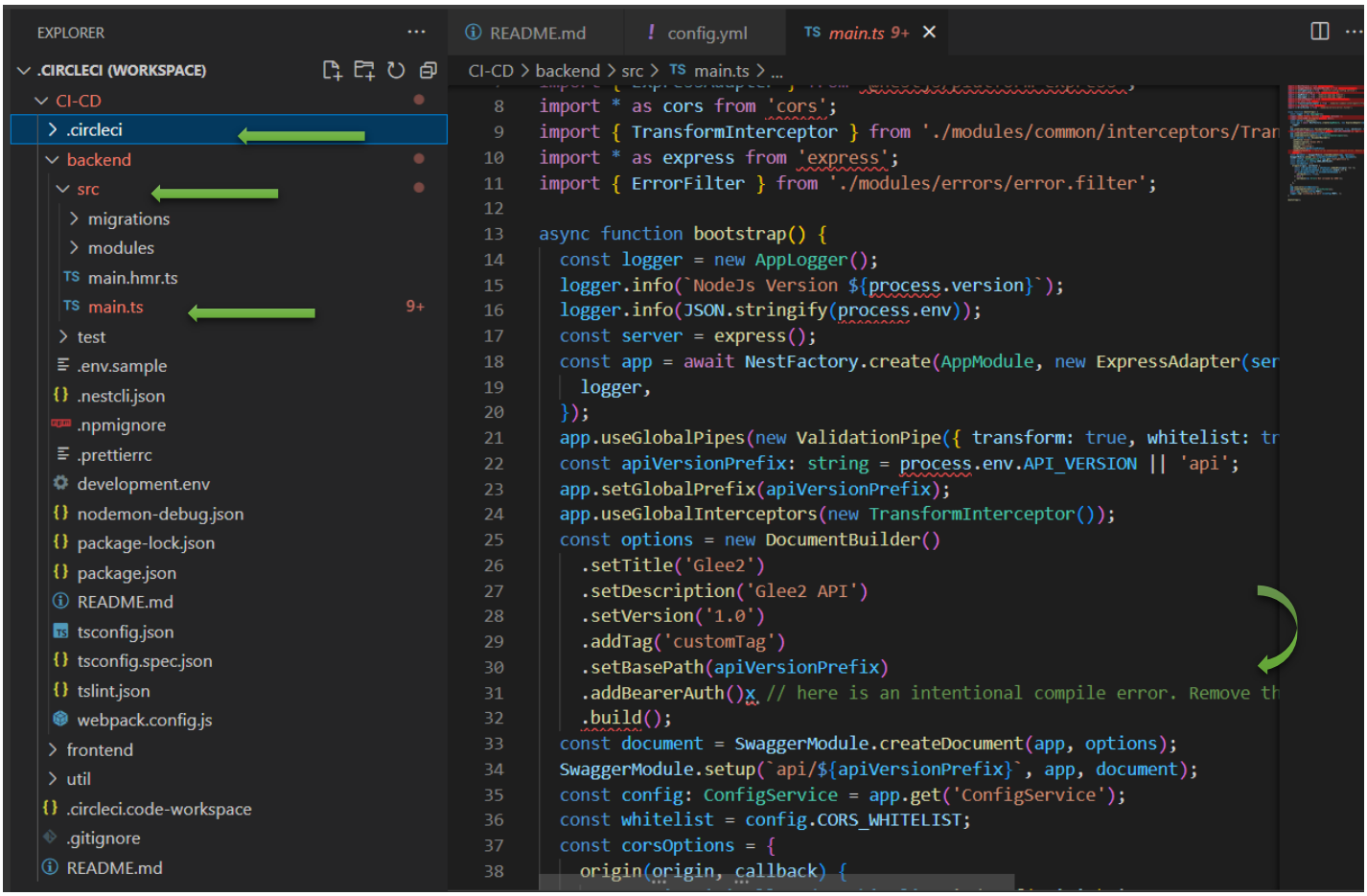
➢ Take screen for your error and read it



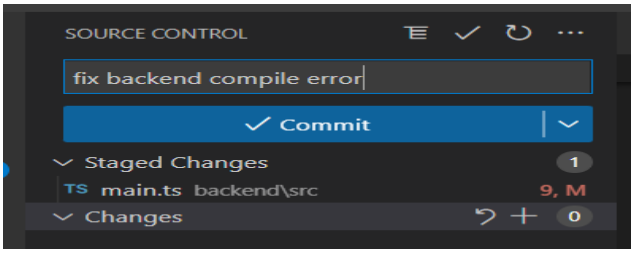
Back-end build 24s

```
#!/bin/bash -eo pipefail
cd backend
npm install
npm run build
```

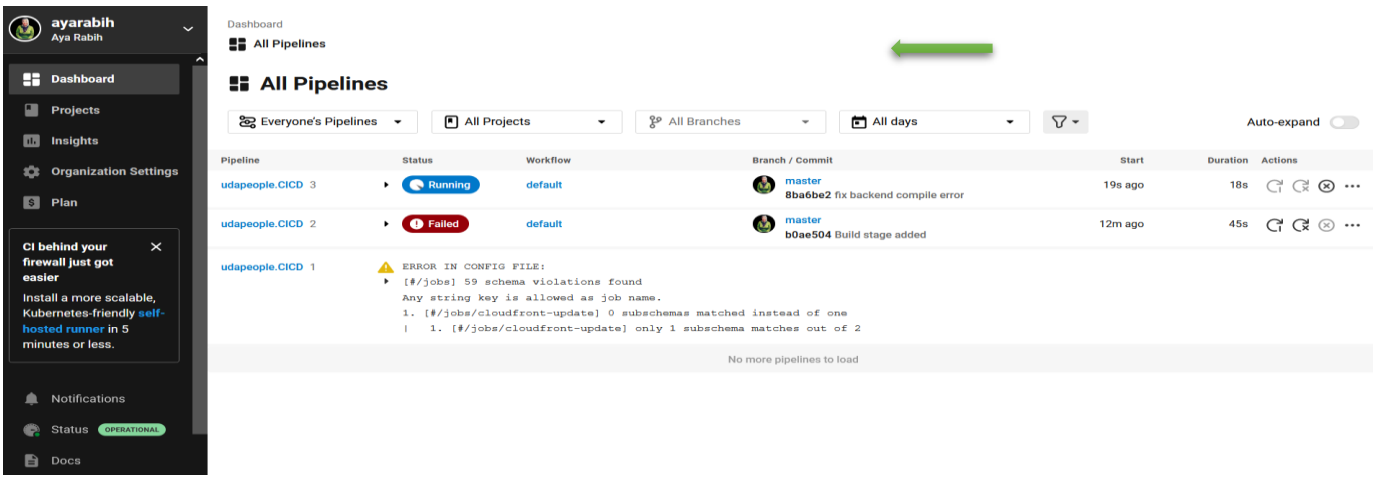
```
> @nestjs/core@6.11.11 postinstall /home/circleci/project/backend/node_modules/@nestjs/core
> opencollective || exit 0


> nodemon@1.19.4 postinstall /home/circleci/project/backend/node_modules/nodemon
> node bin/postinstall || exit 0

Love nodemon? You can now support the project via the open collective:
 > https://opencollective.com/nodemon/donate

npm WARN glee2@1.0.0 No repository field.
npm WARN optional SKIPPING OPTIONAL DEPENDENCY: fsevents@1.2.12 (node_modules/fsevents):
npm WARN notsup SKIPPING OPTIONAL DEPENDENCY: Unsupported platform for fsevents@1.2.12: wanted {"os":"darwin","arch":"any"} (current: {"os":"linux","a

added 1311 packages from 1064 contributors and audited 1389 packages in 16.513s

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

found 641 vulnerabilities (2 low, 144 moderate, 370 high, 125 critical)
  run `npm audit fix` to fix them, or `npm audit` for details
```



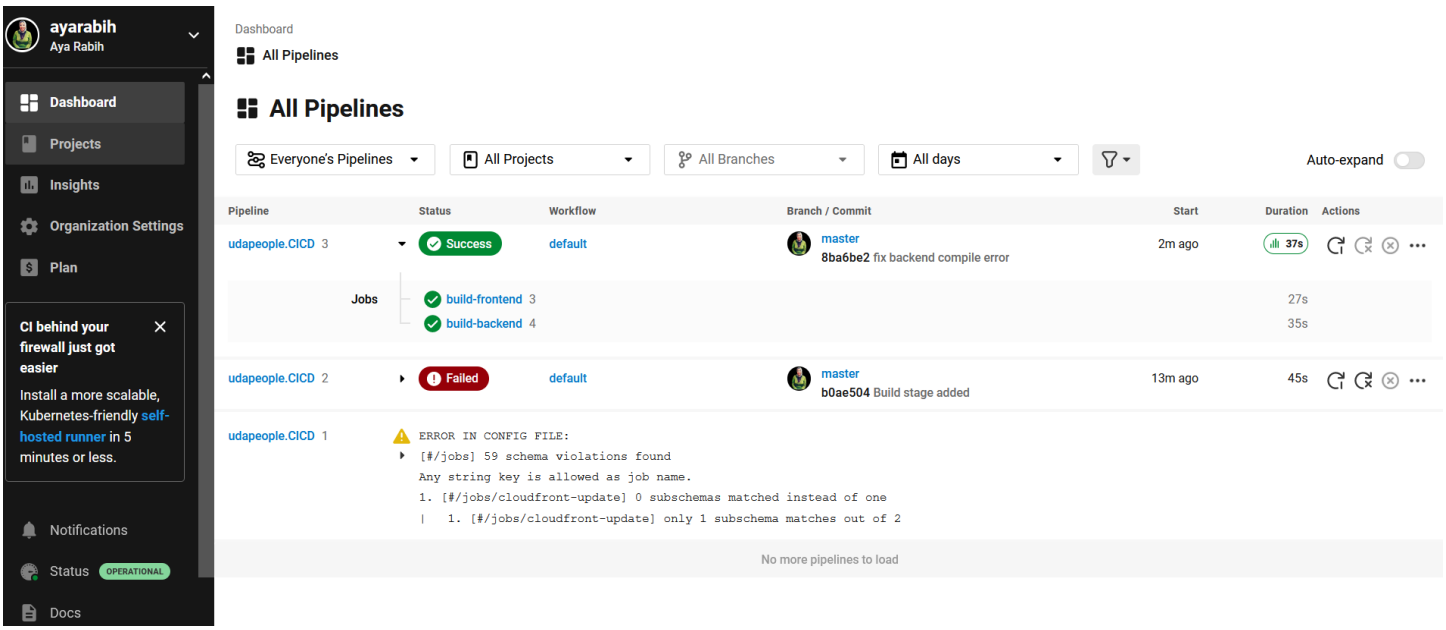
- Now we will fix field job of backend with command #fix backend compile error



- Start to run



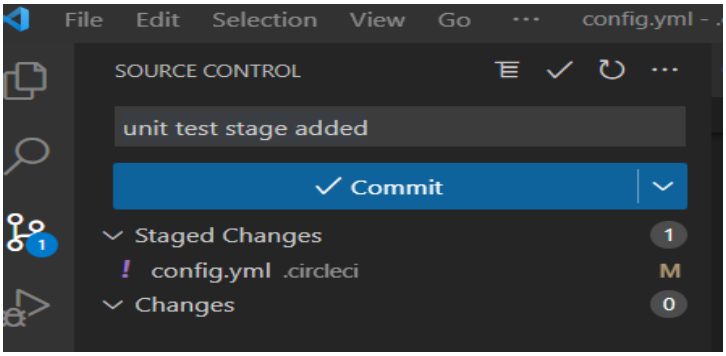
- Done we fix our error in build backend



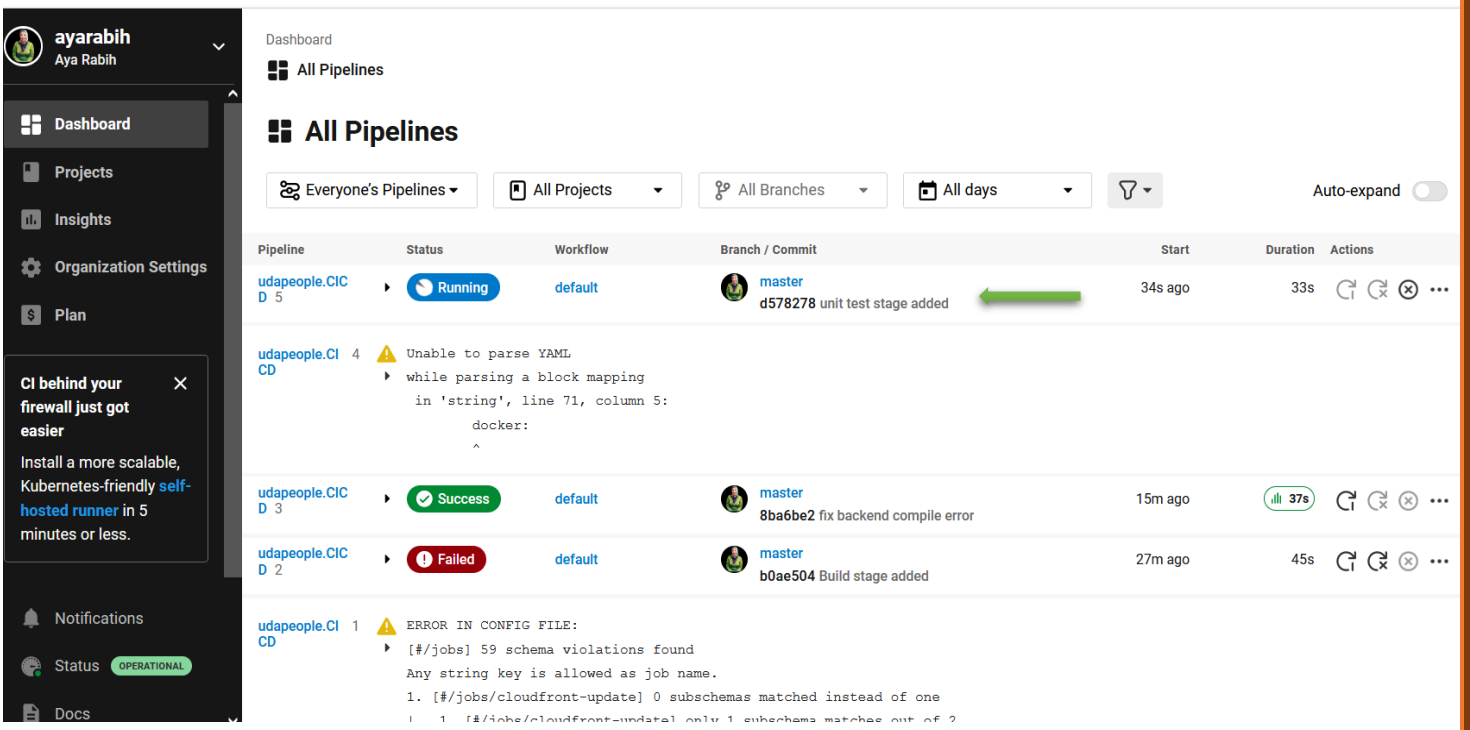
- Let's to test our file

```yaml
test-frontend:
  docker:
    - image: cimg/node:13.8.0
  steps:
    - checkout
    - restore_cache:
        keys: [frontend-deps]
    - run:
        name: front-end unit test
        command: |
          cd frontend
          npm install
          npm test
test-backend:
  docker:
    - image: cimg/node:13.8.0
  steps:
    - checkout
    - restore_cache:
        keys: [backend-deps]
    - run:
        name: Back-end unit test
        command: |
          cd backend
          npm install
          npm test
```

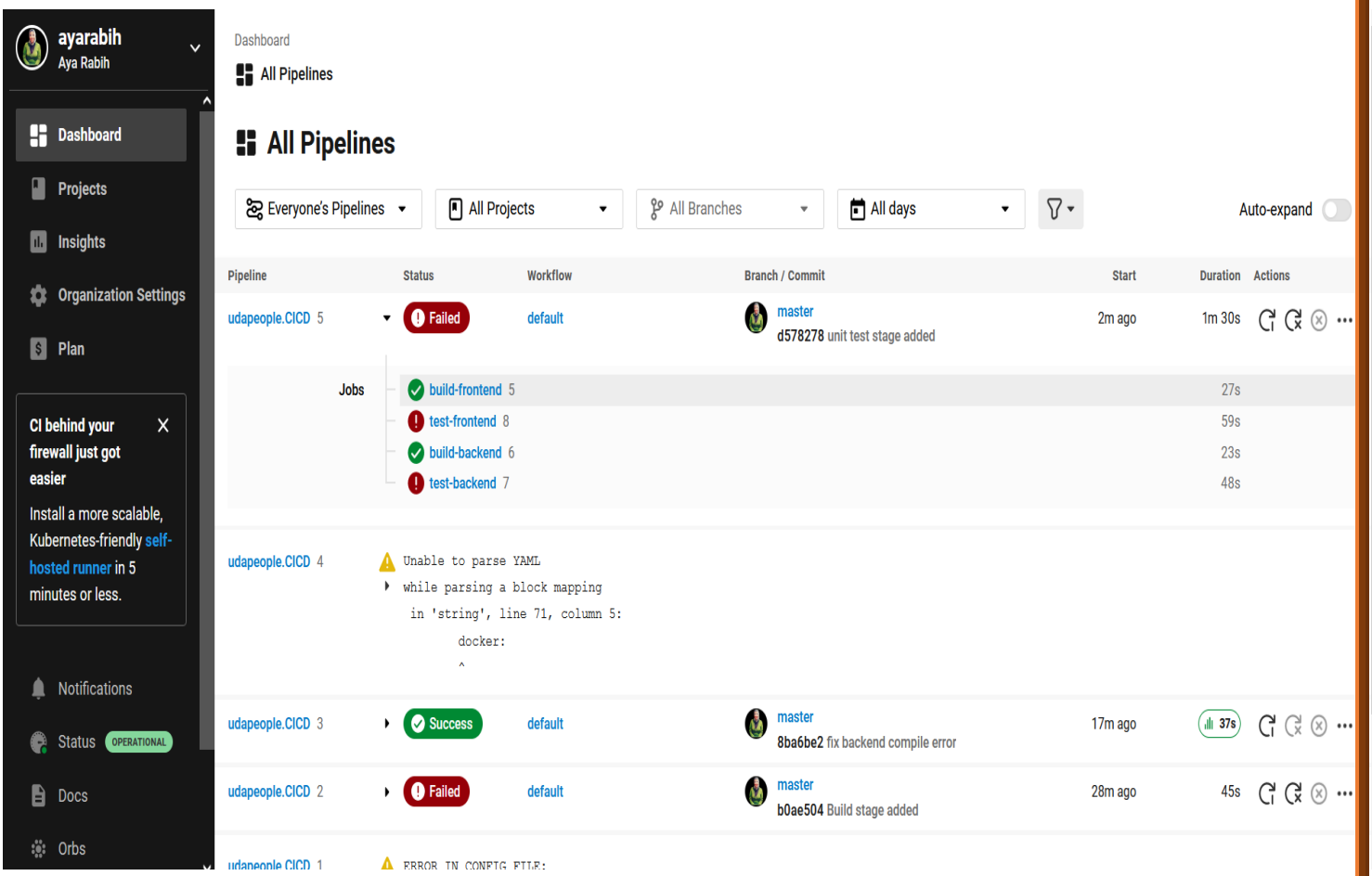
- Now we will get unit test with command # unit test stage added



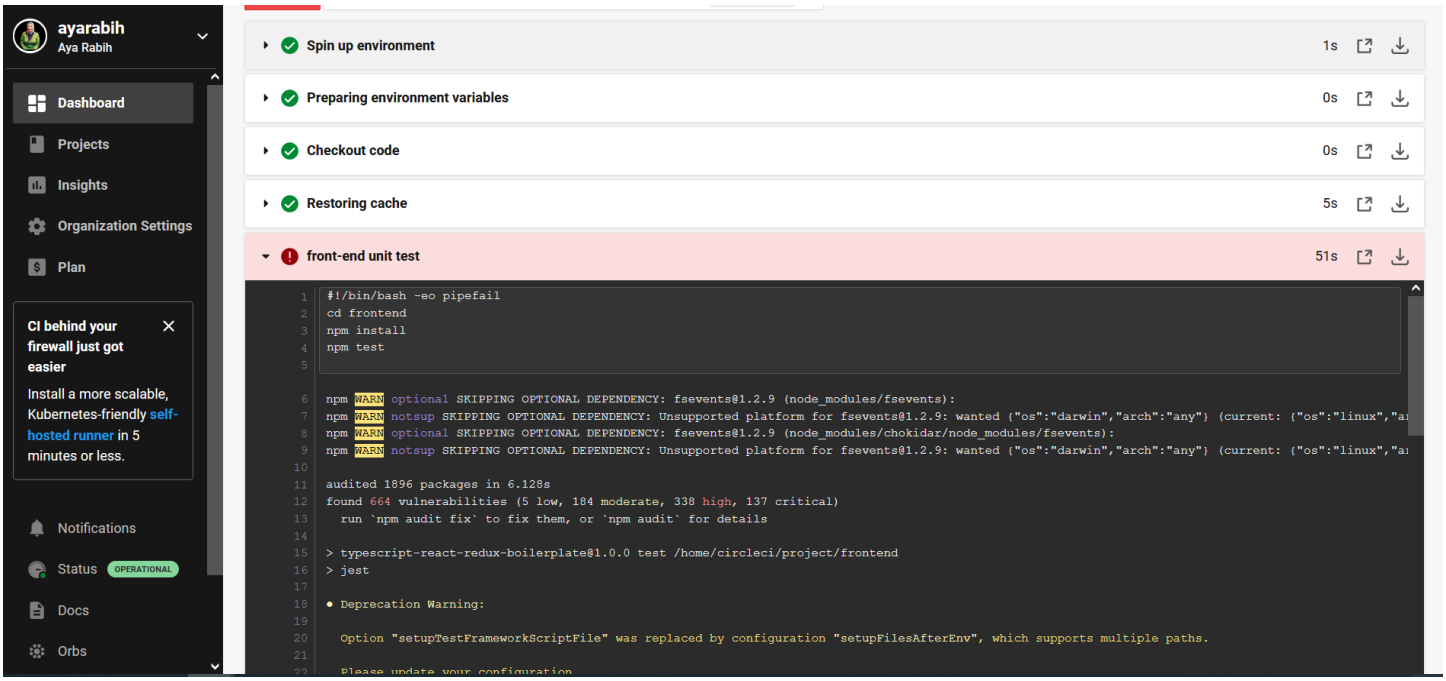
- Start to run



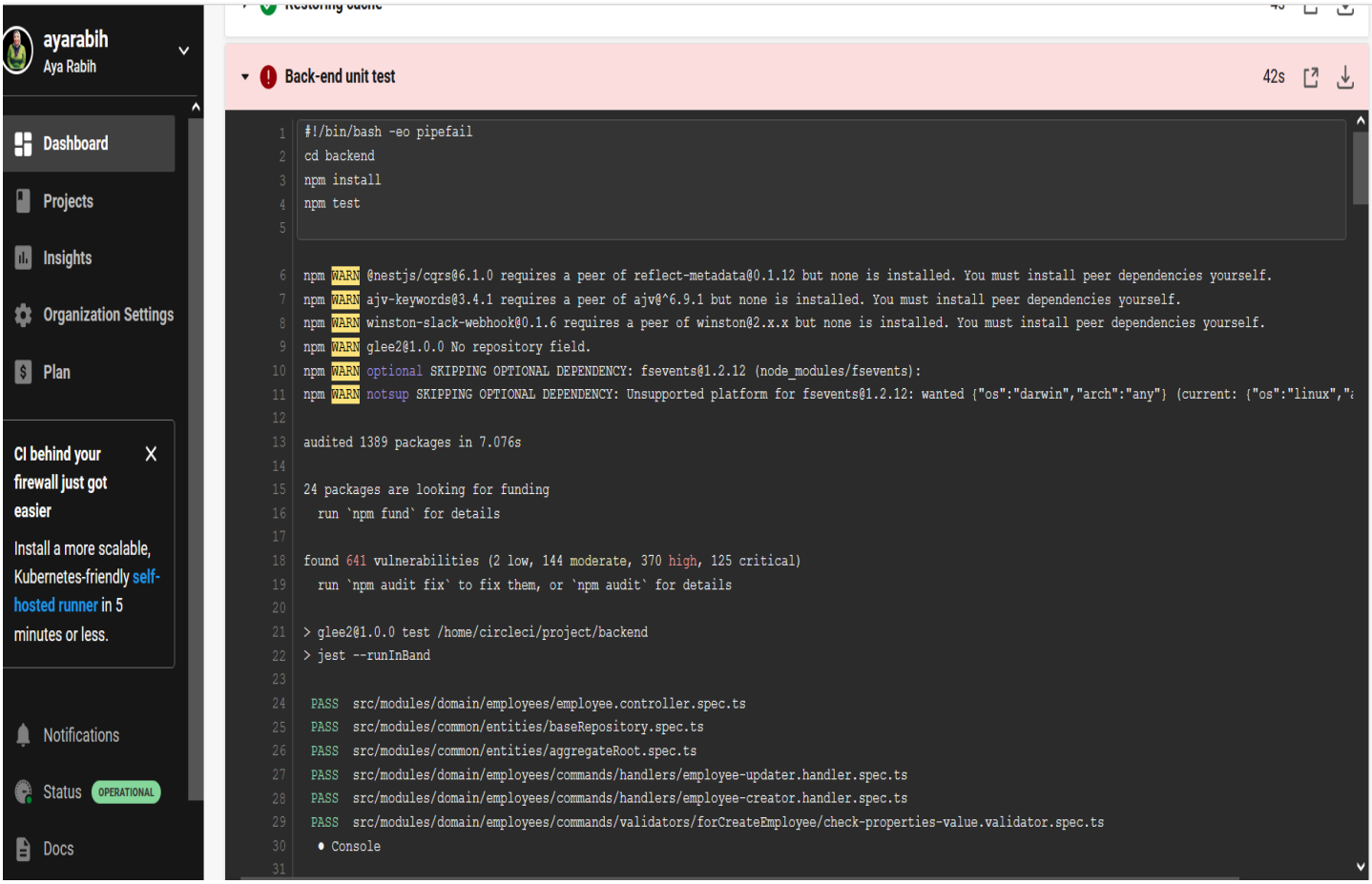
- We found error in test for frontend and backend



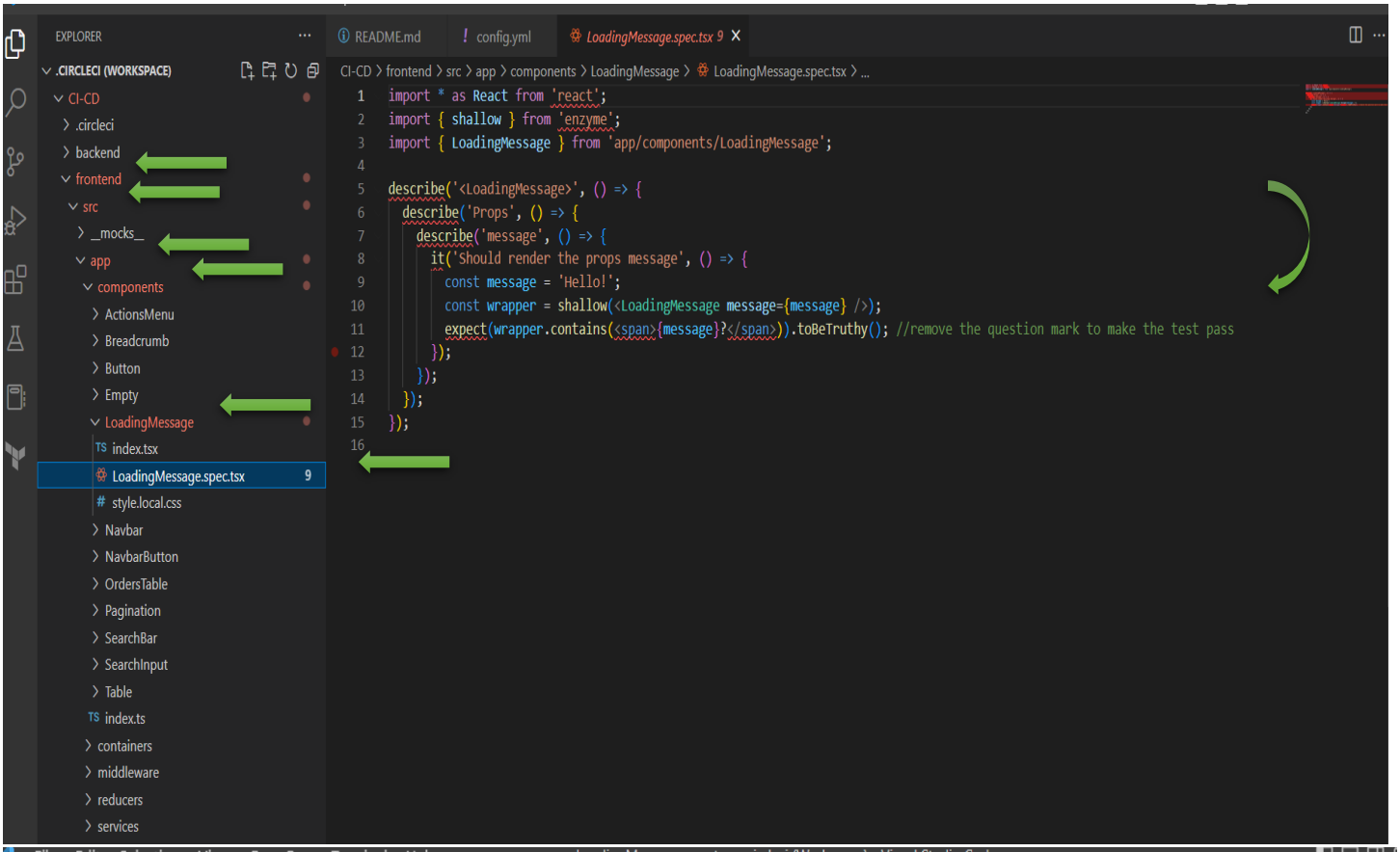
➢ Error for frontend

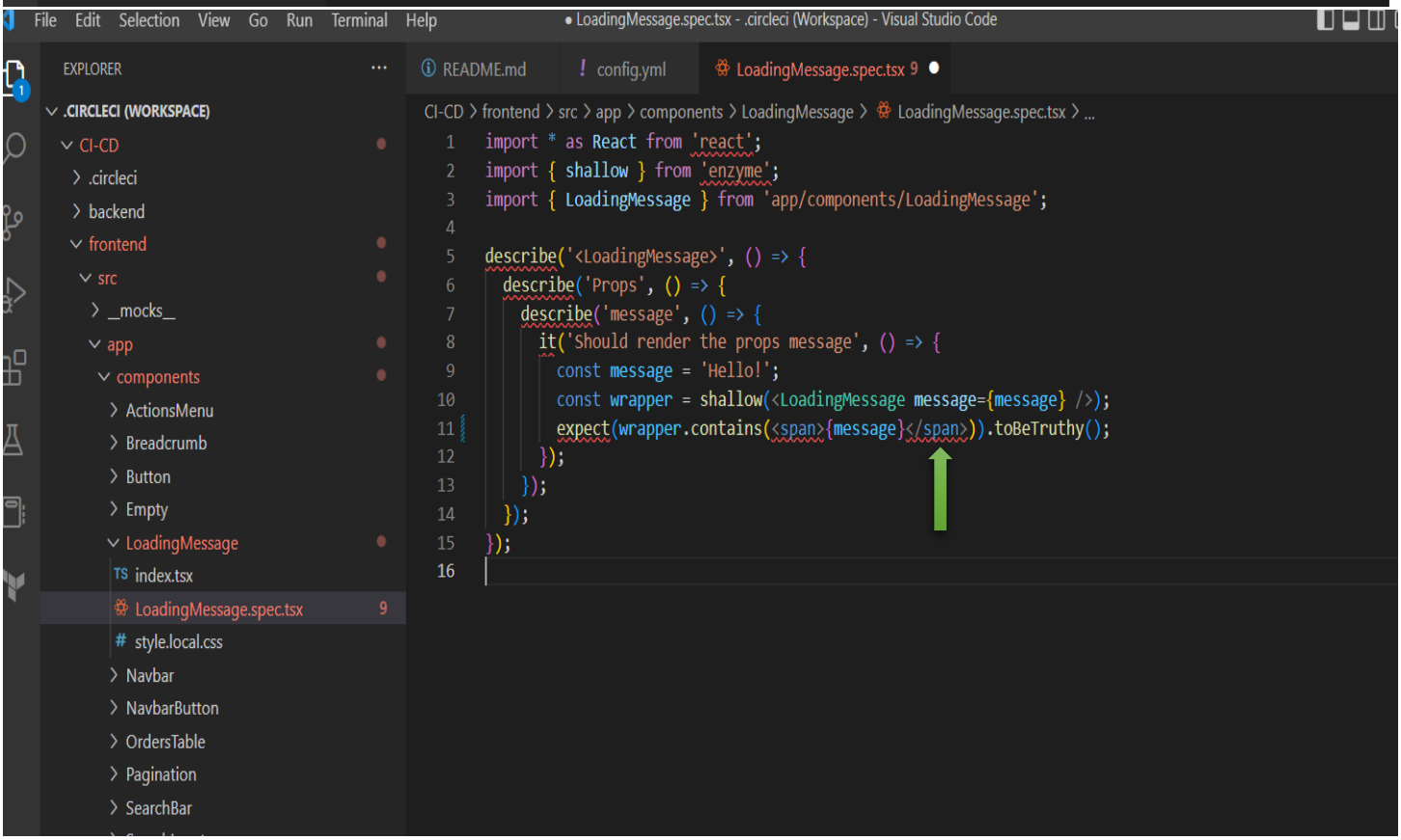


➢ Error for backend

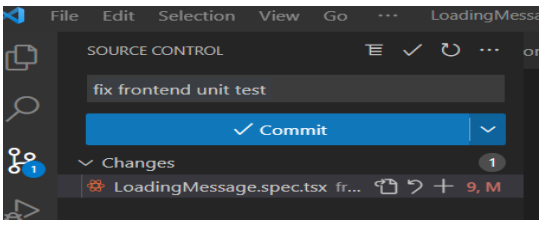


- Now we will fix error unit test for frontend and backend Frontend

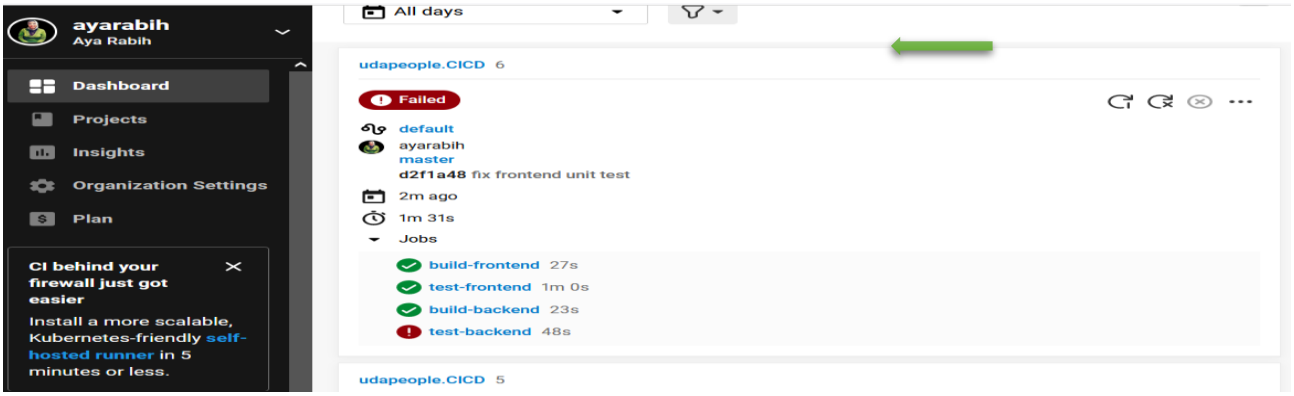




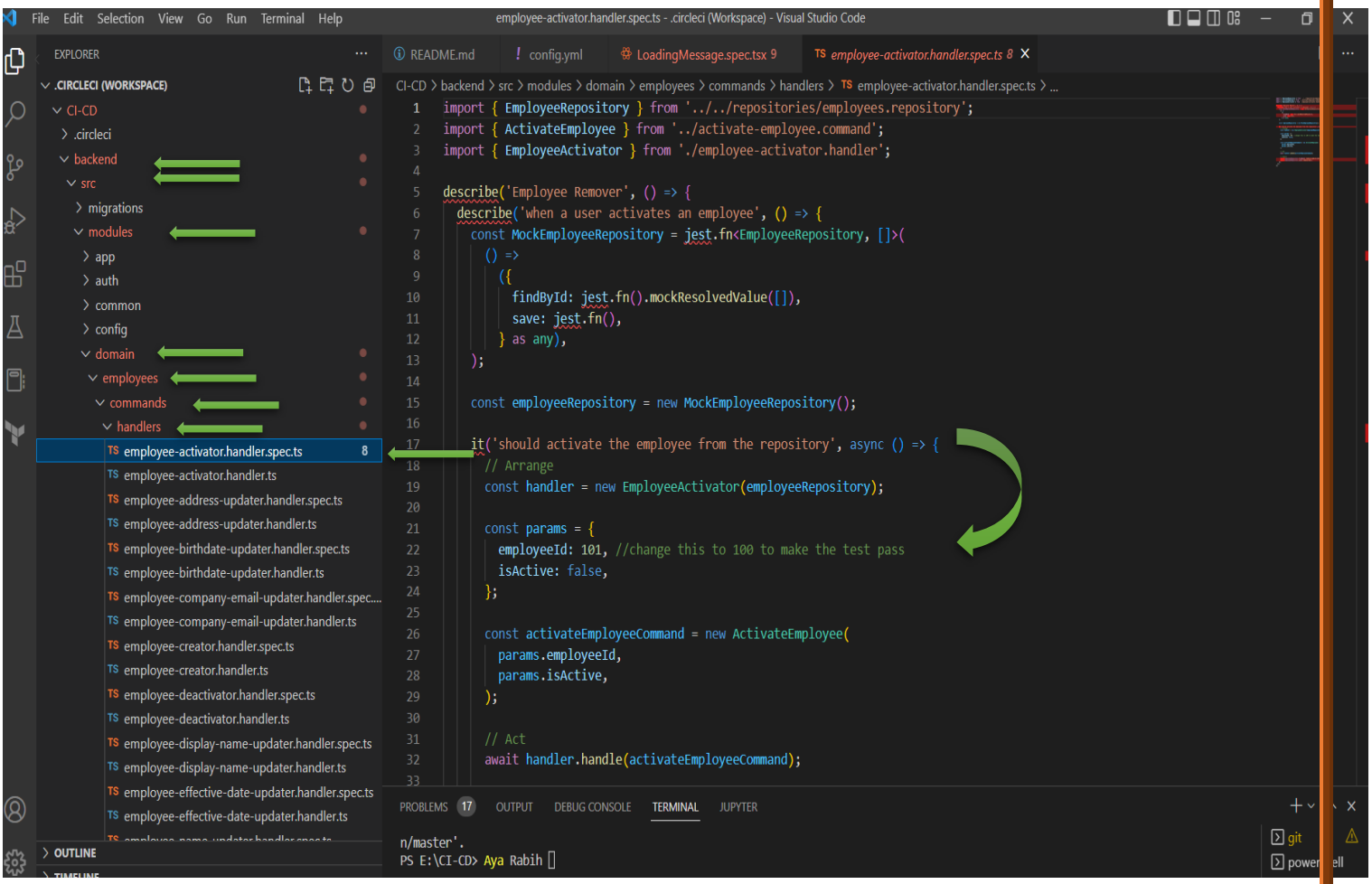
- Now we will fix field job of frontend with command #fix frontend unit test



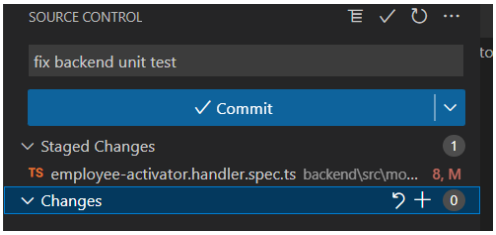
- Start to run and we found error in backend



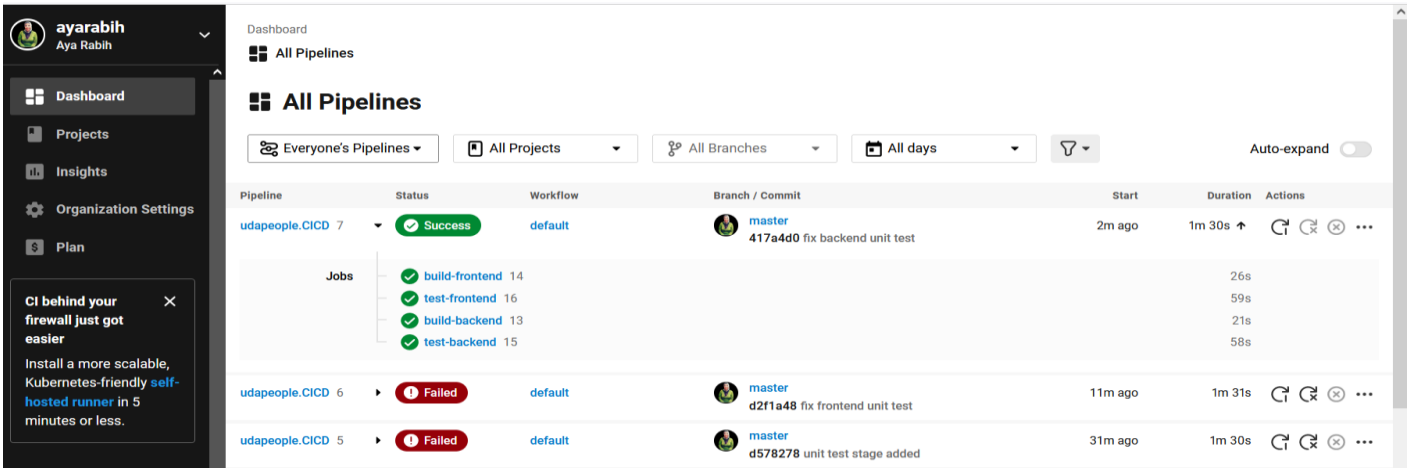
- Look for error change code from 101 to 100



- Now we will fix field job of backend with command # fix backend unit test



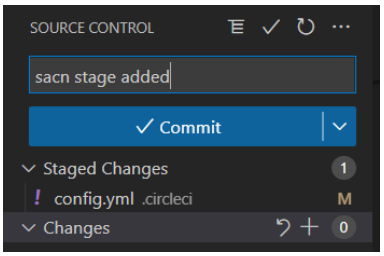
- Start to run and success



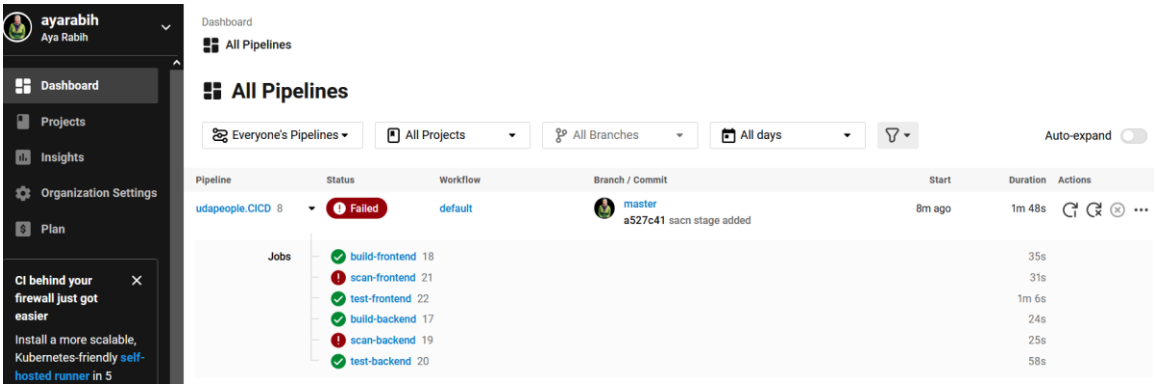
- Now we will scan front end and backend

```yaml
scan-frontend:
  docker:
    - image: cimg/node:13.8.0
  steps:
    - checkout
    - restore_cache:
        keys: [frontend-deps]
    - run:
        name: front-end scan
        command: |
          cd frontend
          npm install
          npm audit --audit-level=critical

scan-backend:
  docker:
    - image: cimg/node:13.8.0
  steps:
    - checkout
    - restore_cache:
        keys: [backend-deps]
    - run:
        name: Back-end scan
        command: |
          cd backend
          npm install
          npm audit --audit-level=critical
```

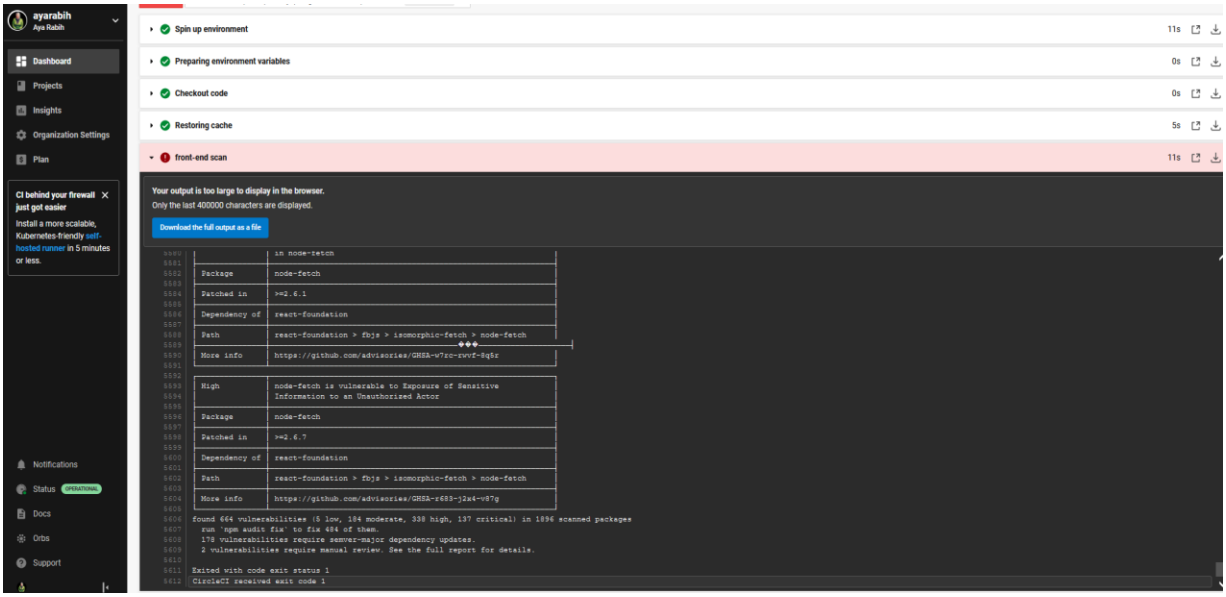
- Now we will fix field job of frontend with command # scan stage added



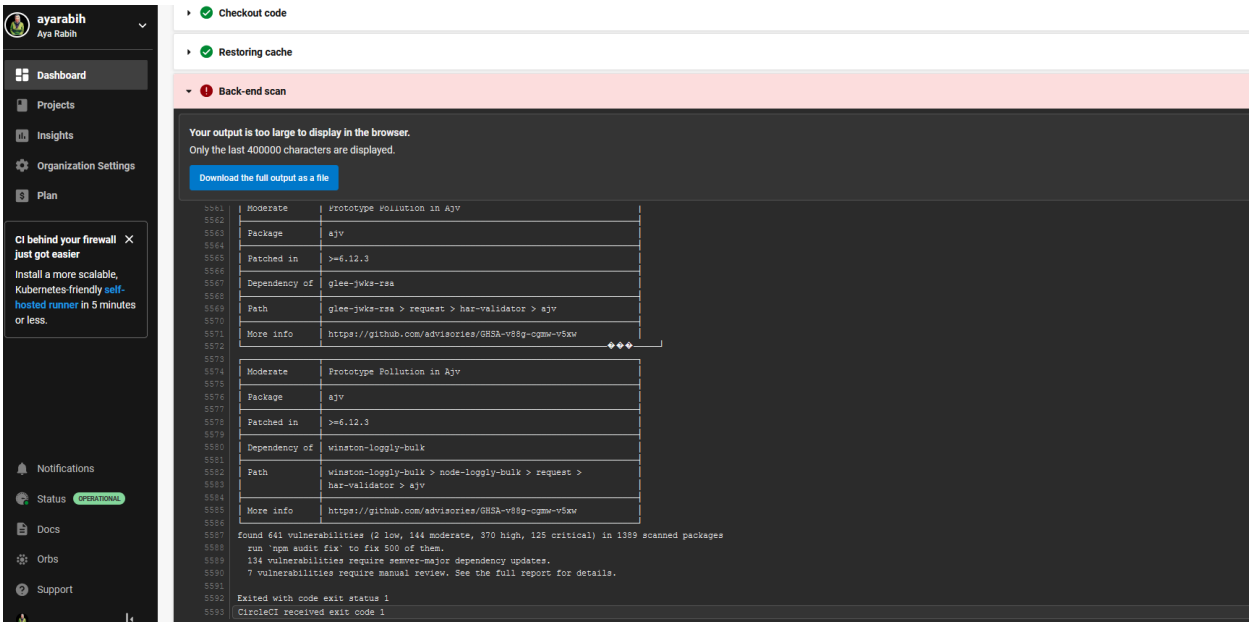
- Now we found error in scan in frontend and backend

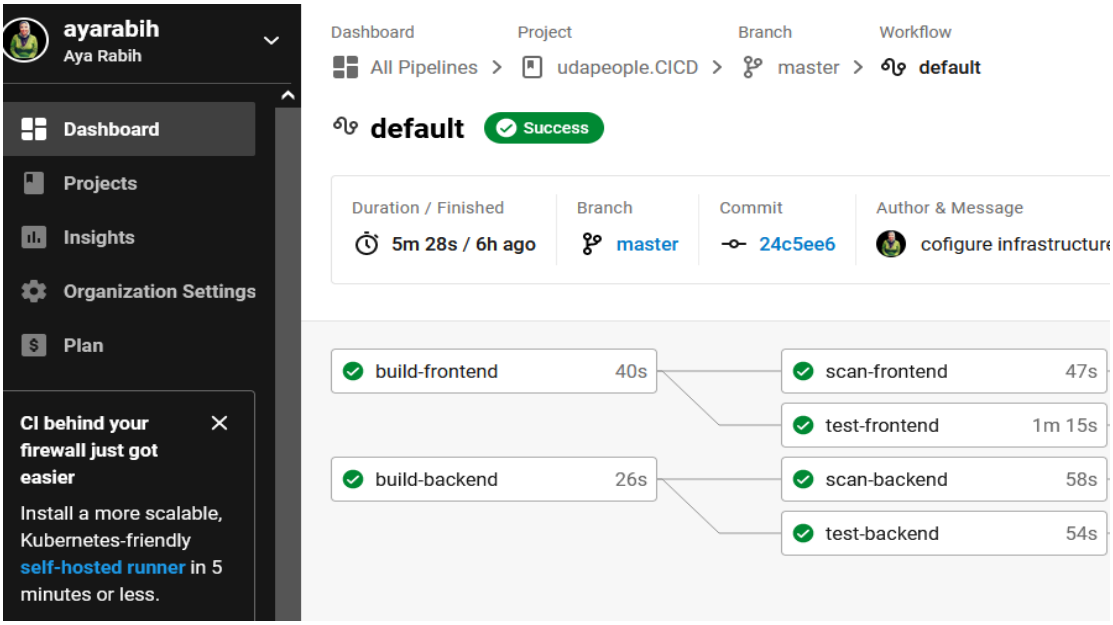


- Look for error for frontend



- Look for error for backend

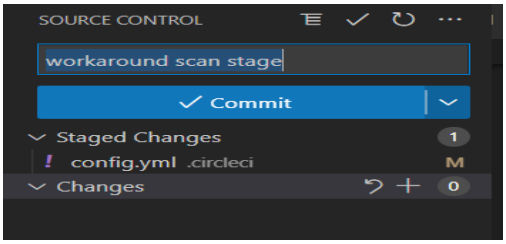




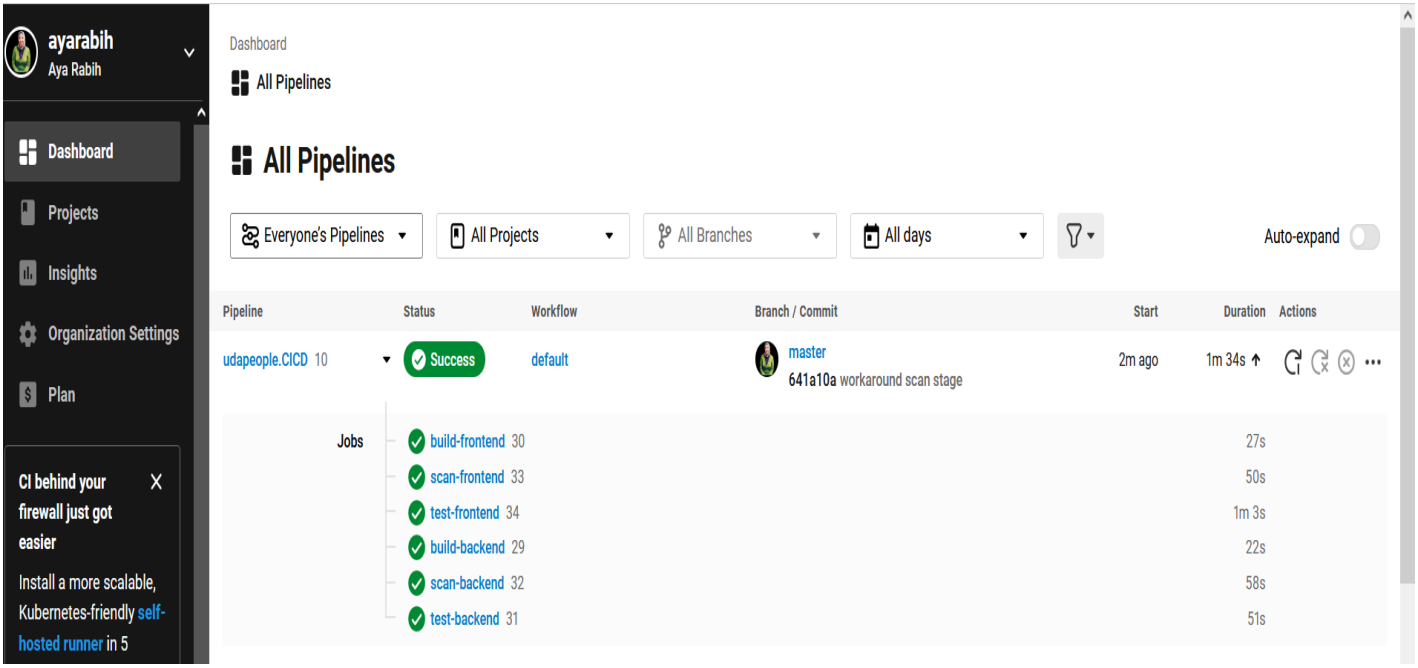
- Now we will fix vulnerability scan

```
scan-frontend:
  docker:
    - image: cimg/node:13.8.0
  steps:
    - checkout
    - restore_cache:
        keys: [frontend-deps]
    - run:
        name: front-end scan
        command: |
          cd frontend
          npm install
          npm audit fix --force --audit-level=critical
          npm audit --audit-level=critical

scan-backend:
  docker:
    - image: cimg/node:13.8.0
  steps:
    - checkout
    - restore_cache:
        keys: [backend-deps]
    - run:
        name: Back-end scan
        command: |
          cd backend
          npm install
          npm audit fix --force --audit-level=critical
          npm audit fix --force --audit-level=critical
          npm audit --audit-level=critical
```

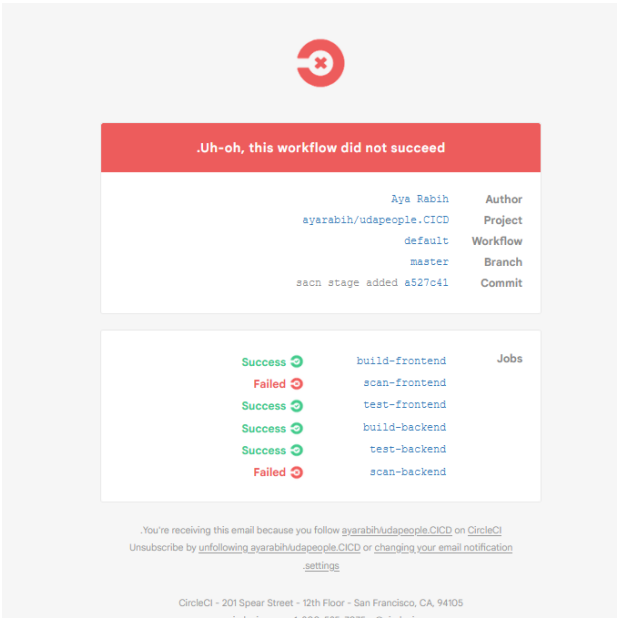
- Now we will fix field job vulnerability scan of frontend and backend with command # workaround scan stage



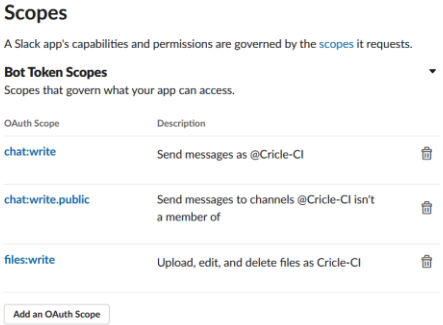
- Now we fix error in scan for backend and frontend



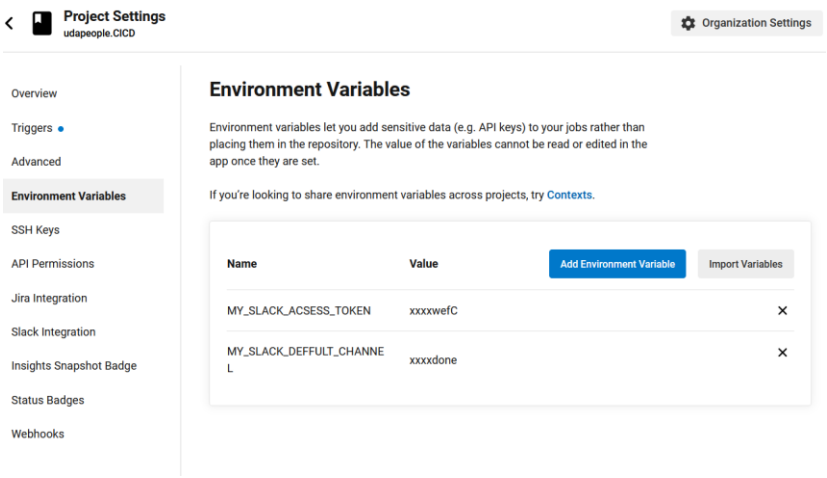
- Remember to take screen in alarm notification form your email error



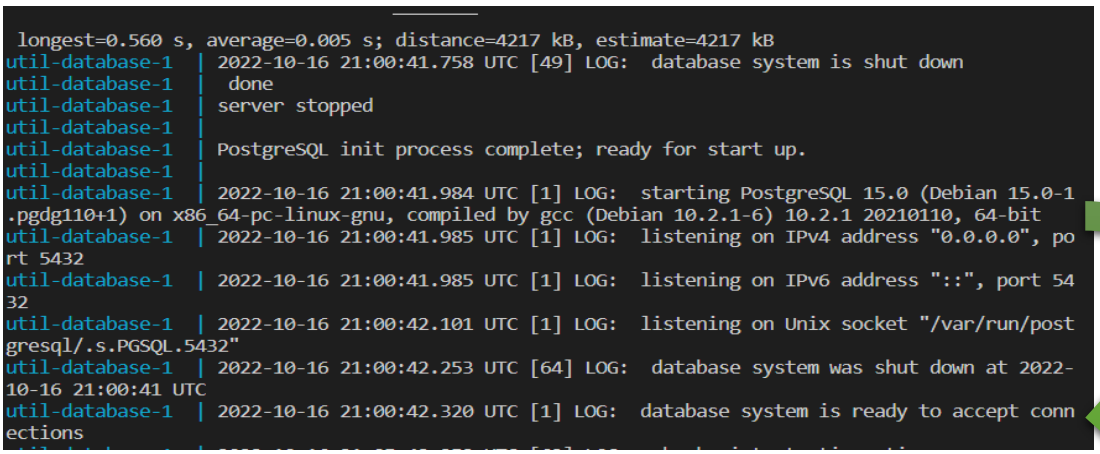
- In this like https://api.slack.com/
- we will create new app and with our project and change scope setting with this



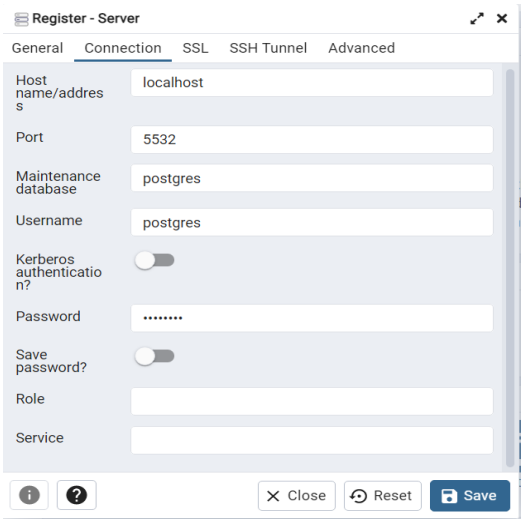
- Now we will do two environment variables with our slack project and we create channel with name for our project



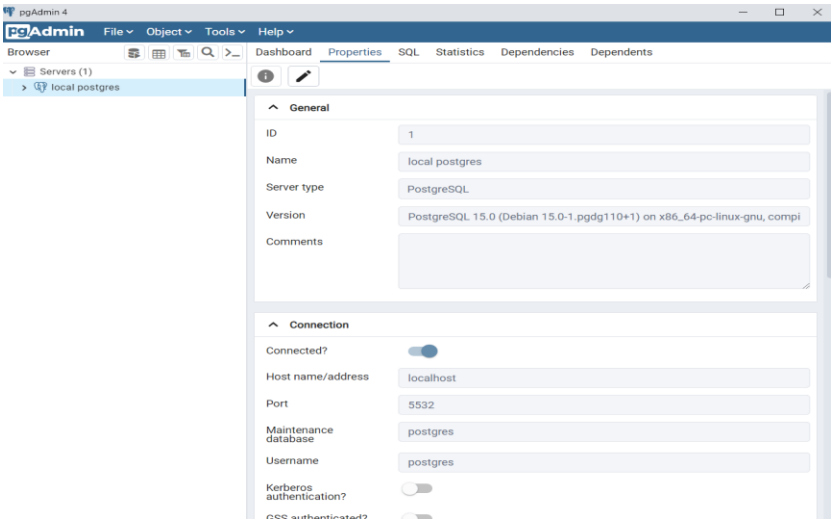
- git add .
- git commit -m "added slack notification orb"
- git push
- link will guide you when you do connect notification https://github.com/CircleCI-Public/slack-orb/wiki/Setup
- now we will run command #docker compose up



- Now our database so we will install PostgreSQL by this link https://www.postgresql.org/download/
  By default port 5432 and in our project we will sit port 5532 in configuration



- Now we create database and run it in port 5532



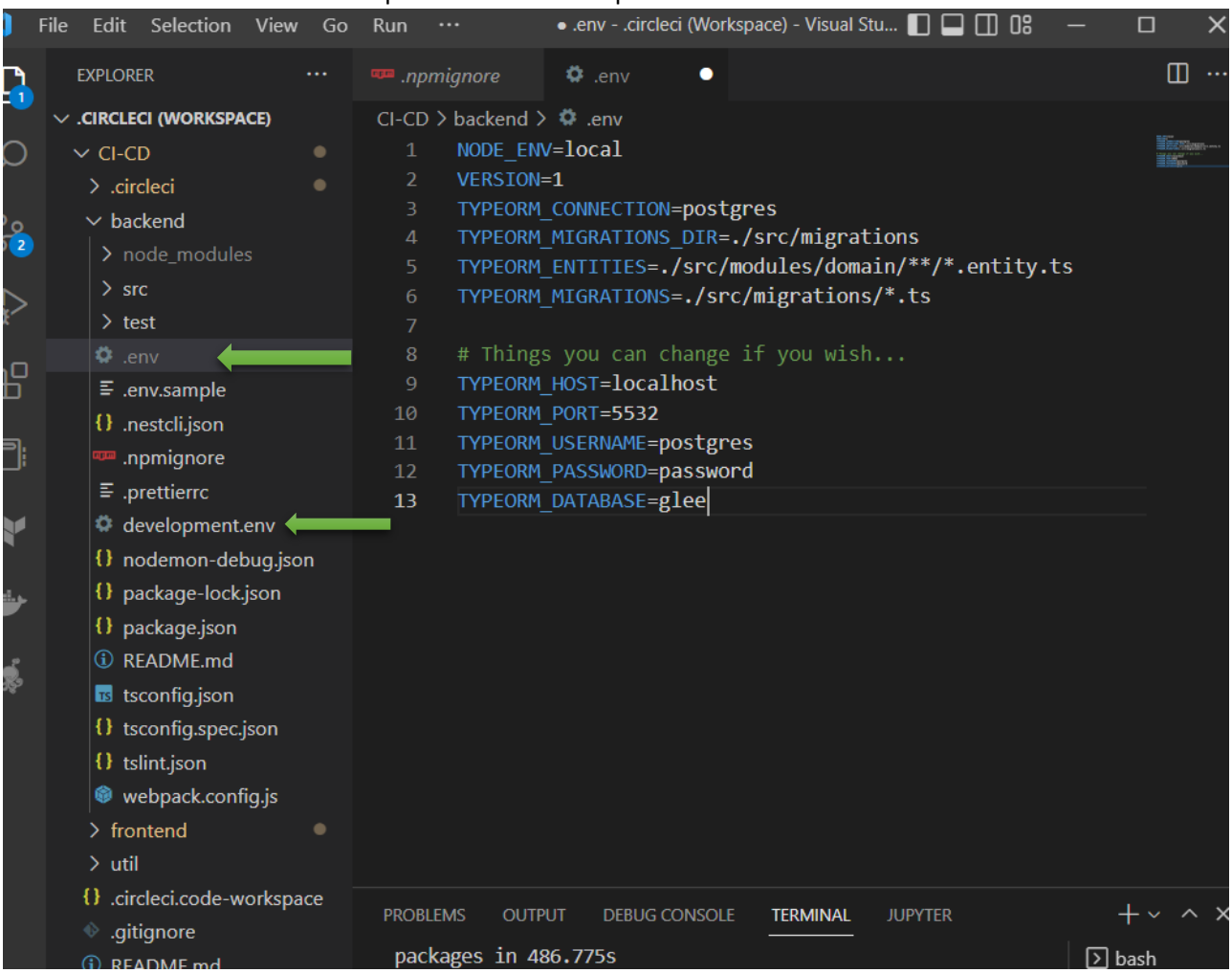
- Now make sure that you use # node –version v13.8.0
- Now we will run command for backend and front end # npm install
  - backend

```
> nodemon@1.19.4 postinstall E:\CI-CD\backend\node_modules\
nodemon
> node bin/postinstall || exit 0

Love nodemon? You can now support the project via the open
collective:
 > https://opencollective.com/nodemon/donate

npm WARN glee2@1.0.0 No repository field.
npm WARN optional SKIPPING OPTIONAL DEPENDENCY: fsevents@1.2.12 (node_modules\fsevents
):
npm WARN notsup SKIPPING OPTIONAL DEPENDENCY: Unsupported platform for fsevents@1.2.12
: wanted {"os":"darwin","arch":"any"} (current: {"os":"win32","arch":"x64"})

added 1311 packages from 1064 contributors and audited 1389 packages in 337.762s

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

found 641 vulnerabilities (2 low, 144 moderate, 370 high, 125 critical)
  run `npm audit fix` to fix them, or `npm audit` for details
```

  - frontend

```
npm WARN optional SKIPPING OPTIONAL DEPENDENCY: fsevents@1.2.9 (node_modules\fsevents)
:
npm WARN notsup SKIPPING OPTIONAL DEPENDENCY: Unsupported platform for fsevents@1.2.9:
 wanted {"os":"darwin","arch":"any"} (current: {"os":"win32","arch":"x64"})
npm WARN optional SKIPPING OPTIONAL DEPENDENCY: fsevents@1.2.9 (node_modules\chokidar\
node_modules\fsevents):
npm WARN notsup SKIPPING OPTIONAL DEPENDENCY: Unsupported platform for fsevents@1.2.9:
 wanted {"os":"darwin","arch":"any"} (current: {"os":"win32","arch":"x64"})

added 1755 packages from 1104 contributors and audited 1895 packages in 486.775s
found 664 vulnerabilities (5 low, 184 moderate, 338 high, 137 critical)
  run `npm audit fix` to fix them, or `npm audit` for details

DELL@DESKTOP-SEA7AN9 MINGW64 /e/CI-CD/frontend (master)
```

- now we will site environment variables
- create file .env in backend and cope data from development. env to .env

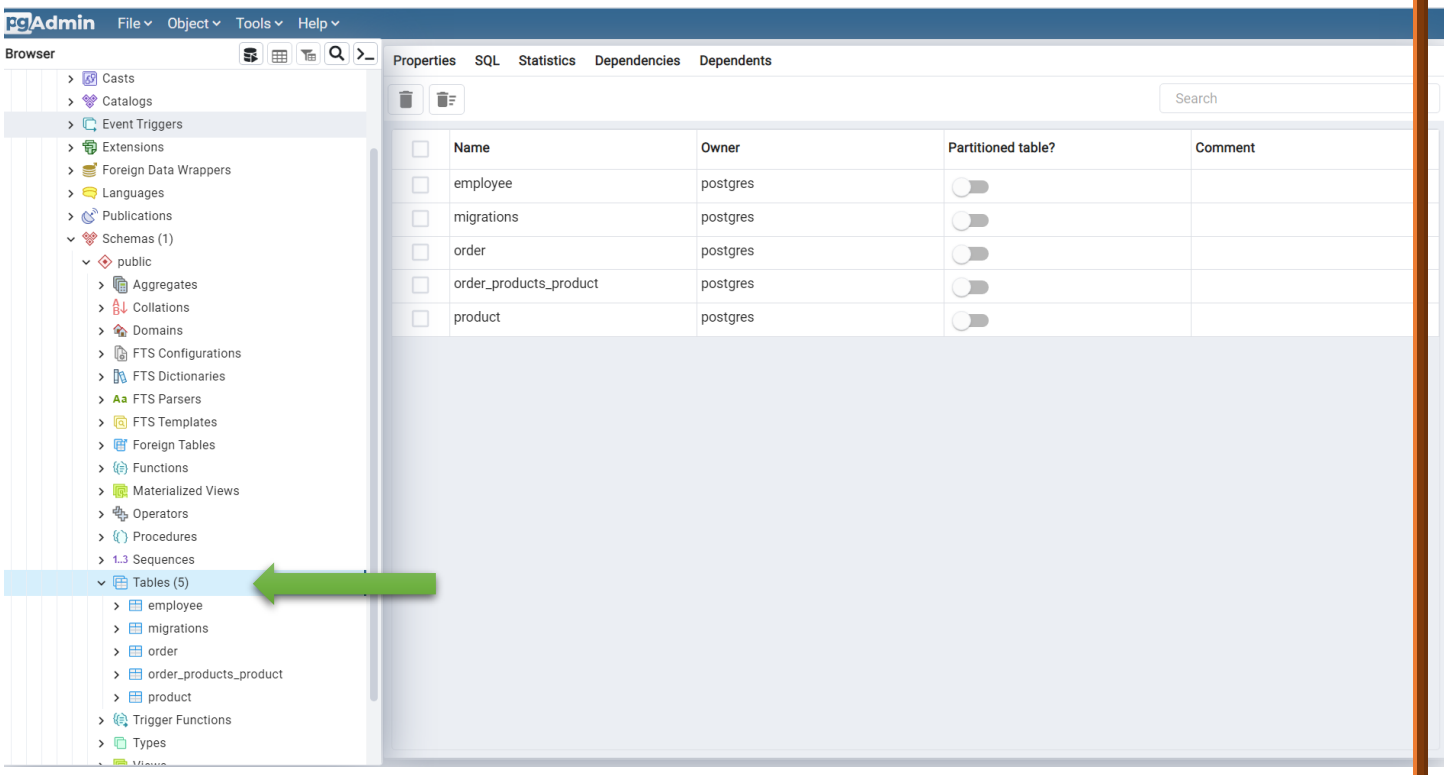


- Same we will do that in frontend

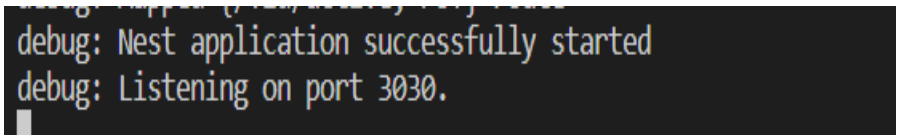
npm run migrations-win for backend

```
DELL@DESKTOP-SEA7AN9 MINGW64 /e/CI-CD/backend (master)
$ npm run migrations-win

> glee2@1.0.0 migrations-win E:\CI-CD\backend
> ts-node node_modules/typeorm/cli.js migration:run

query: SELECT * FROM "information_schema"."tables" WHERE "table_schema" = current_
query: CREATE TABLE "migrations" ("id" SERIAL NOT NULL, "timestamp" bigint NOT NUL
b734260ea46be" PRIMARY KEY ("id"))
query: SELECT * FROM "migrations" "migrations" ORDER BY "id" DESC
0 migrations are already loaded in the database.
3 migrations were found in the source code.
3 migrations are new migrations that needs to be executed.
query: START TRANSACTION
query: CREATE TABLE "product" ("id" SERIAL NOT NULL, "description" character varyi
Y ("id"))
query: CREATE TABLE "order" ("id" uuid NOT NULL, CONSTRAINT "PK_1031171c1313010249
query: CREATE TABLE "order_products_product" ("orderId" uuid NOT NULL, "productId"
ARY KEY ("orderId", "productId"))
query: ALTER TABLE "order_products_product" ADD CONSTRAINT "FK_1f9ea0b0e59e0d98ade
E CASCADE
query: ALTER TABLE "order_products_product" ADD CONSTRAINT "FK_d6c66c08b9c7e84a1b6
query: ALTER TABLE "order_products_product" ADD CONSTRAINT "PK_59f5d41216418eba313ed3c7d7c" PRIMARY KEY ("orderId", "productId")
query: ALTER TABLE "order_products_product" ADD CONSTRAINT "FK_d6c66c08b9c7e84a1b657797dff" FOREIGN KEY ("productId") REFERENCES "product"("id") ON DELETE CASCADE
query: INSERT INTO "migrations"("timestamp", "name") VALUES ($1, $2) -- PARAMETERS: [1549398619849,"FixProductIdTable1549398619849"]
Migration FixProductIdTable1549398619849 has been executed successfully.
query: CREATE TABLE "employee" ("id" SERIAL NOT NULL, "firstName" character varying(100) NOT NULL, "middleName" character varying(100), "lastName" character varying(100) NOT NL
L, "secondLastName" character varying(100), "displayName" character varying(100), "companyEmail" character varying(50) NOT NULL DEFAULT '', "personalEmail" character varying( )
 DEFAULT '', "birthdate" TIMESTAMP, "startDate" TIMESTAMP NOT NULL, "address" character varying(200), "phoneNumber" character varying(100), "bankName" character varying(100), a
ccountNumber" character varying(100), "gender" character varying, "tags" json NOT NULL DEFAULT '{}', "country" character varying(100) NOT NULL, "region" character varying(100 N
OT NULL, "city" character varying(100) NOT NULL, "effectiveDate" TIMESTAMP NOT NULL, "salary" numeric NOT NULL, "salaryType" character varying NOT NULL, "isActive" boolean NO N
ULL DEFAULT true, "workingHoursPerWeek" integer NOT NULL DEFAULT 40, CONSTRAINT "PK_3c2bc72f03fd5abbbc5ac169498" PRIMARY KEY ("id"))
query: CREATE INDEX "IDX_1f9ea0b0e59e0d98ade4f2d5e9" ON "order_products_product" ("orderId")
query: CREATE INDEX "IDX_d6c66c08b9c7e84a1b657797df" ON "order_products_product" ("productId")
query: INSERT INTO "migrations"("timestamp", "name") VALUES ($1, $2) -- PARAMETERS: [1555722583168,"AddEmployee1555722583168"]
Migration AddEmployee1555722583168 has been executed successfully.
query: COMMIT
```

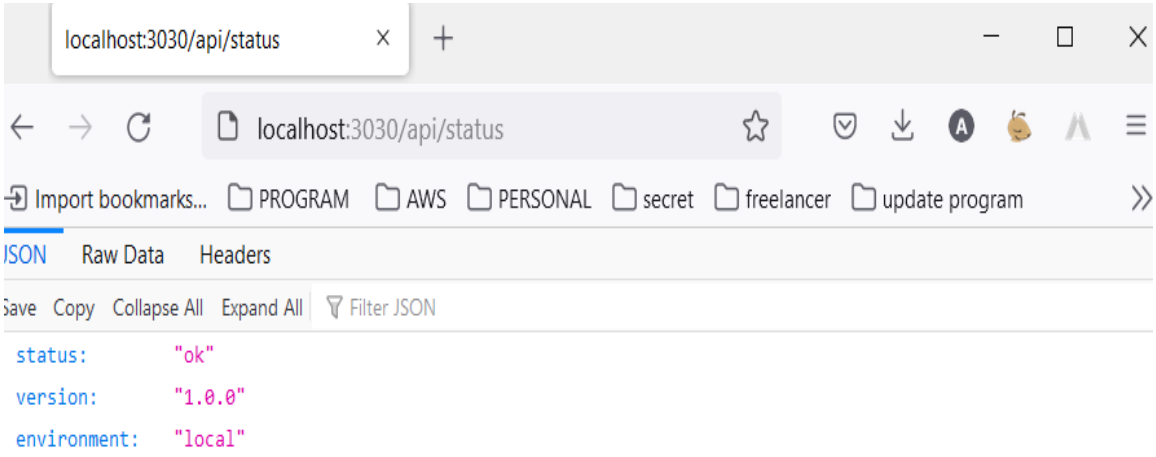
- Our data in pgadmin



- Run command # npm start for backend

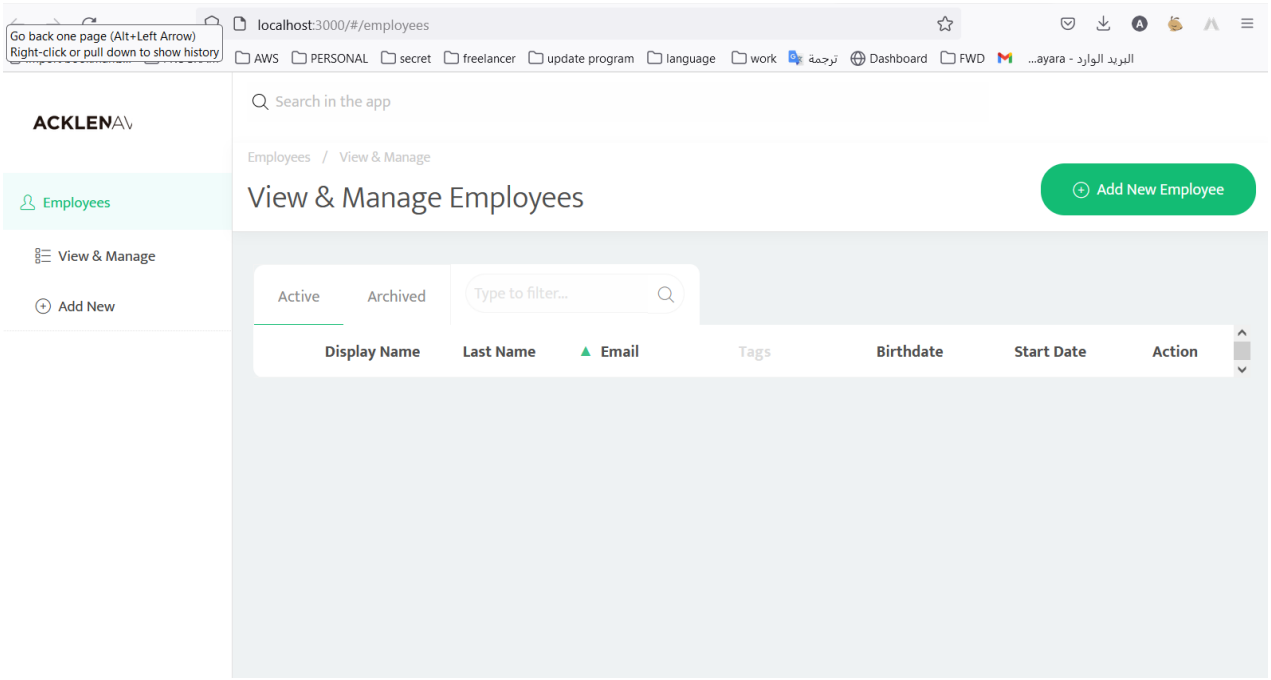


Run now your http://localhost:3030/api/status



- Run command # npm start for frontend

http://localhost:3000/api/status



- Now we will run our production
- $ npm run build

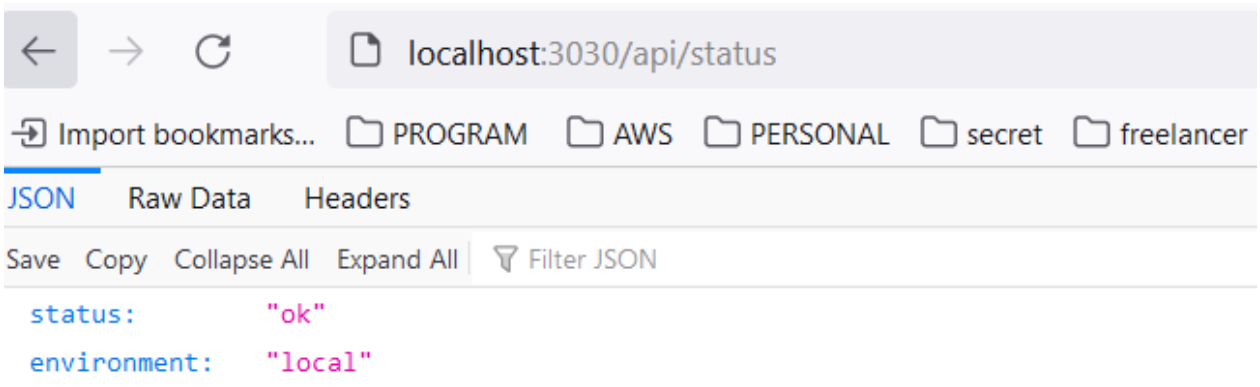
```
DELL@DESKTOP-SEA7AN9 MINGW64 /e/CI-CD (master)
$ cd backend

DELL@DESKTOP-SEA7AN9 MINGW64 /e/CI-CD/backend (master)
$ npm run build

> glee2@1.0.0 build E:\CI-CD\backend
> tsc


DELL@DESKTOP-SEA7AN9 MINGW64 /e/CI-CD/backend (master)
$
```

- We will run this commeds

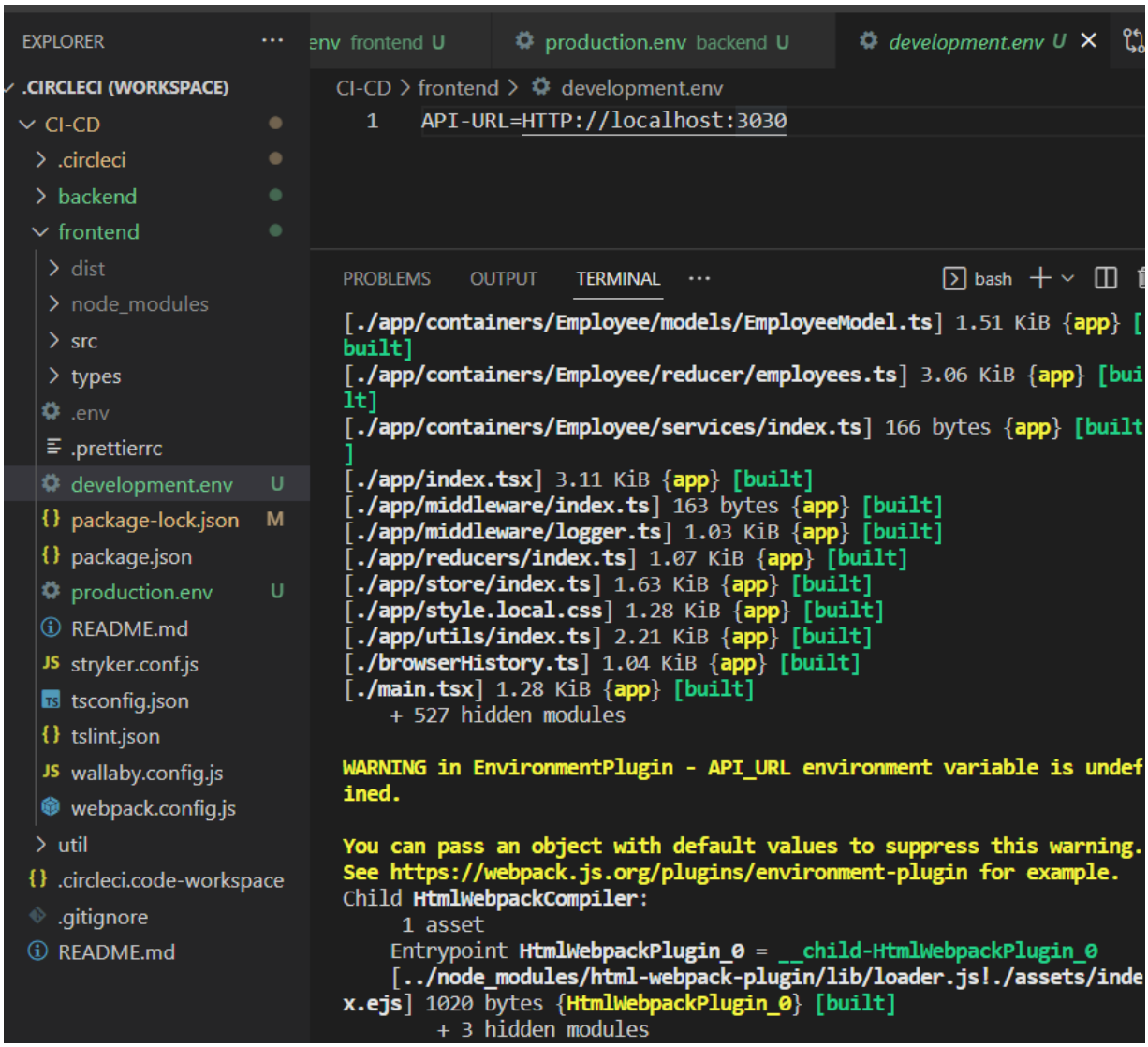
```
export NODE-ENV=production
export VERSION=1
export TYPEORM_CONNECTION=postgres
export TYPEORM_MIGRATIONS_DIR=./migration
export TYPEORM_ENTITIES=./modules/domain/**/*.entity{.ts,.js}
export TYPEORM_MIGRATIONS=./migrations/*{.ts,.js}
export TYPEORM_HOST=localhost
export TYPEORM_PORT=5532
export TYPEORM_USERNAME=postgres
export TYPEORM_PASSWORD=password
export TYPEORM_DATABASE=glee
```

- cd dist

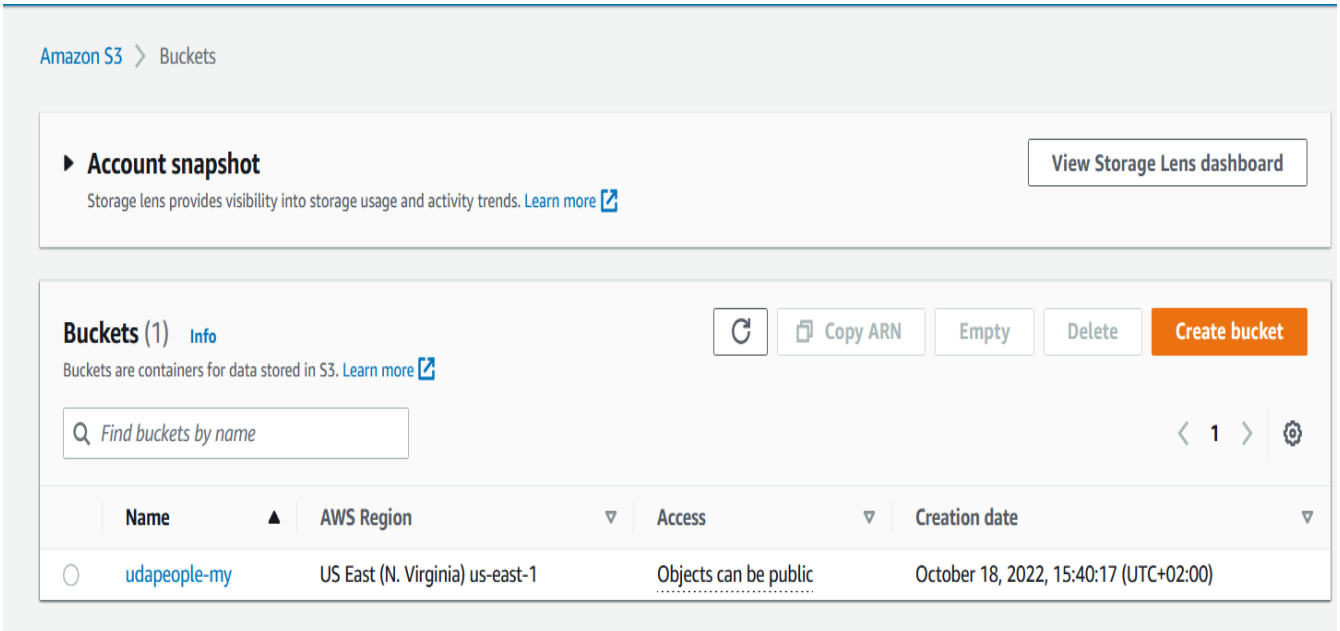
- node main.js



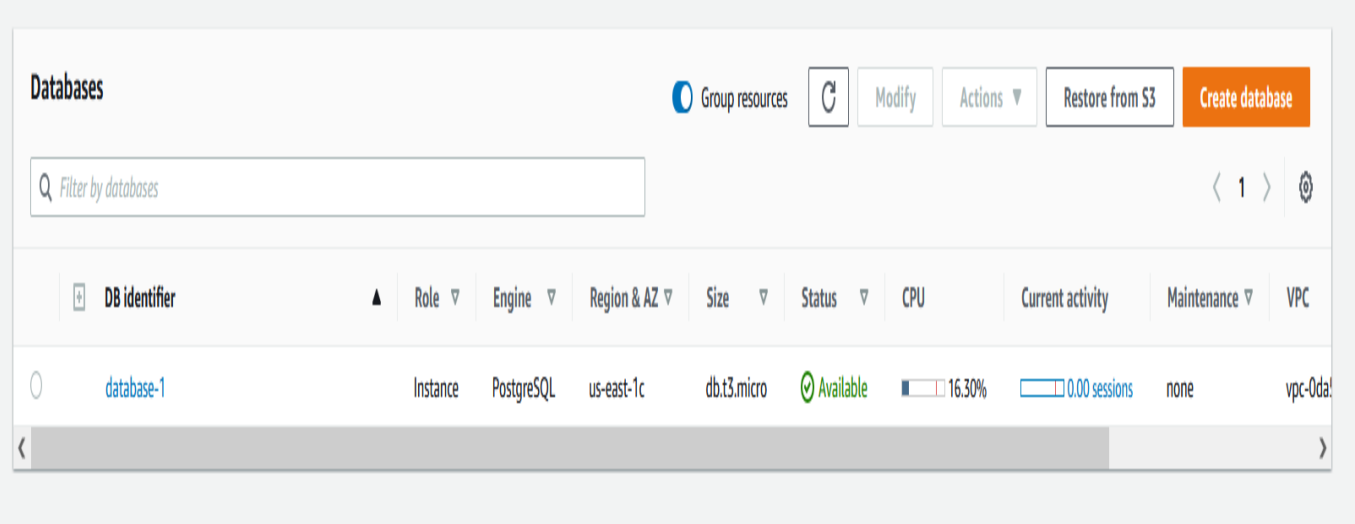
- npm run build for fronten



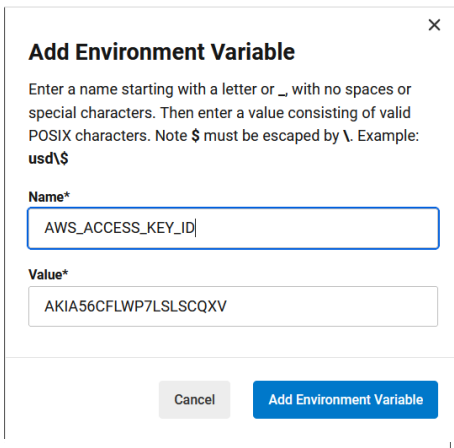
- we create here s3 bucket and we create before key pair

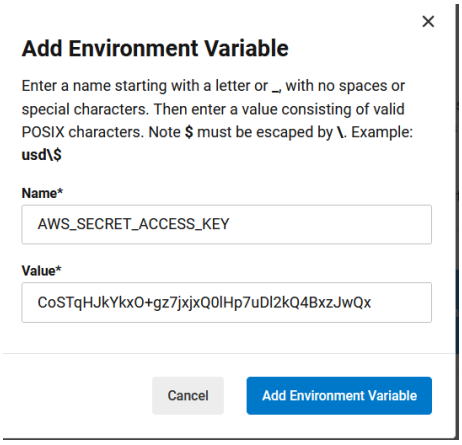


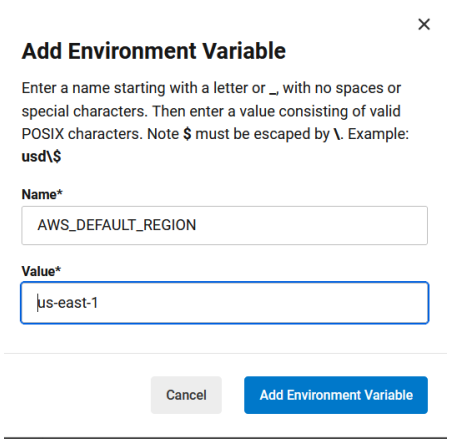
- We create database postgres

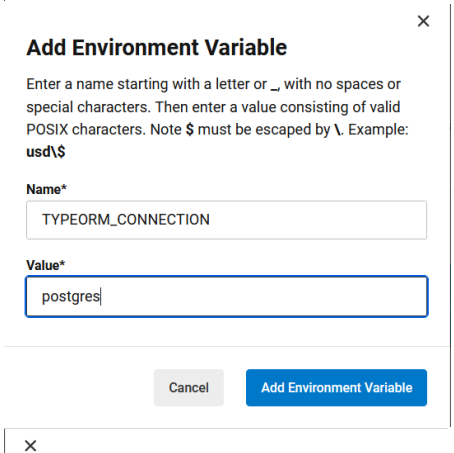


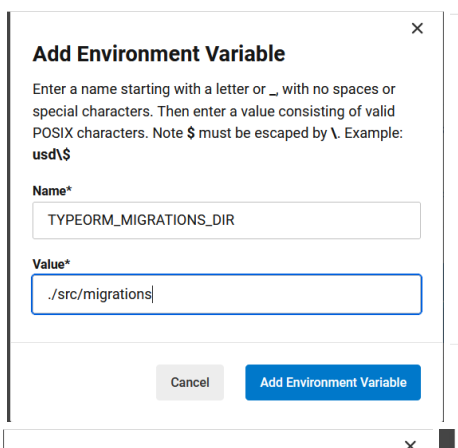
➢ Now we will create our environment

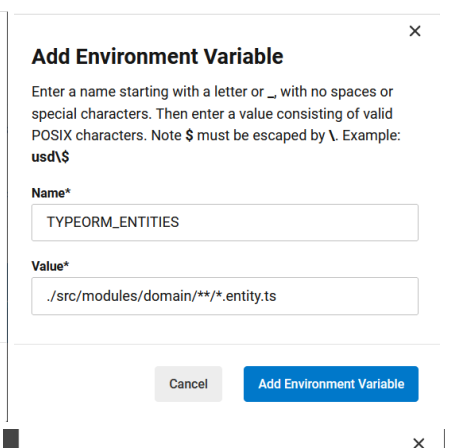


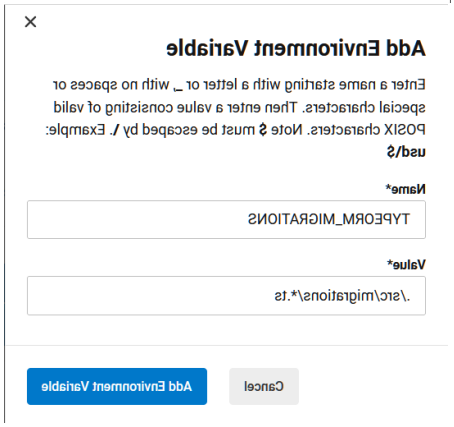


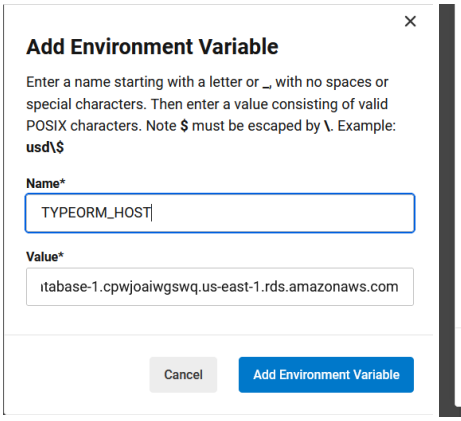


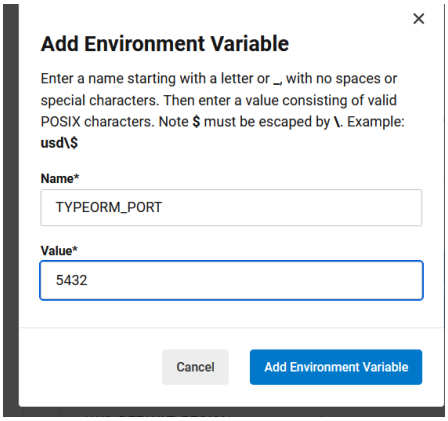


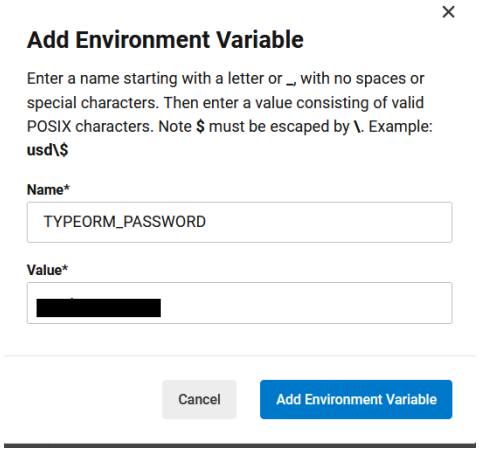




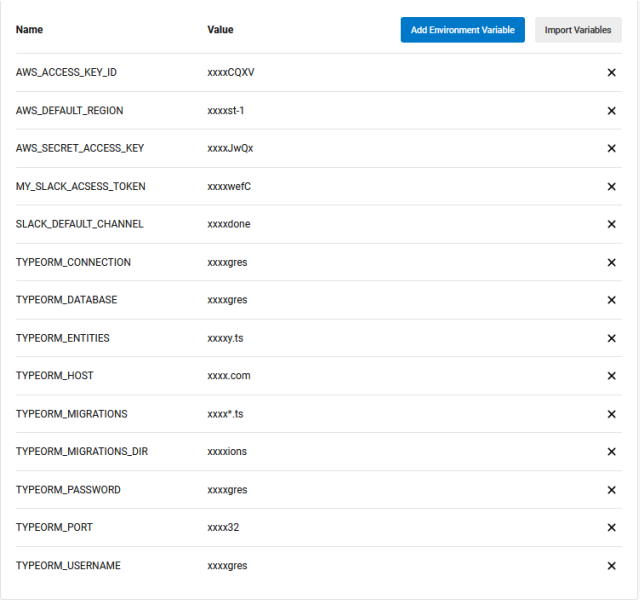








Now our environment ready to show every thing in cloud

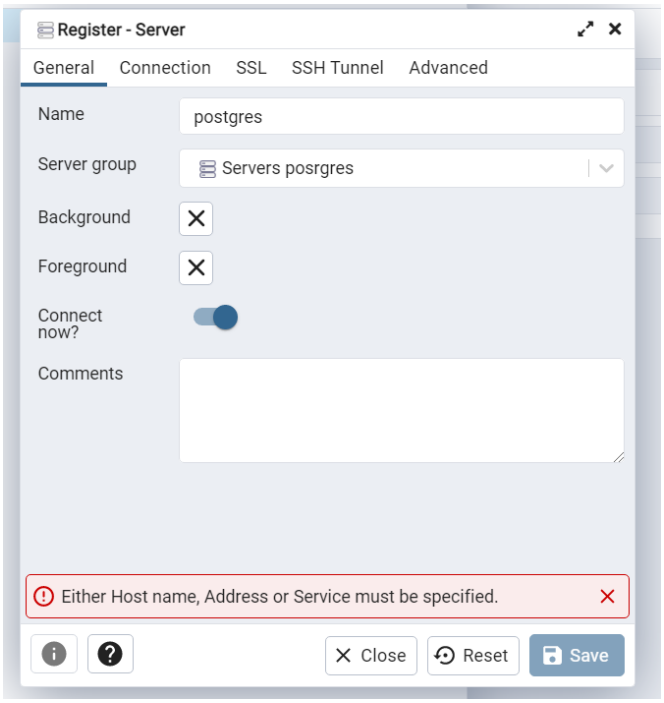


Name	Value	Add Environment Variable	Import Variables
AWS_ACCESS_KEY_ID	xxxxCQXV		
AWS_DEFAULT_REGION	xxxxst-1		
AWS_SECRET_ACCESS_KEY	xxxxJwQx		
MY_SLACK_ACSESS_TOKEN	xxxxwefC		
SLACK_DEFAULT_CHANNEL	xxxxdone		
TYPEORM_CONNECTION	xxxxgres		
TYPEORM_DATABASE	xxxxgres		
TYPEORM_ENTITIES	xxxxy.ts		
TYPEORM_HOST	xxxx.com		
TYPEORM_MIGRATIONS	xxxx*.ts		
TYPEORM_MIGRATIONS_DIR	xxxxions		
TYPEORM_PASSWORD	xxxxgres		
TYPEORM_PORT	xxxx32		
TYPEORM_USERNAME	xxxxgres		

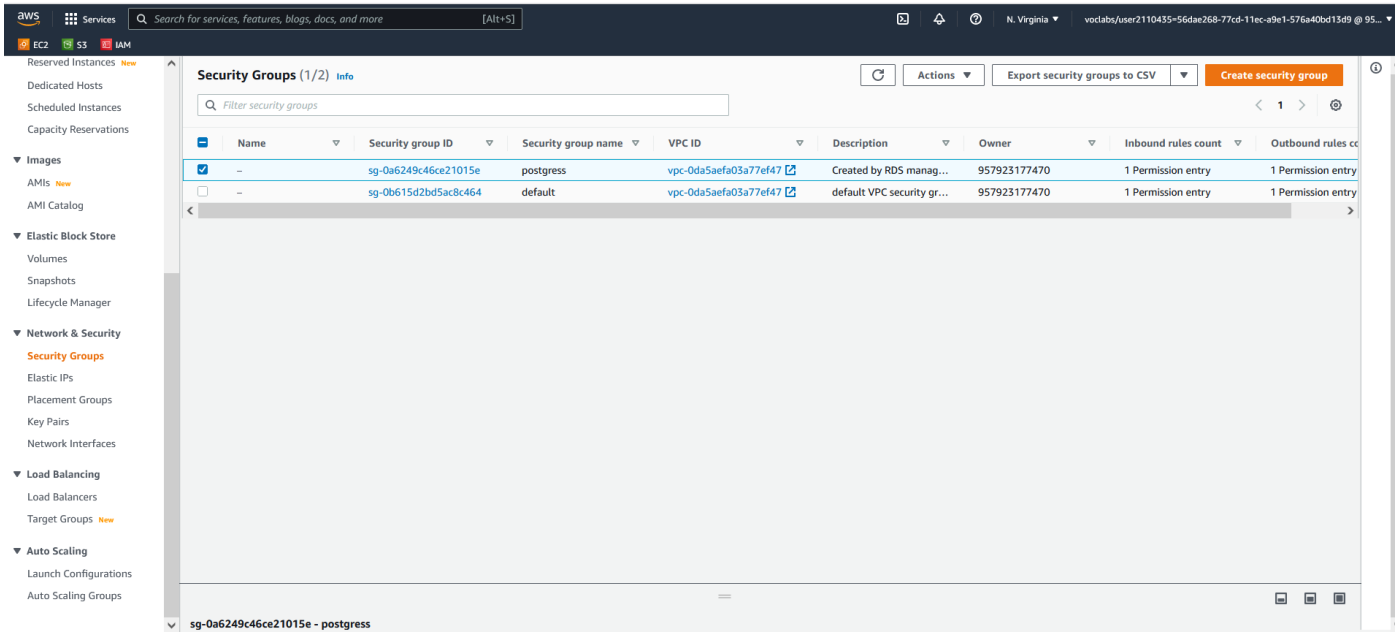
- We need to run database endpoint in curl to make sure that we can reach it

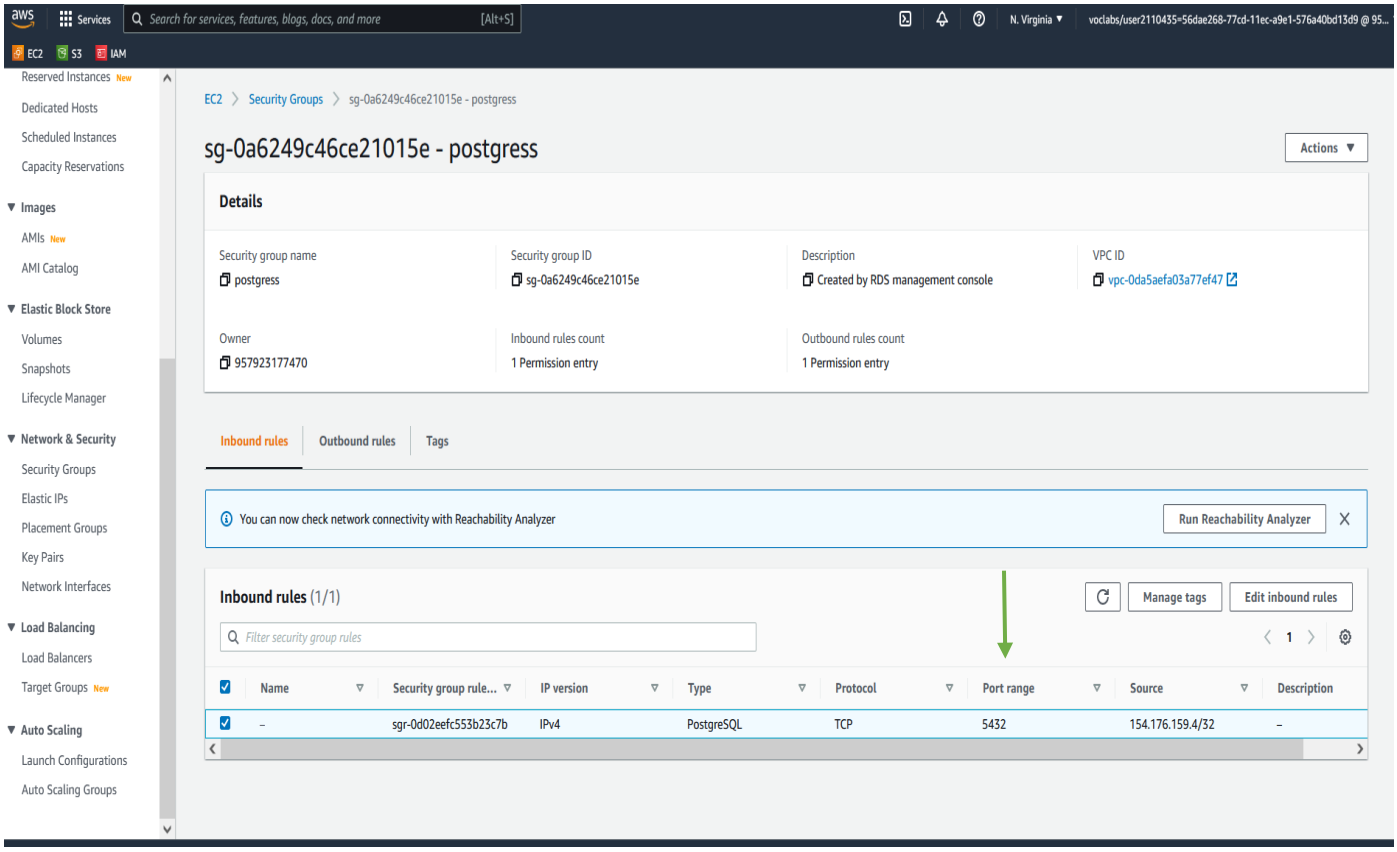
```
DELL@DESKTOP-SEA7AN9 MINGW64 ~ (master)
$ curl Endpoint
  % Total    % Received % Xferd  Average Speed   Time    Time     Time  Current
                                 Dload  Upload   Total   Spent    Left  Speed
  0     0    0     0    0     0      0      0 --:--:--  0:00:01 --:--:--     0cu
rl: (6) Could not resolve host: Endpoint

DELL@DESKTOP-SEA7AN9 MINGW64 ~ (master)
```

When we will start to reach database throw pg admin it will give us this errror so we need to open security group

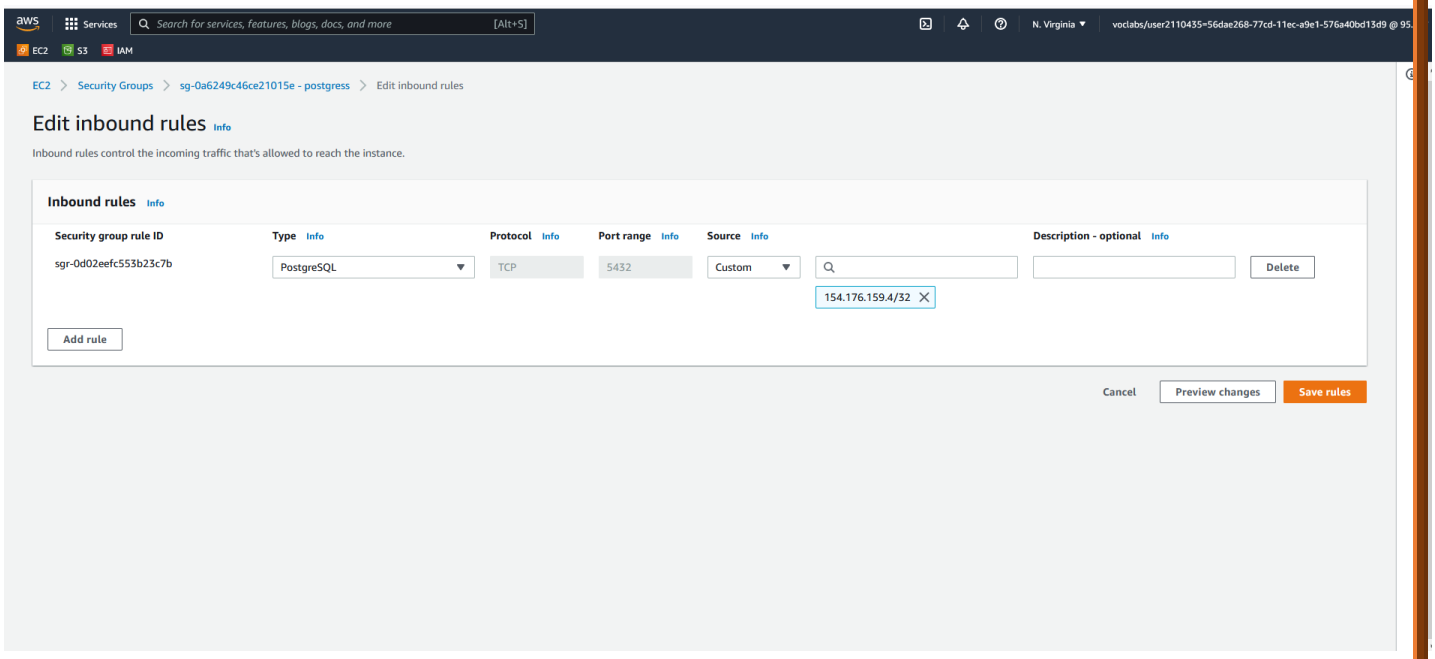


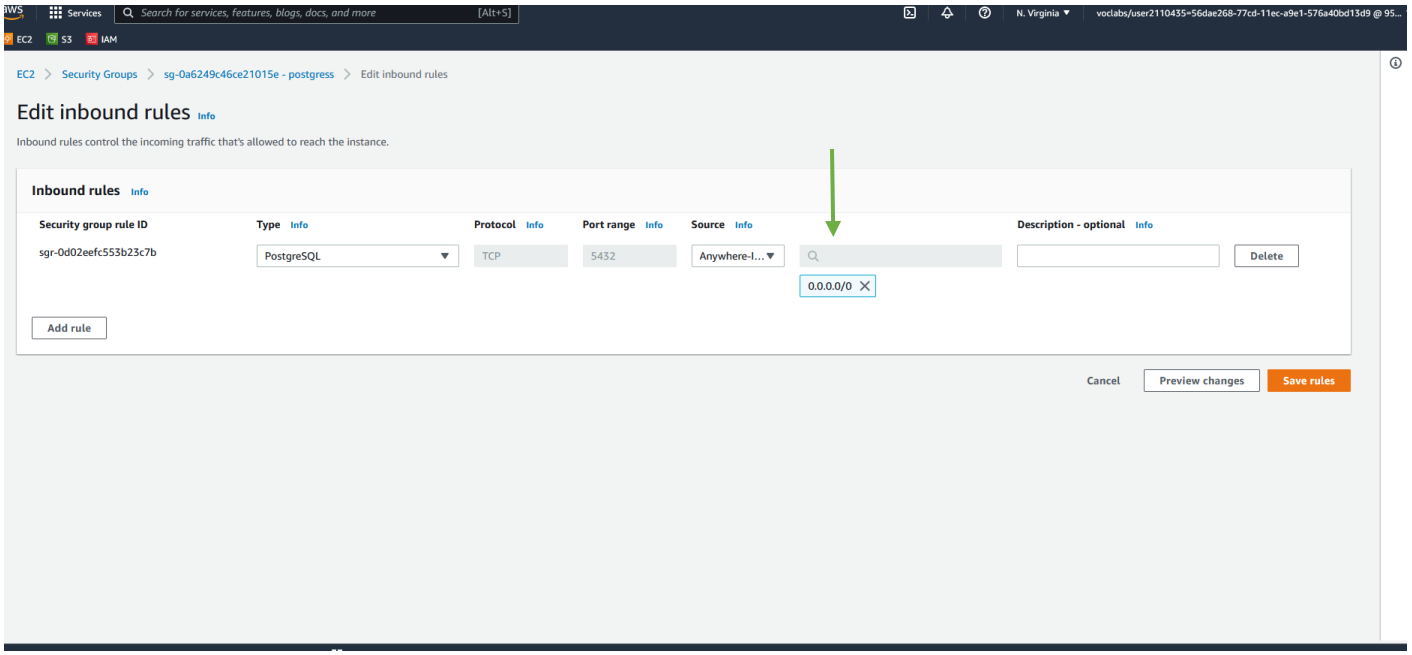
- So we go to security group to open it to make sure that we are in port 5432



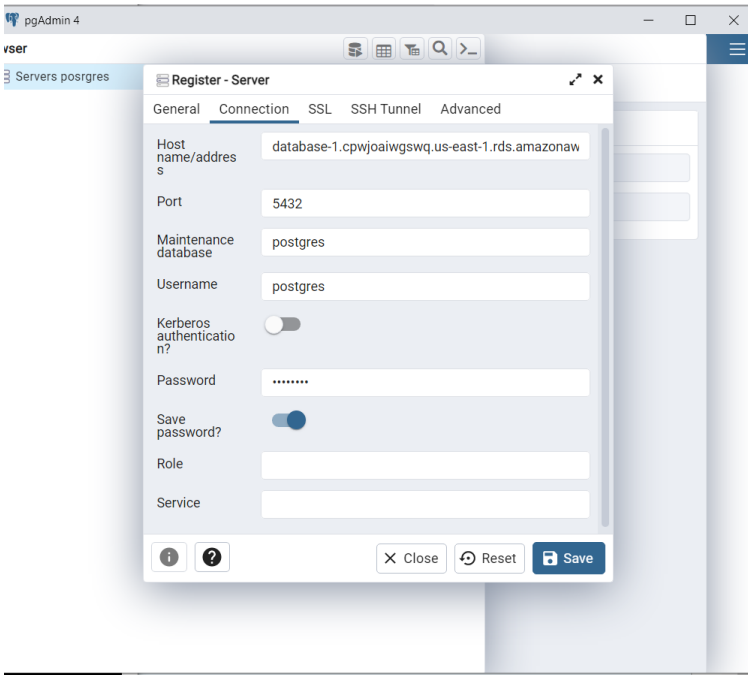


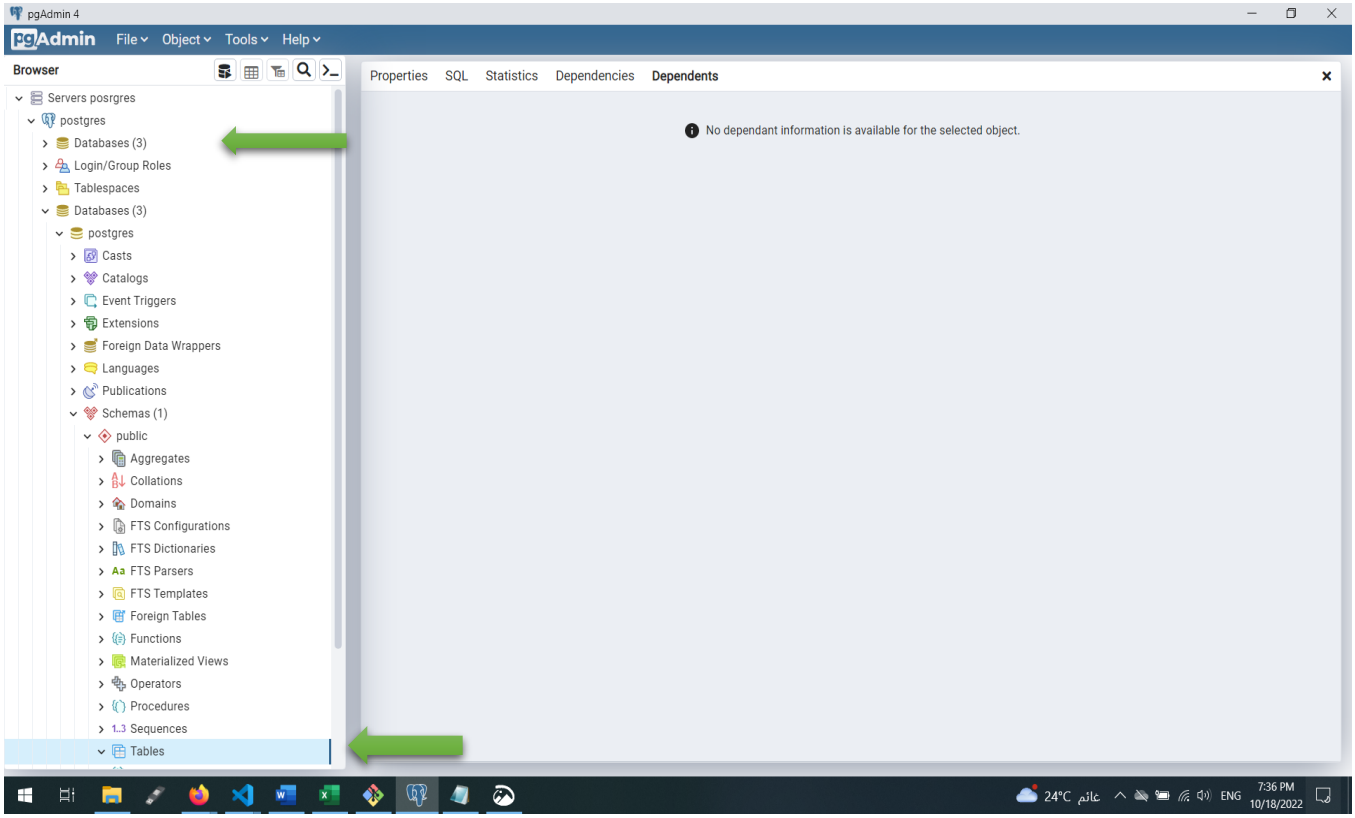
Now we will give it ip 0.0.0.0/0 to get any request



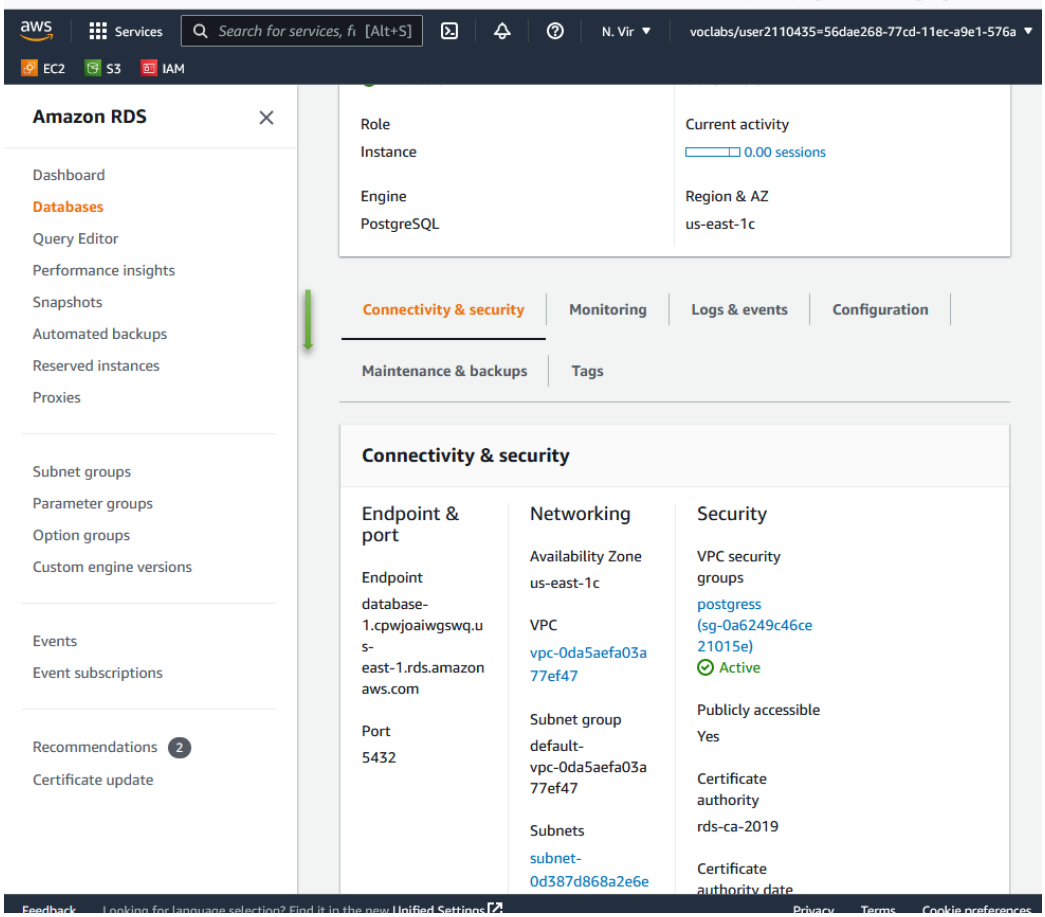


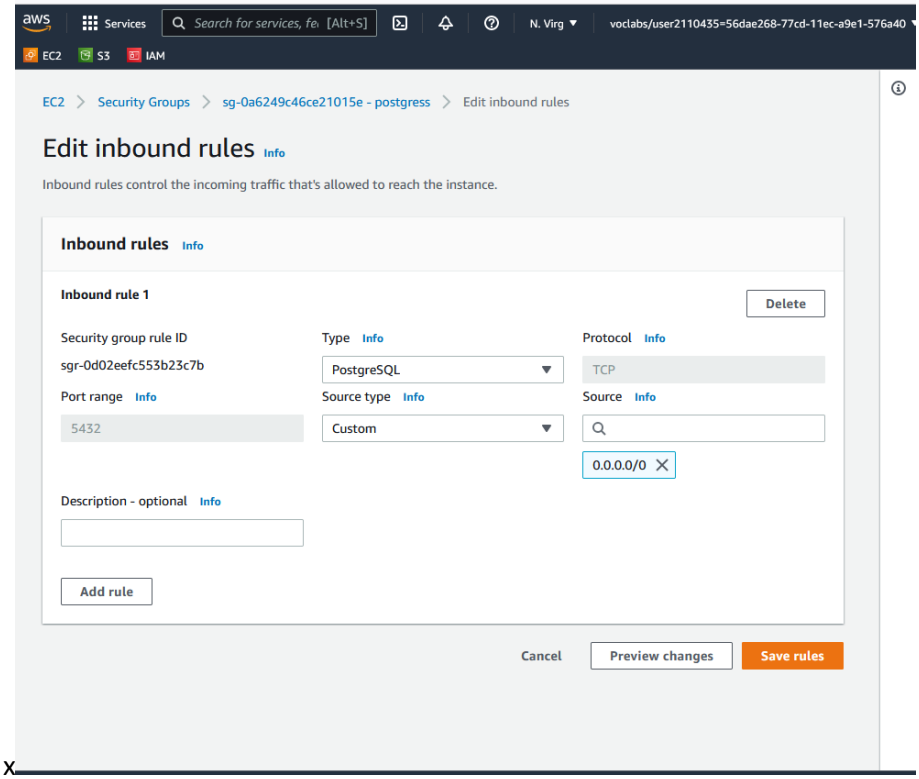
- Now give pgadmin all date need and save it





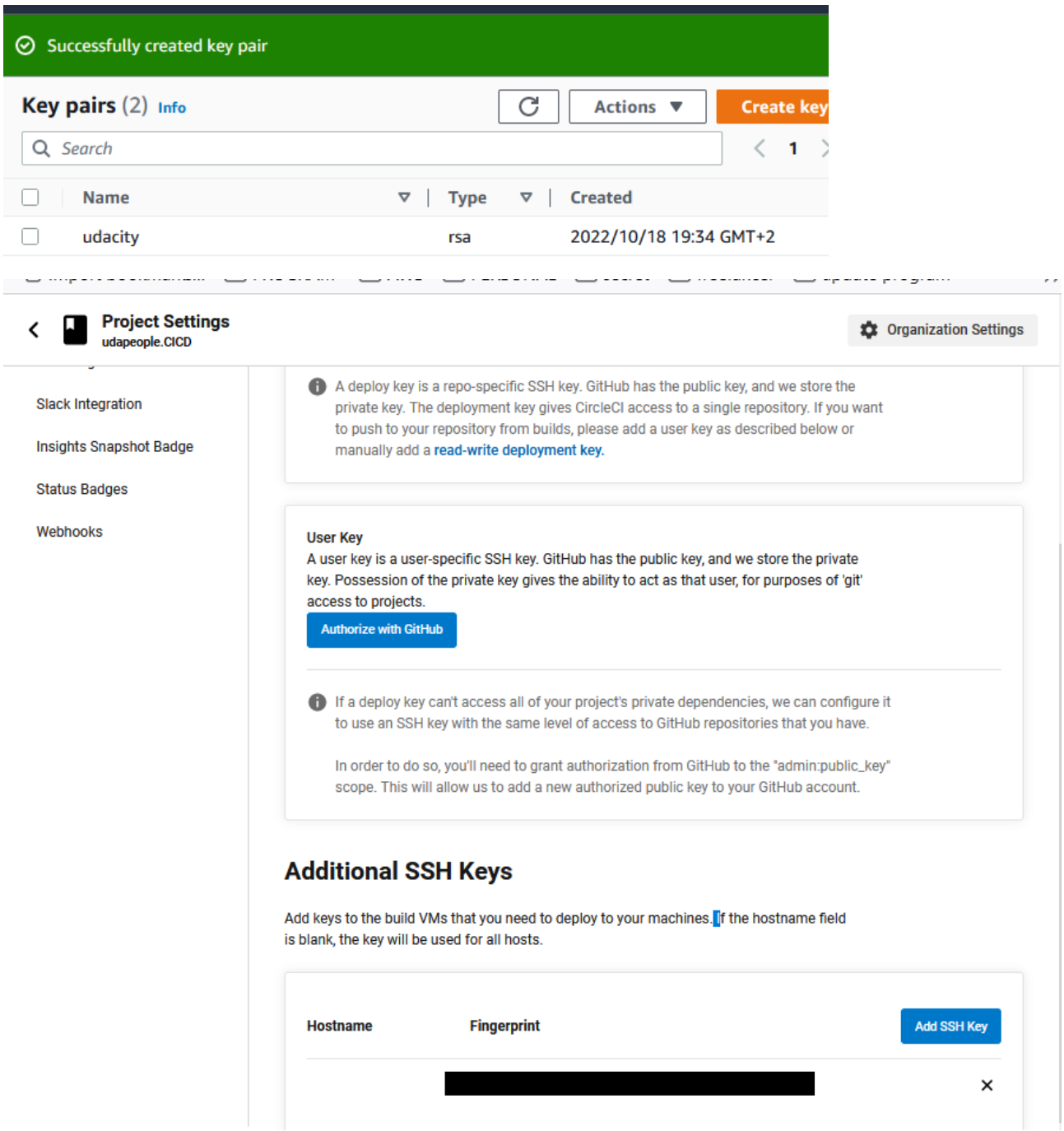
➢ **Let's to show our database**

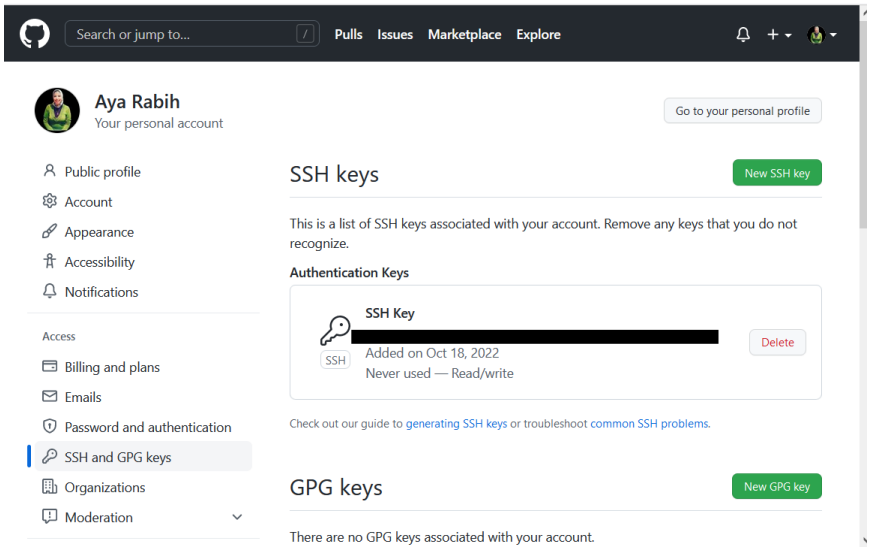




X

- We will create keypair and get the code in ssh in CICD and we don't need to get any name for it

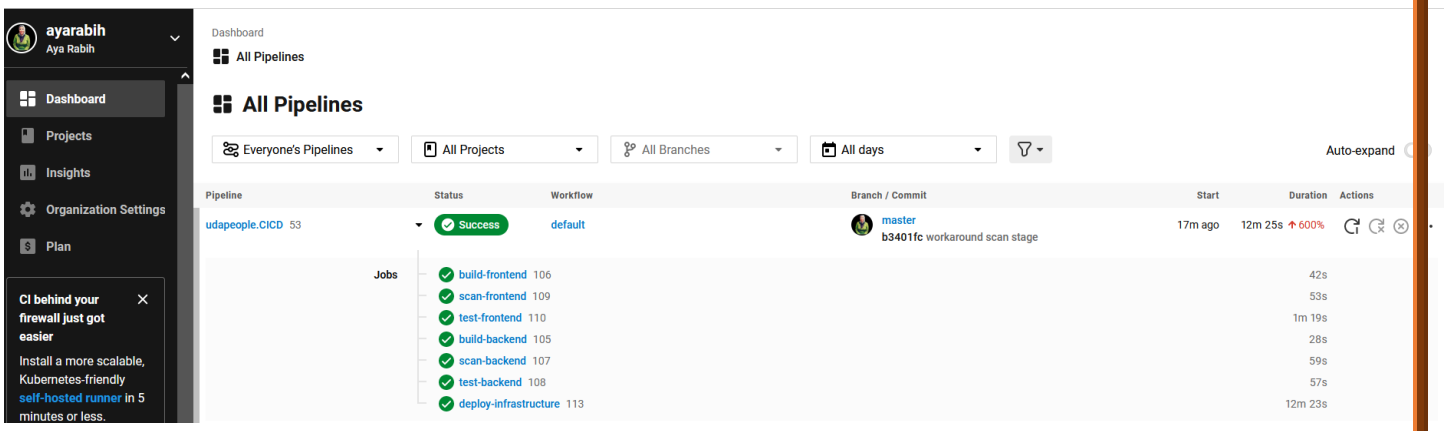


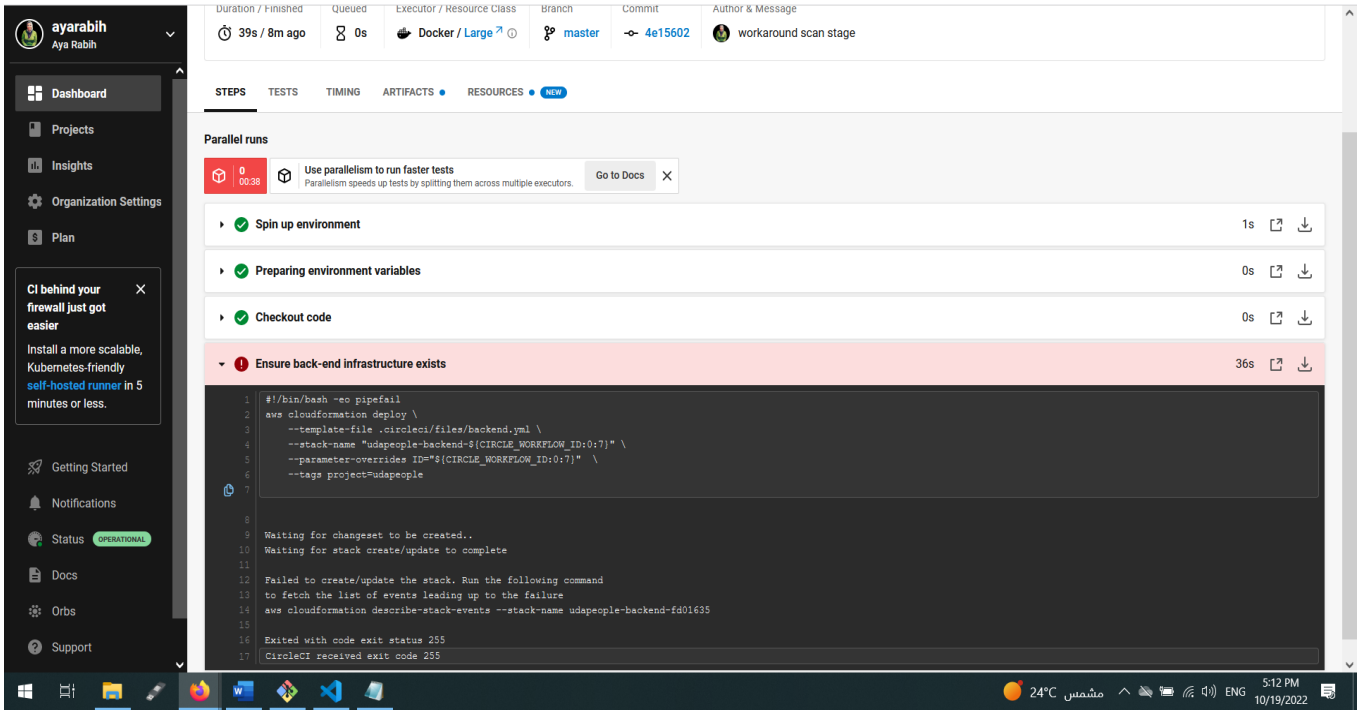


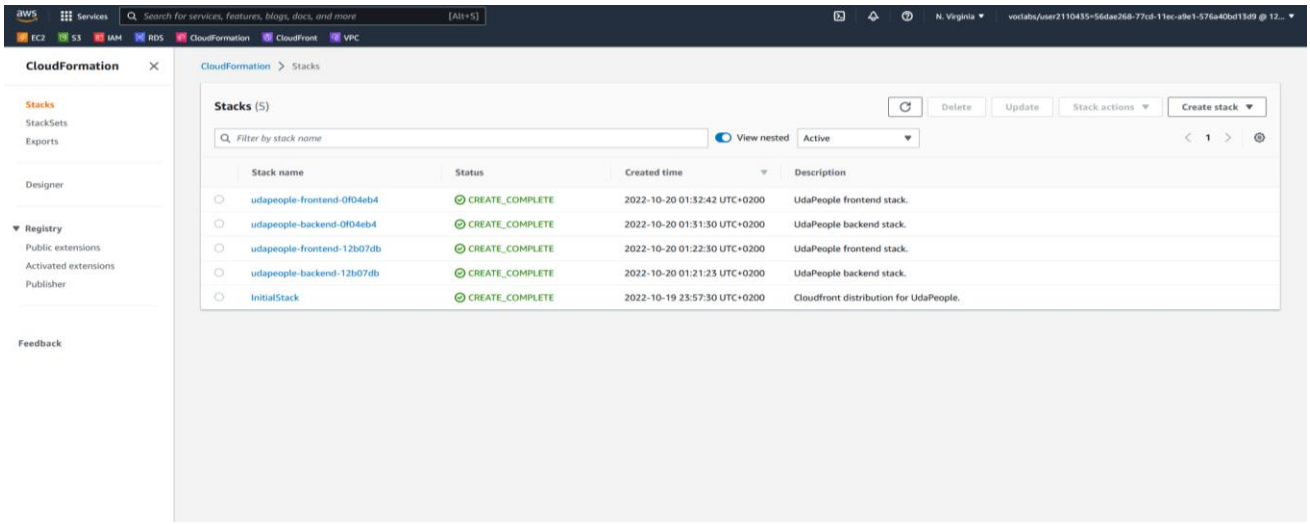
- We should run this code before run deploy

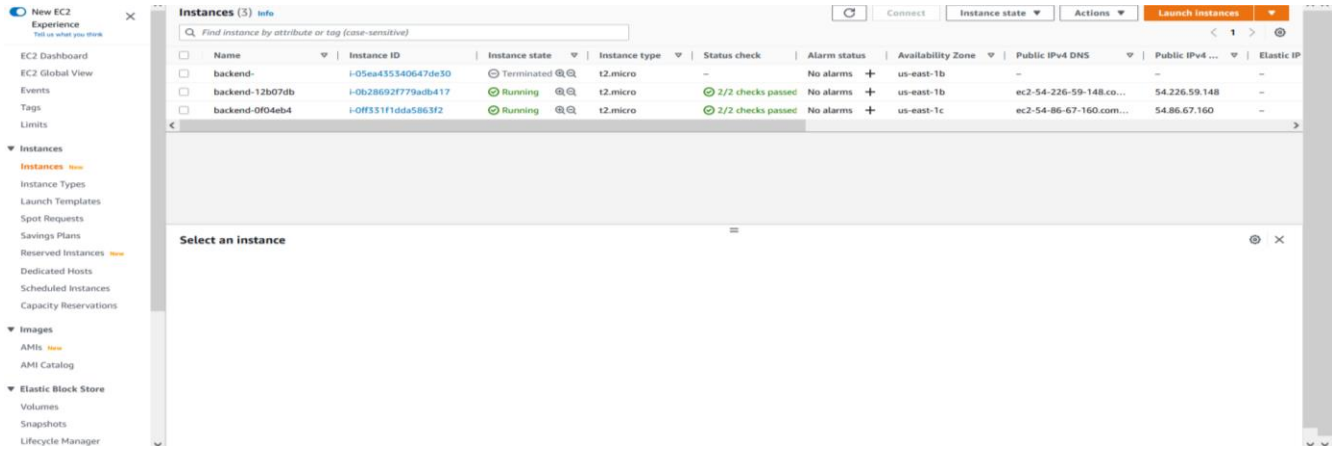
```
DELL@DESKTOP-SEA7AN9 MINGW64 /e/CI-CD (master)
$ cd .circleci/files

DELL@DESKTOP-SEA7AN9 MINGW64 /e/CI-CD/.circleci/files (master)
$ aws cloudformation deploy \
>           --template-file cloudfront.yml \
>           --stack-name InitialStack\
>           --parameter-overrides WorkflowID=udapeople-kk1j287dhjppmz437

Waiting for changeset to be created..
Waiting for stack create/update to complete
Successfully created/updated stack - InitialStack

DELL@DESKTOP-SEA7AN9 MINGW64 /e/CI-CD/.circleci/files (master)
$
```

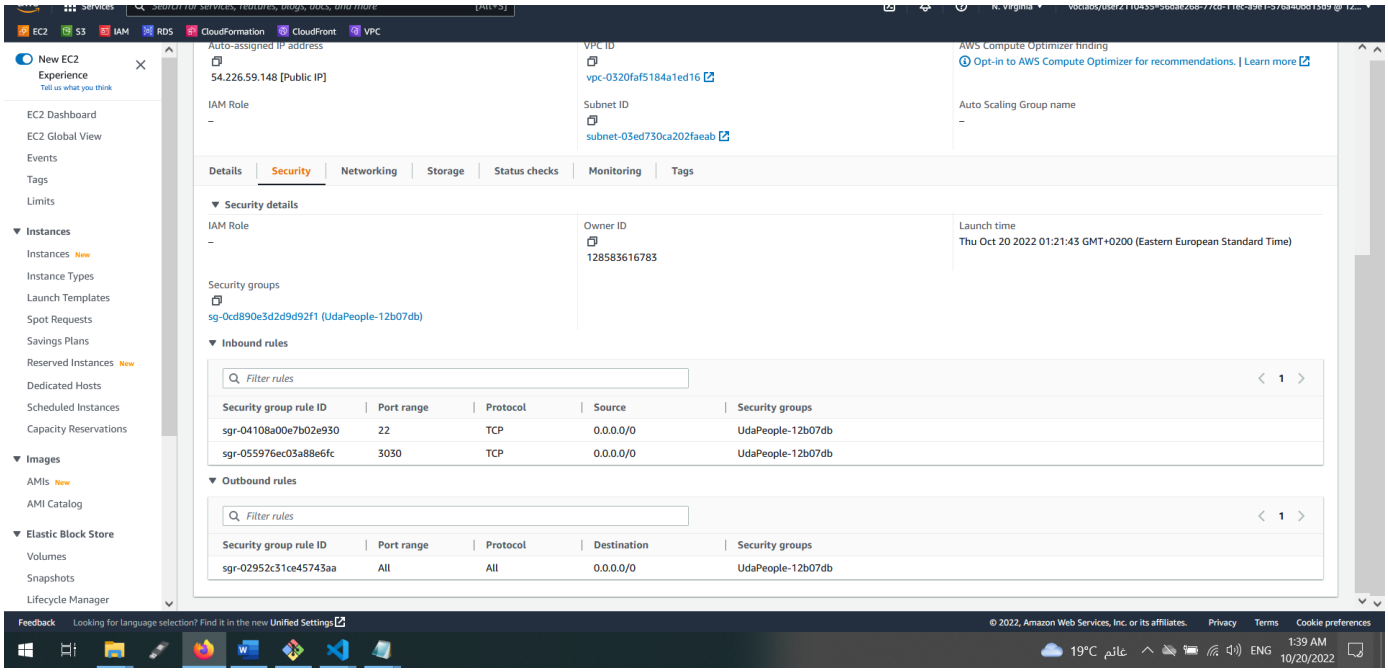
- Run deploy-infrastructure with ssh



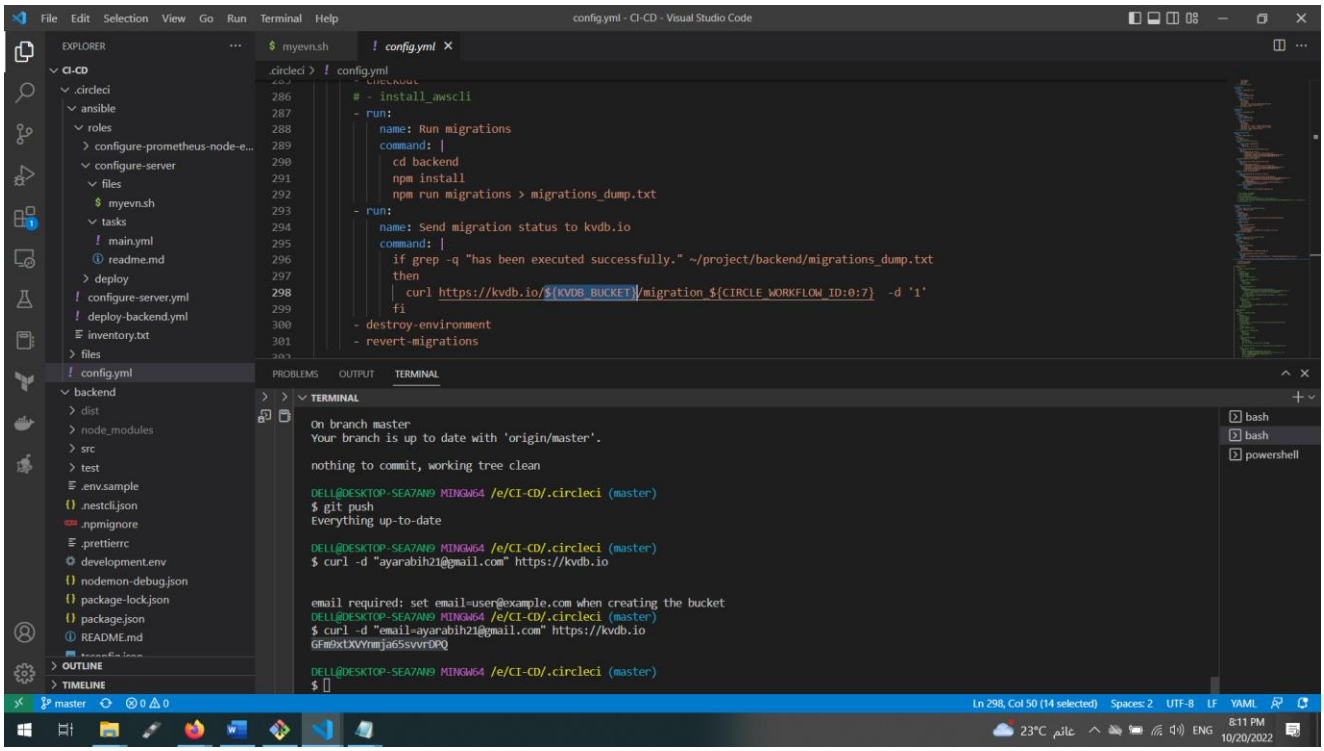

ayarabih
Aya Rabih
Dashboard
Projects
Insights
Organization Settings
Plan
CI behind your firewall just got easier
Install a more scalable, Kubernetes-friendly self-hosted runner in 5 minutes or less.
Getting Started
Notifications
Status
Docs
Orbs
Support
Duration / Finished
39s / 8m ago
Queued
0s
Executor / Resource Class
Docker / Large
Branch
master
Commit
4e15602
Author & Message
workaround scan stage
STEPS
TESTS
TIMING
ARTIFACTS
RESOURCES
NEW
Parallel runs
Use parallelism to run faster tests
Parallelism speeds up tests by splitting them across multiple executors.
Go to Docs
Spin up environment
1s
Preparing environment variables
0s
Checkout code
0s
Ensure back-end infrastructure exists
36s
#!/bin/bash -eo pipefail
aws cloudformation deploy \
--template-file .circleci/files/backend.yml \
--stack-name "udapeople-backend-${CIRCLE_WORKFLOW_ID:0:7}" \
--parameter-overrides ID="${CIRCLE_WORKFLOW_ID:0:7}" \
--tags project=udapeople
Waiting for changeset to be created..
Waiting for stack create/update to complete
Failed to create/update the stack. Run the following command
to fetch the list of events leading up to the failure
aws cloudformation describe-stack-events --stack-name udapeople-backend-fd01635
Exited with code exit status 255
CircleCI received exit code 255
24°C
ENG
5:12 PM
10/19/2022

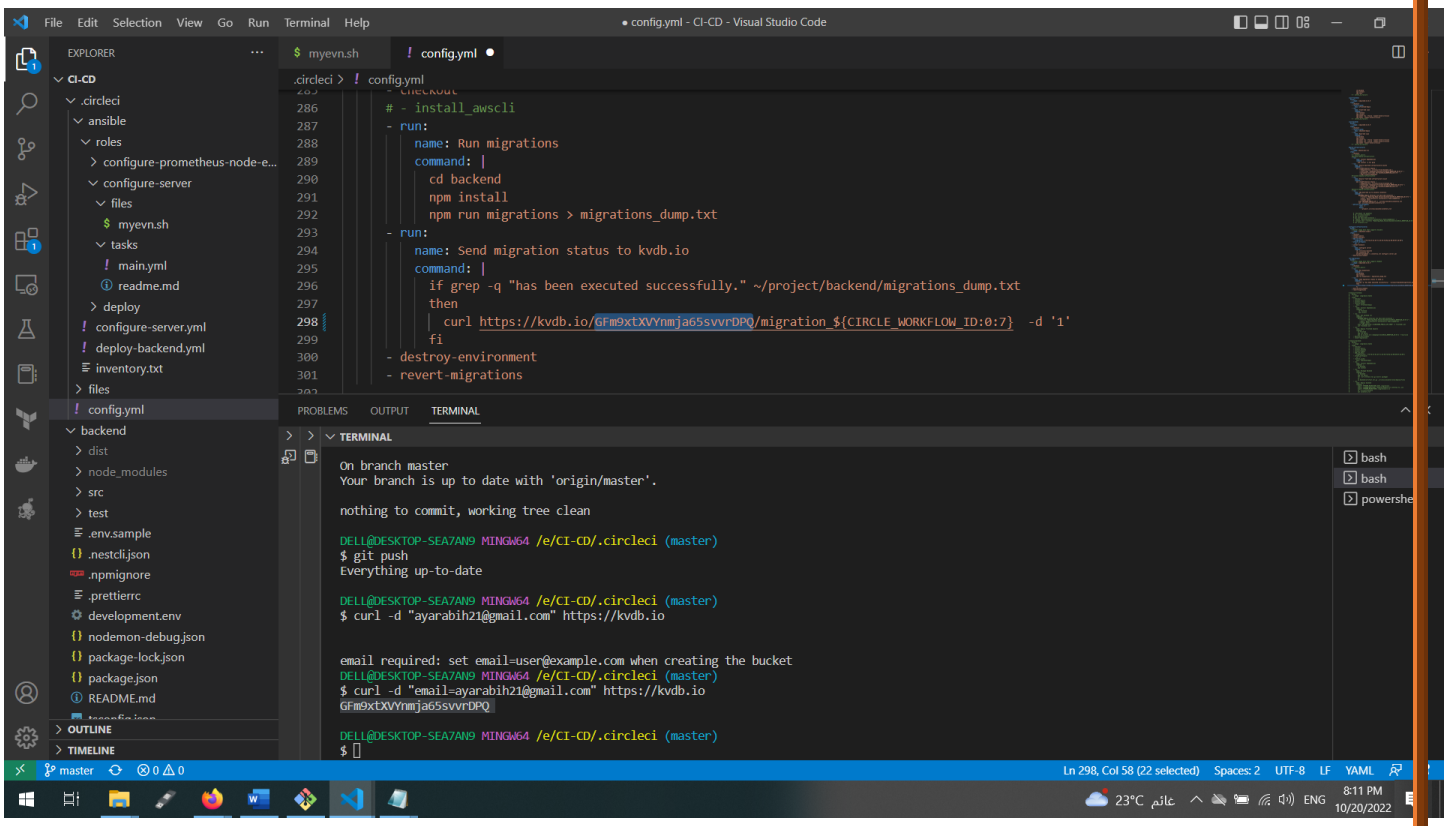

CloudFormation
Stacks
StackSets
Exports
Designer
Registry
Public extensions
Activated extensions
Publisher
Feedback
CloudFormation > Stacks
Stacks (5)
Delete
Update
Stack actions
Create stack
Filter by stack name
View nested
Active
Stack name
Status
Created time
Description
udapeople-frontend-0f04eb4
CREATE_COMPLETE
2022-10-20 01:32:42 UTC+0200
UdaPeople frontend stack.
udapeople-backend-0f04eb4
CREATE_COMPLETE
2022-10-20 01:31:30 UTC+0200
UdaPeople backend stack.
udapeople-frontend-12b07db
CREATE_COMPLETE
2022-10-20 01:22:30 UTC+0200
UdaPeople frontend stack.
udapeople-backend-12b07db
CREATE_COMPLETE
2022-10-20 01:21:23 UTC+0200
UdaPeople backend stack.
InitialStack
CREATE_COMPLETE
2022-10-19 23:57:30 UTC+0200
Cloudfront distribution for UdaPeople.


New EC2 Experience
EC2 Dashboard
EC2 Global View
Events
Tags
Limits
Instances
Instances
Instance Types
Launch Templates
Spot Requests
Savings Plans
Reserved Instances
Dedicated Hosts
Scheduled Instances
Capacity Reservations
Images
AMIs
AMI Catalog
Elastic Block Store
Volumes
Snapshots
Lifecycle Manager
Instances (3)
Connect
Instance state
Actions
Launch instances
Name
Instance ID
Instance state
Instance type
Status check
Alarm status
Availability Zone
Public IPv4 DNS
backend-
i-05ea435340647de30
Terminated
t2.micro
No alarms
us-east-1b
backend-12b07db
i-0b28692f779adb417
Running
t2.micro
2/2 checks passed
No alarms
us-east-1b
ec2-54-226-59-148.co...
54.226.59.148
backend-0f04eb4
i-0ff331f1dda5863f2
Running
t2.micro
2/2 checks passed
No alarms
us-east-1c
ec2-54-86-67-160.com...
54.86.67.160
Select an instance

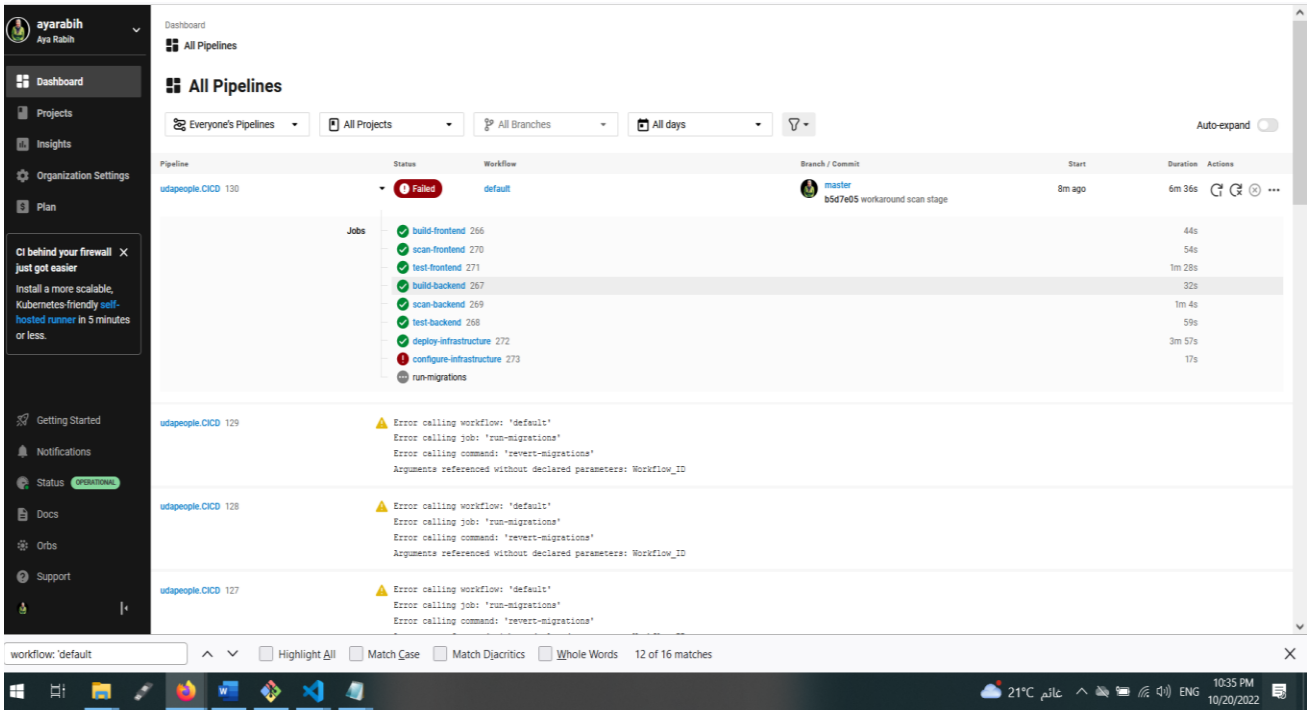


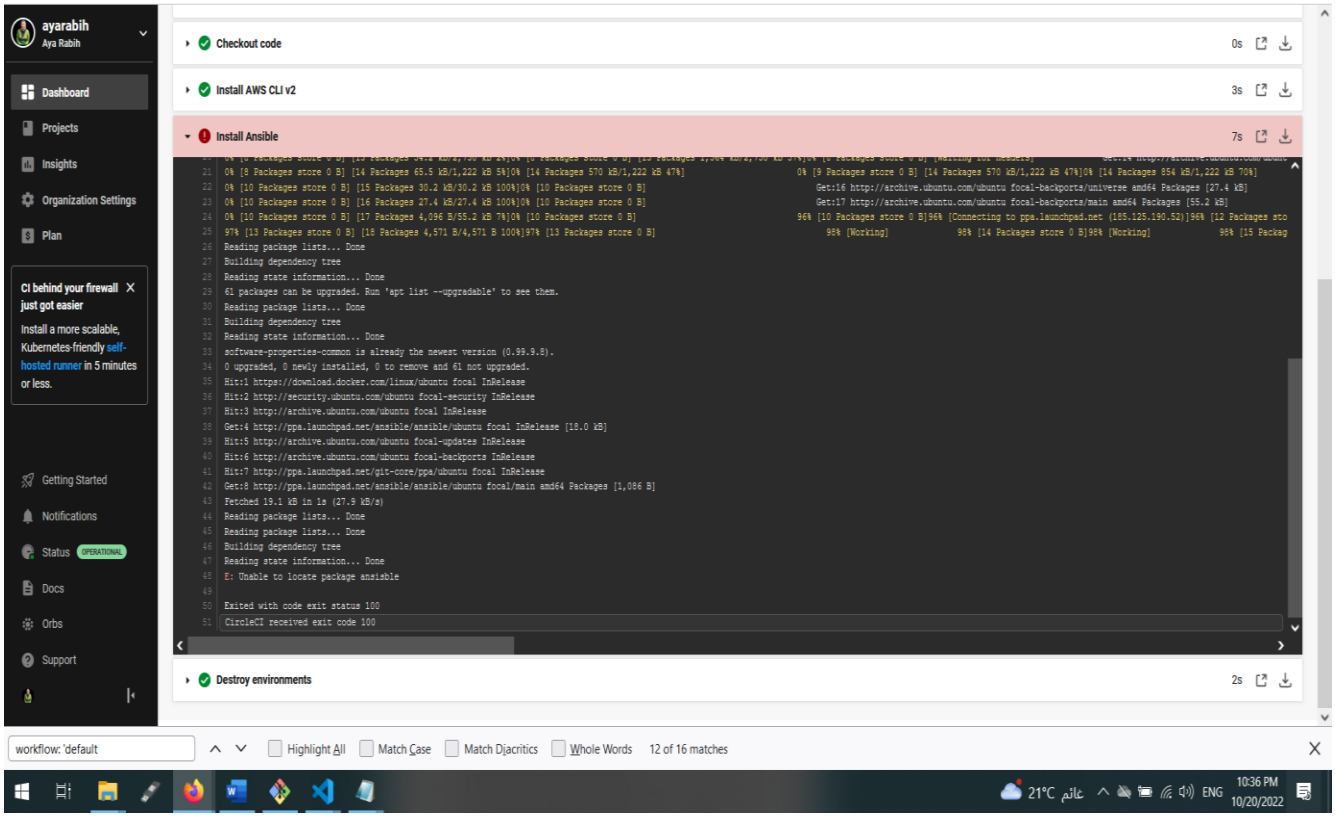
- We need to get credanential for code from this link curl -d "email=your email" https://kvdb.io



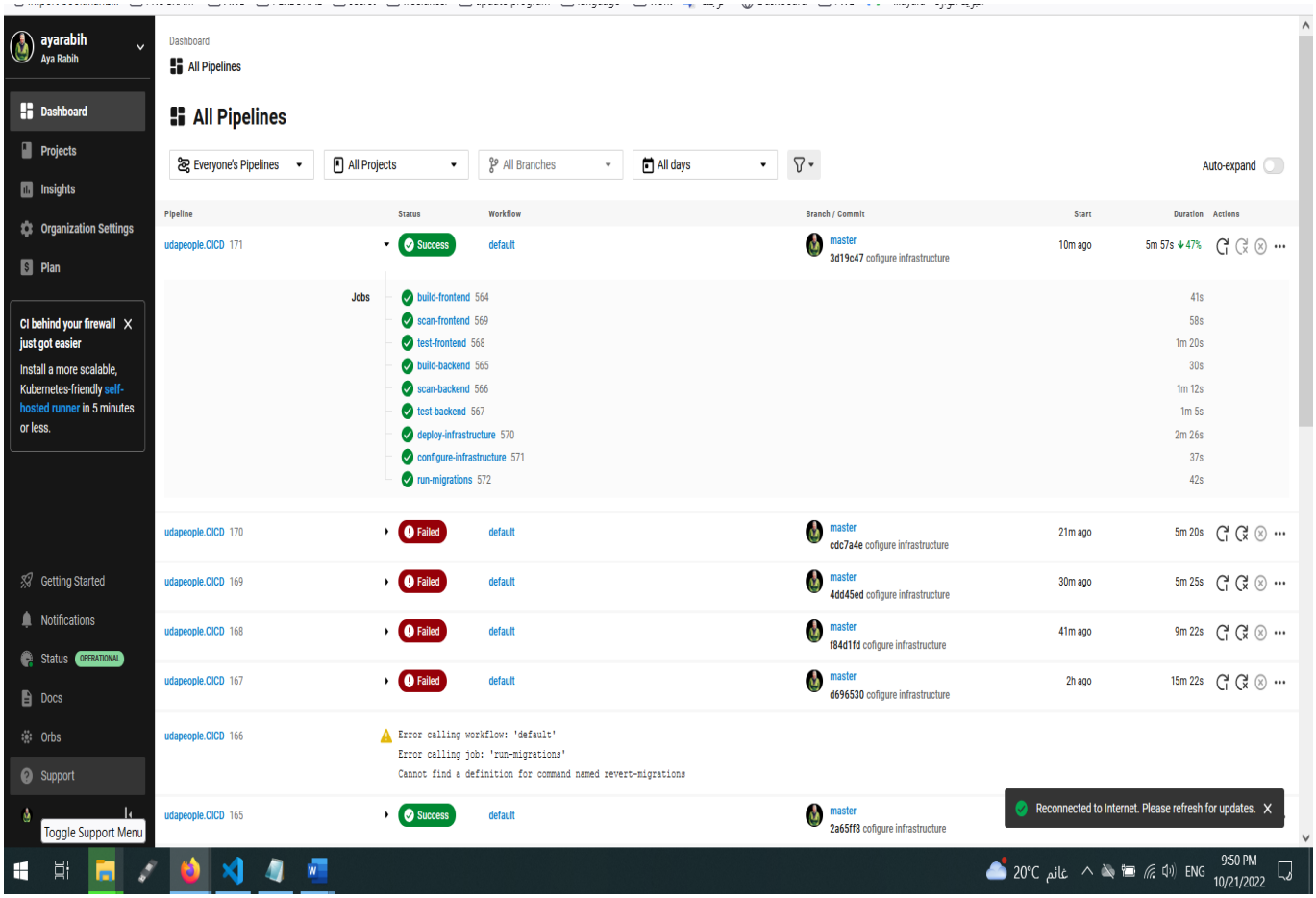


- When we run we find error so we start to make sure that our code it okay

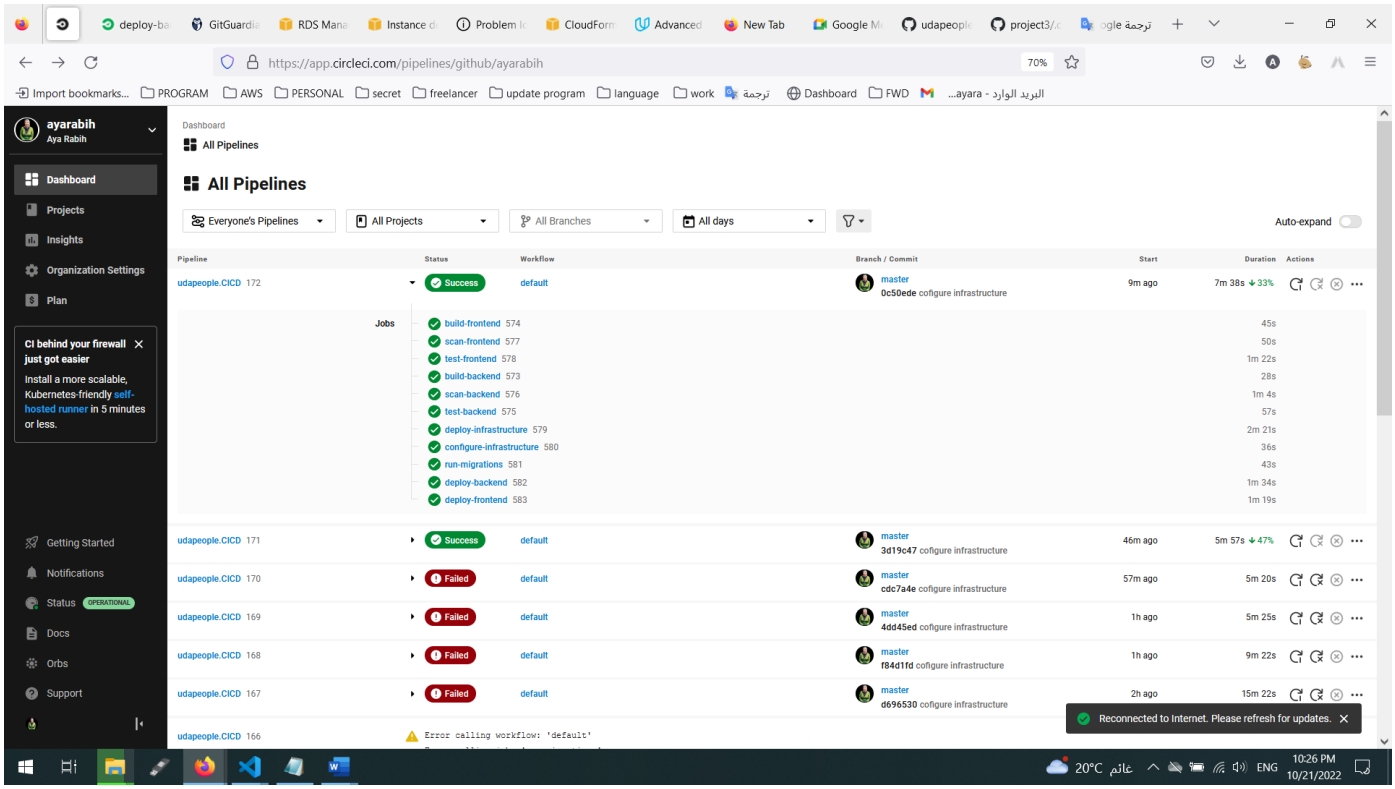




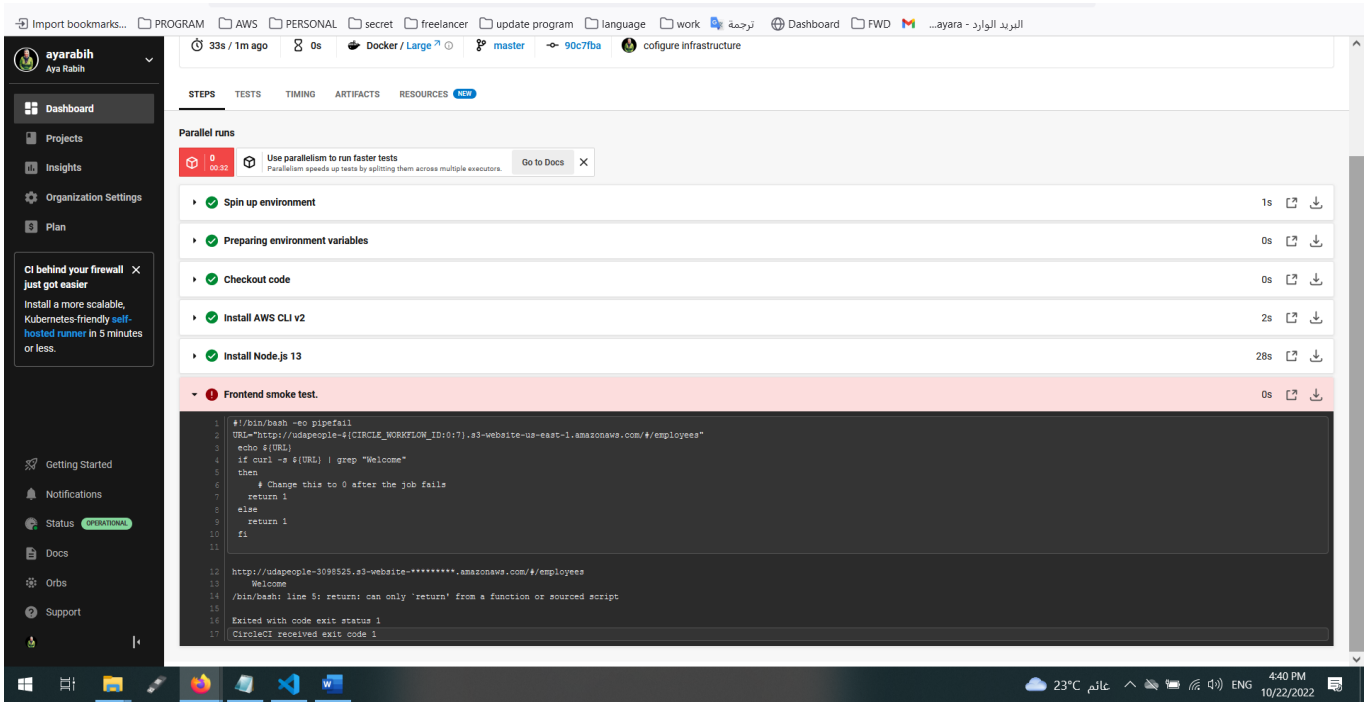
- So we fix it this error



- So we start to run code deploy backend and frontend



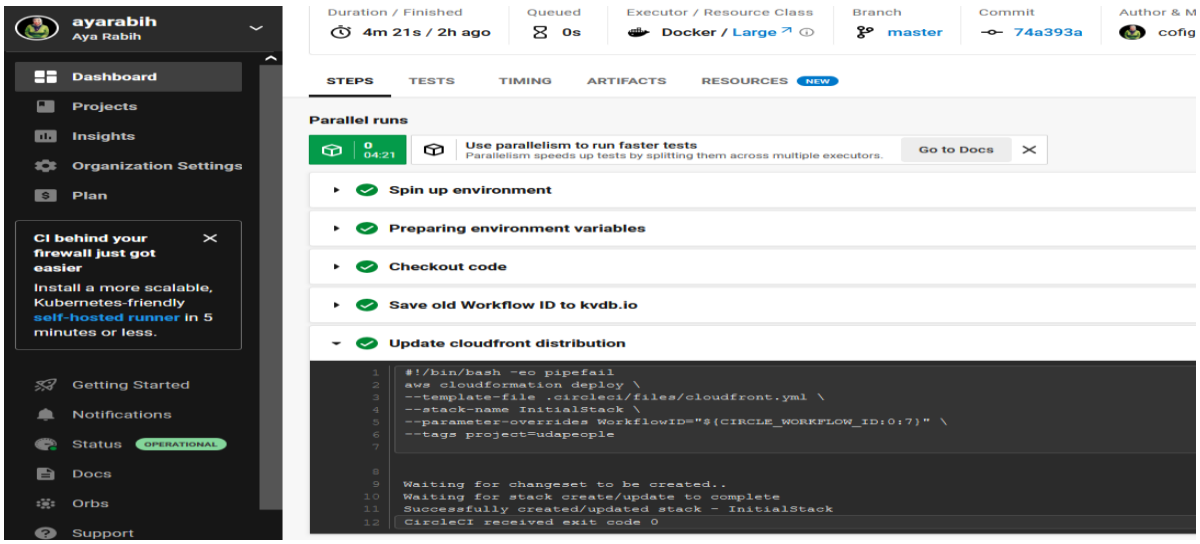
- Now we run smoke test



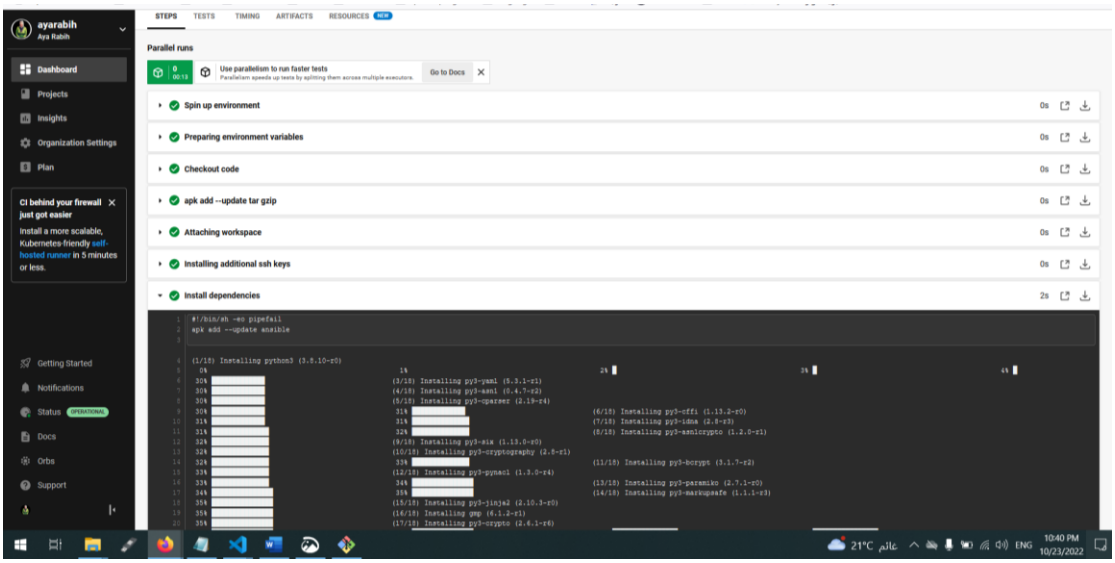
- When we check that we have node that mean EC2 it is run

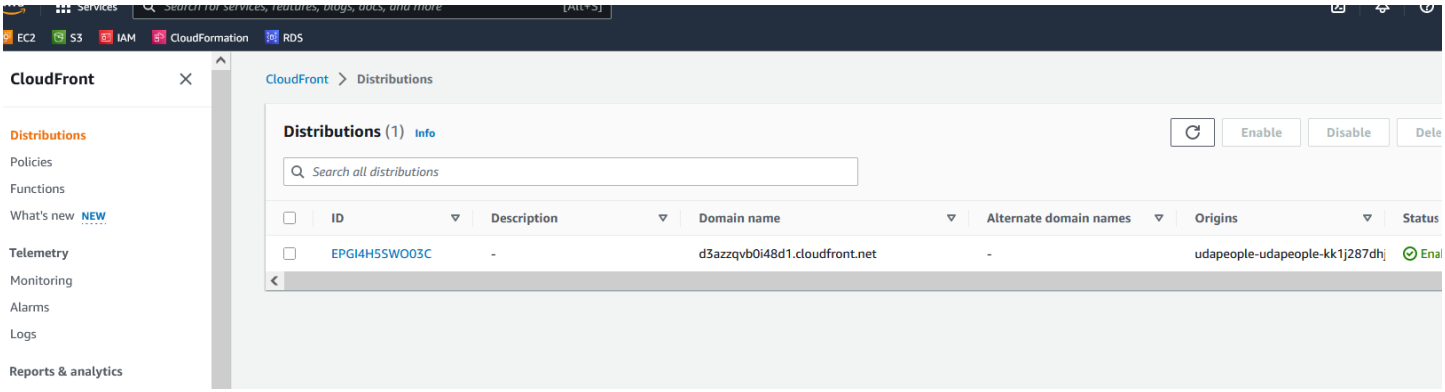
```
Welcome to Ubuntu 20.04.5 LTS (GNU/Linux 5.15.0-1019-aws x86_64)

 * Documentation:  https://help.ubuntu.com
 * Management:     https://landscape.canonical.com
 * Support:        https://ubuntu.com/advantage

  System information as of Sun Oct 23 20:36:15 UTC 2022

  System load:  0.01              Processes:             103
  Usage of /:   37.5% of 7.57GB   Users logged in:       0
  Memory usage: 42%               IPv4 address for eth0: 172.31.88.96
  Swap usage:   0%


0 updates can be applied immediately.

New release '22.04.1 LTS' available.
Run 'do-release-upgrade' to upgrade to it.


*** System restart required ***
Last login: Sun Oct 23 20:29:18 2022 from 54.158.221.253
ubuntu@ip-172-31-88-96:~$ node -v
v10.19.0
ubuntu@ip-172-31-88-96:~$
```

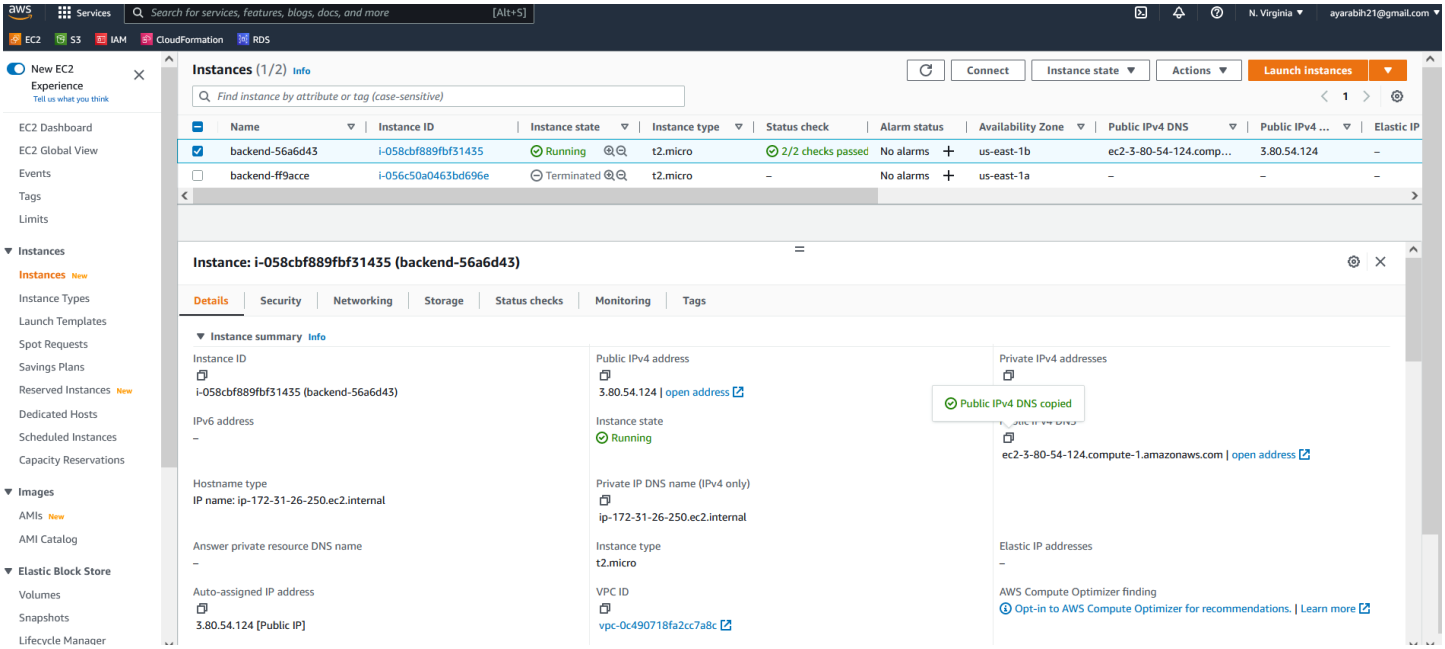
- Now we create cloud front-update



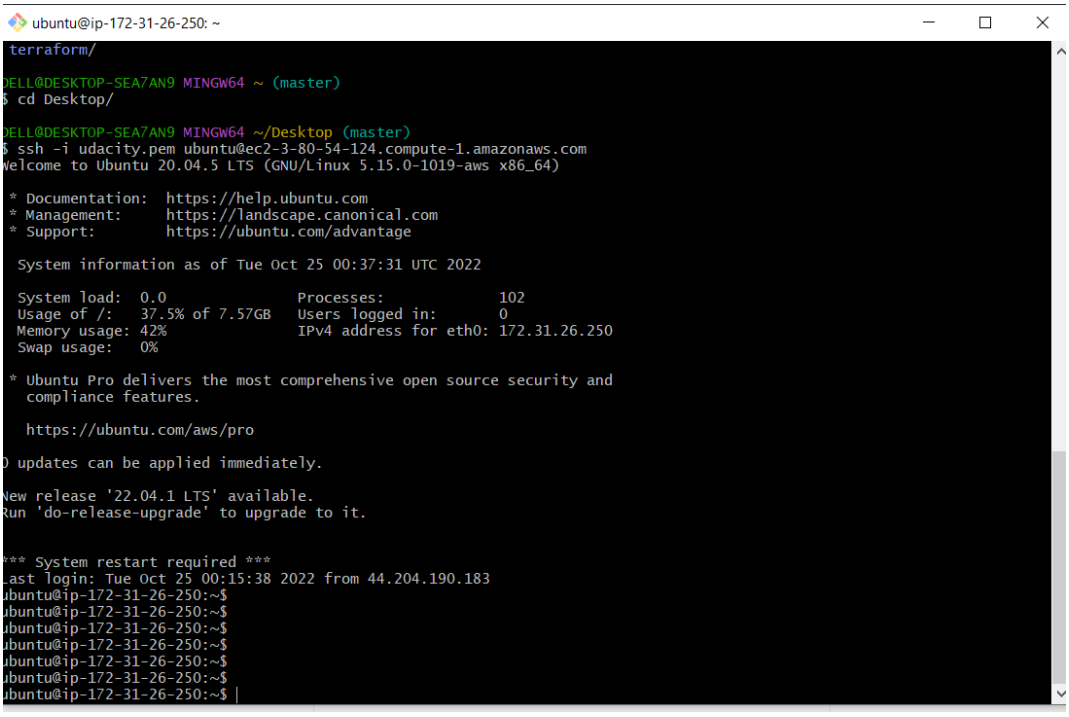
- When we install dependents for cloud front step







When we need to access to EC2 with ssh



- Run command docker pull prom/Prometheus

Windows PowerShell

```
Windows PowerShell
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Try the new cross-platform PowerShell https://aka.ms/pscore6

PS C:\Users\DELL> docker -v
PS C:\Users\DELL> docker pull prom/prometheus
Using default tag: latest
latest: Pulling from prom/prometheus
50783e0dfb64: Pull complete
daafb1bca260: Pull complete
72d3569fdc6f: Pull complete
13afa930da33: Pull complete
6ef28183cda8: Pull complete
4ad7245dbb40: Pull complete
26e6063b72b5: Pull complete
d859dd8f8ba9: Pull complete
583221d3597c: Pull complete
b4e477a4eb49: Pull complete
0b0ad5fc938d: Pull complete
53ddffa5a7d1: Pull complete
Digest: sha256:4748e26f9369ee7270a7cd3fb9385c1adb441c05792ce2bce2f6dd622fd91d38
Status: Downloaded newer image for prom/prometheus:latest
docker.io/prom/prometheus:latest
PS C:\Users\DELL> docker image
PS C:\Users\DELL> docker images
REPOSITORY               TAG       IMAGE ID       CREATED        SIZE
postgres                 latest    901a82b310d3   10 days ago    377MB
prom/prometheus          latest    6b9895947e9e   2 weeks ago    220MB
docker/getting-started   latest    cb90f98fd791   6 months ago   28.8MB
```
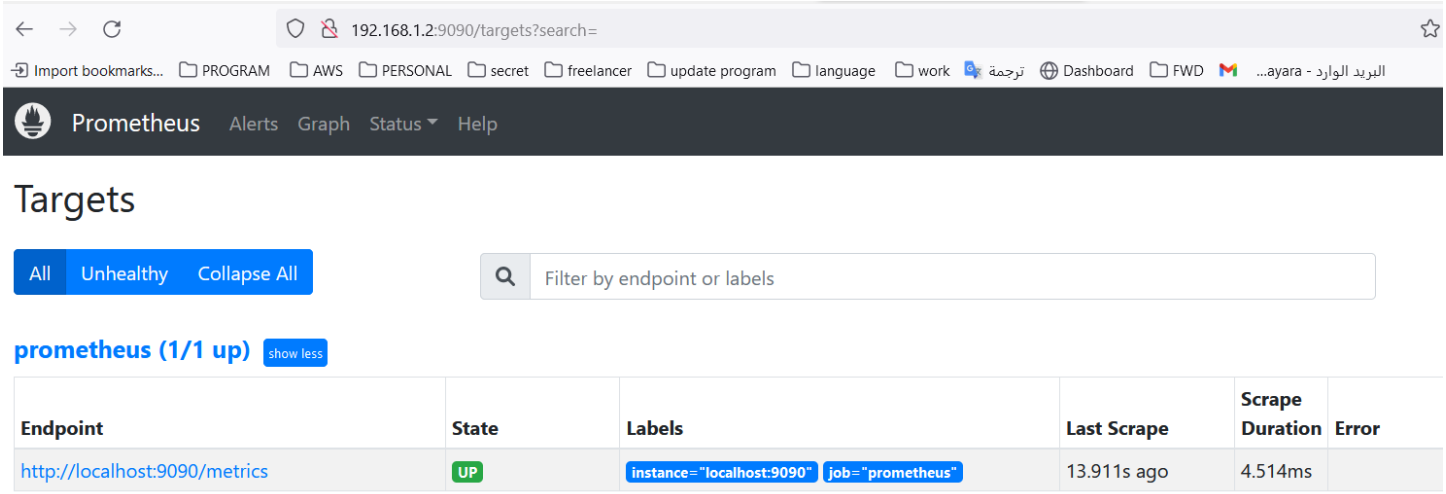

- docker run -p 9090:9090 prom/Prometheus

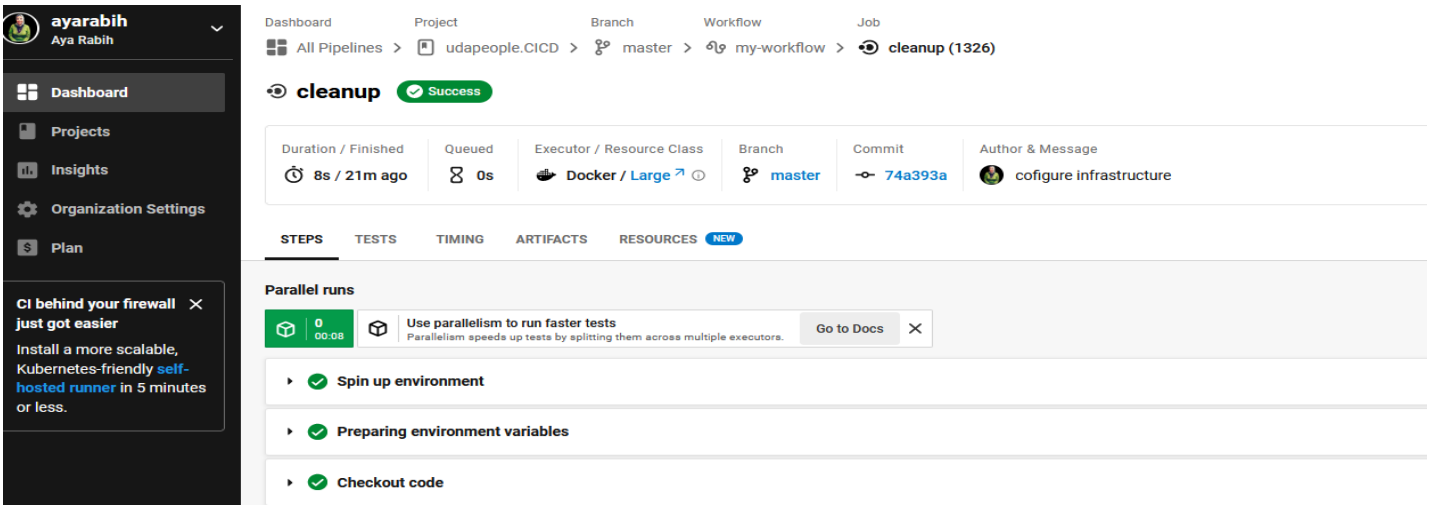
Windows PowerShell

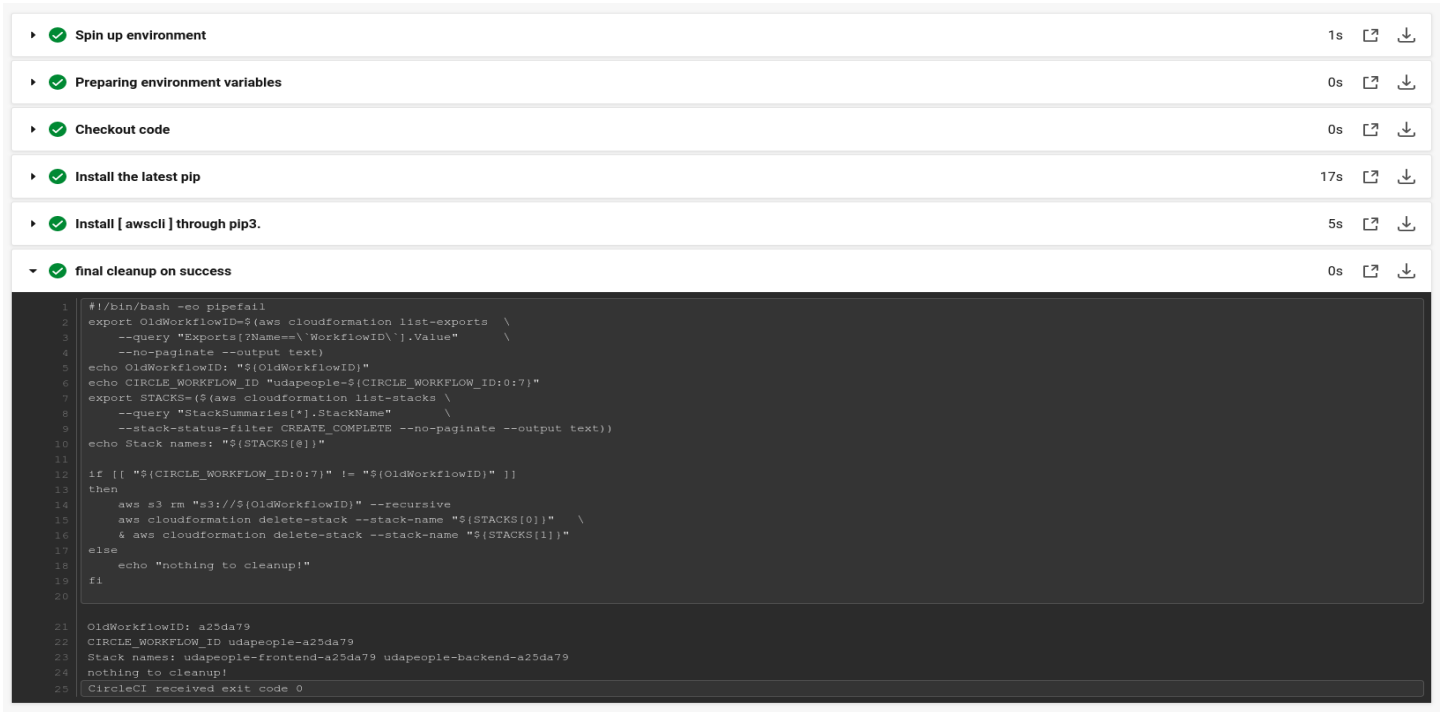
```
Digest: sha256:4748e26f9369ee7270a7cd3fb9385c1adb441c05792ce2bce2f6dd622fd91d38
Status: Downloaded newer image for prom/prometheus:latest
docker.io/prom/prometheus:latest
PS C:\Users\DELL> docker image
PS C:\Users\DELL> docker images
REPOSITORY               TAG       IMAGE ID       CREATED        SIZE
postgres                 latest    901a82b310d3   10 days ago    377MB
prom/prometheus          latest    6b9895947e9e   2 weeks ago    220MB
docker/getting-started   latest    cb90f98fd791   6 months ago   28.8MB
PS C:\Users\DELL> docker run -p 9090:9090  prom/prometheus
ts=2022-10-25T01:39:24.820Z caller=main.go:499 level=info msg="No time or size retention was set so using the default time retention" dur
ation=15d
ts=2022-10-25T01:39:24.820Z caller=main.go:543 level=info msg="Starting Prometheus Server" mode=server version="(version=2.39.1, branch=H
EAD, revision=dcd6af9e0d56165c6f5c64ebbc1fae798d24933a)"
ts=2022-10-25T01:39:24.821Z caller=main.go:548 level=info build_context="(go=go1.19.2, user=root@273d60c69592, date=20221007-15:57:09)"
ts=2022-10-25T01:39:24.821Z caller=main.go:549 level=info host_details="(Linux 5.10.16.3-microsoft-standard-WSL2 #1 SMP Fri Apr 2 22:23:4
9 UTC 2021 x86_64 c58d3ef01f33 localdomain)"
ts=2022-10-25T01:39:24.822Z caller=main.go:550 level=info fd_limits="(soft=1048576, hard=1048576)"
ts=2022-10-25T01:39:24.823Z caller=main.go:551 level=info vm_limits="(soft=unlimited, hard=unlimited)"
ts=2022-10-25T01:39:24.835Z caller=web.go:559 level=info component=web msg="Start listening for connections" address=0.0.0.0:9090
ts=2022-10-25T01:39:24.840Z caller=main.go:980 level=info msg="Starting TSDB ..."ts=2022-10-25T01:39:24.848Z caller=tls_config.go:195 lev
el=info component=web msg="TLS is disabled." http2=false
ts=2022-10-25T01:39:24.851Z caller=head.go:551 level=info component=tsdb msg="Replaying on-disk memory mappable chunks if any"
ts=2022-10-25T01:39:24.851Z caller=head.go:595 level=info component=tsdb msg="On-disk memory mappable chunks replay completed" duration=5
.3µs
ts=2022-10-25T01:39:24.851Z caller=head.go:601 level=info component=tsdb msg="Replaying WAL, this may take a while"
ts=2022-10-25T01:39:24.853Z caller=head.go:672 level=info component=tsdb msg="WAL segment loaded" segment=0 maxSegment=0
ts=2022-10-25T01:39:24.853Z caller=head.go:709 level=info component=tsdb msg="WAL replay completed" checkpoint_replay_duration=342.3µs wa
l_replay_duration=1.2054ms wbl_replay_duration=200ns total_replay_duration=1.6045ms
ts=2022-10-25T01:39:24.855Z caller=main.go:1001 level=info fs_type=EXT4_SUPER_MAGIC
ts=2022-10-25T01:39:24.855Z caller=main.go:1004 level=info msg="TSDB started"
ts=2022-10-25T01:39:24.855Z caller=main.go:1184 level=info msg="Loading configuration file" filename=/etc/prometheus/prometheus.yml
ts=2022-10-25T01:39:24.860Z caller=main.go:1221 level=info msg="Completed loading of configuration file" filename=/etc/prometheus/prometh
eus.yml totalDuration=4.364ms db_storage=30.1µs remote_storage=2.4µs web_handler=900ns query_engine=1.3µs scrape=3.3243ms scrape_sd=54.9µ
s notify=54.7µs notify_sd=31µs rules=1.9µs tracing=18.3µs
ts=2022-10-25T01:39:24.860Z caller=main.go:965 level=info msg="Server is ready to receive web requests."
ts=2022-10-25T01:39:24.860Z caller=manager.go:943 level=info component="rule manager" msg="Starting rule manager..."
```

- When we will run Prometheus local will see that

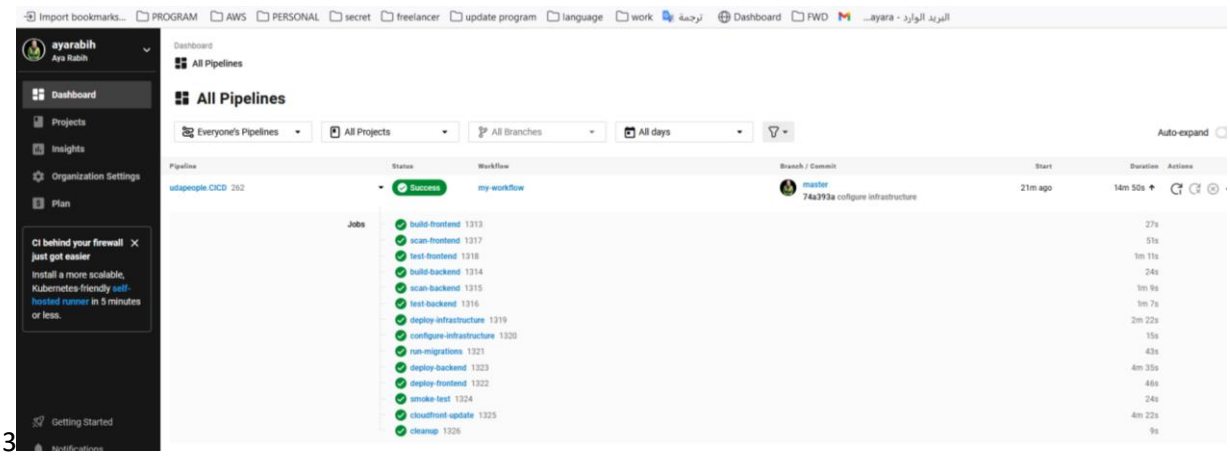


- Now we run steps for step clean



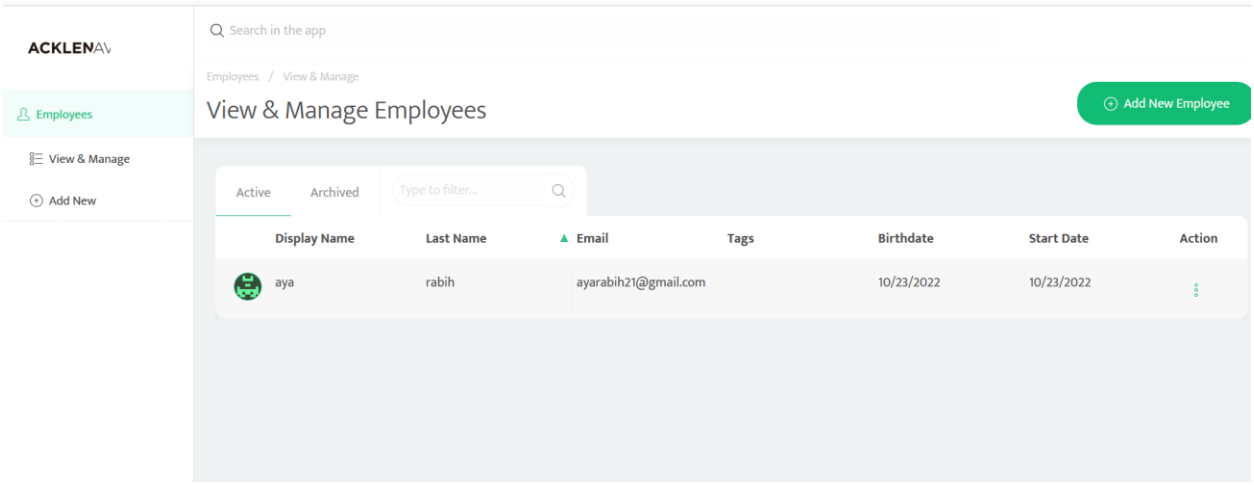


- It is done now

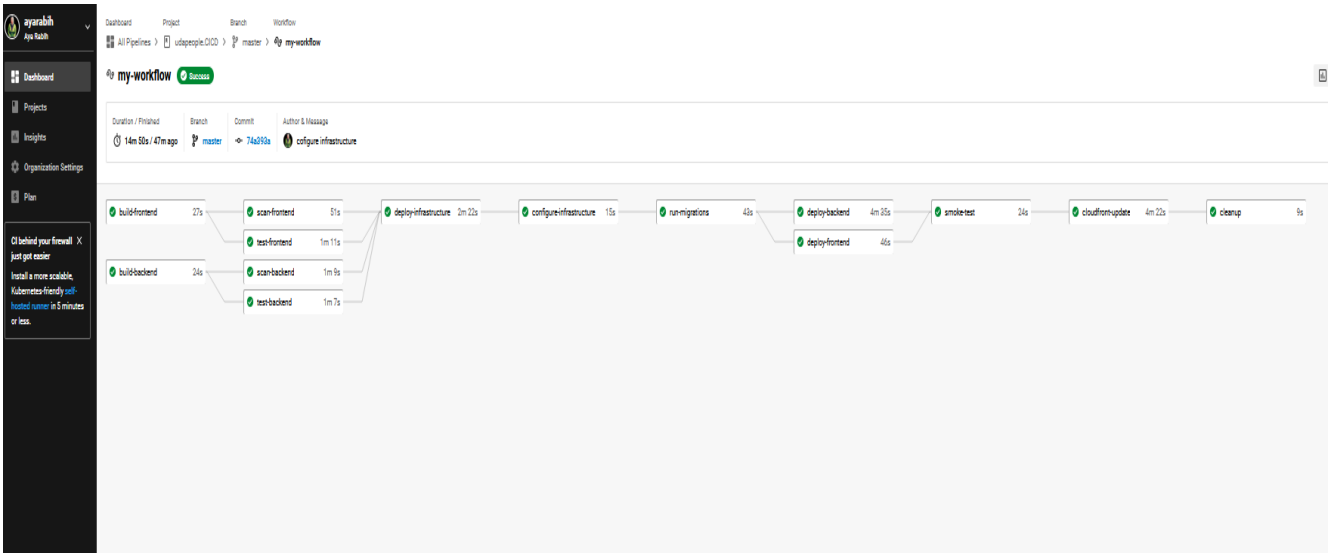


3

- Now we will check than backend listening for front end we will create user



- That all steps for our CI/CD



Now we will make premeasures for new 2EC2 and we have for them 1 security groub and one keypair

```
ubuntu@ip-172-31-84-175:~$ sudo systemctl start node-exporter
ubuntu@ip-172-31-84-175:~$ sudo systemctl status node-exporter
● node-exporter.service - Prometheus Node Exporter Service
     Loaded: loaded (/etc/systemd/system/node-exporter.service; enabled; vendor preset: enabled)
     Active: active (running) since Tue 2022-10-25 23:09:33 UTC; 9s ago
   Main PID: 3814 (node_exporter)
      Tasks: 3 (limit: 1143)
     Memory: 1.7M
     CGroup: /system.slice/node-exporter.service
             └─3814 /usr/local/bin/node_exporter
```

```
ubuntu@ip-172-31-84-175:~$ sudo systemctl restart prometheus
ubuntu@ip-172-31-84-175:~$ sudo systemctl status prometheus
● prometheus.service - Prometheus
     Loaded: loaded (/etc/systemd/system/prometheus.service; enabled; vendor preset: enabled)
     Active: active (running) since Tue 2022-10-25 23:10:51 UTC; 3s ago
   Main PID: 3828 (prometheus)
      Tasks: 6 (limit: 1143)
     Memory: 15.2M
     CGroup: /system.slice/prometheus.service
             └─3828 /usr/local/bin/prometheus --config.file /etc/prometheus/prometheus.yml --storage.tsdb.path /var/li>

Oct 25 23:10:51 ip-172-31-84-175 prometheus[3828]: level=info ts=2022-10-25T23:10:51.662Z caller=head.go:645 component>
Oct 25 23:10:51 ip-172-31-84-175 prometheus[3828]: level=info ts=2022-10-25T23:10:51.663Z caller=web.go:524 component=>
Oct 25 23:10:51 ip-172-31-84-175 prometheus[3828]: level=info ts=2022-10-25T23:10:51.666Z caller=head.go:706 component>
Oct 25 23:10:51 ip-172-31-84-175 prometheus[3828]: level=info ts=2022-10-25T23:10:51.666Z caller=head.go:706 component>
Oct 25 23:10:51 ip-172-31-84-175 prometheus[3828]: level=info ts=2022-10-25T23:10:51.667Z caller=head.go:709 component>
Oct 25 23:10:51 ip-172-31-84-175 prometheus[3828]: level=info ts=2022-10-25T23:10:51.669Z caller=main.go:694 fs_type=E>
Oct 25 23:10:51 ip-172-31-84-175 prometheus[3828]: level=info ts=2022-10-25T23:10:51.669Z caller=main.go:695 msg="TSDB>
Oct 25 23:10:51 ip-172-31-84-175 prometheus[3828]: level=info ts=2022-10-25T23:10:51.669Z caller=main.go:799 msg="Load>
Oct 25 23:10:51 ip-172-31-84-175 prometheus[3828]: level=info ts=2022-10-25T23:10:51.673Z caller=main.go:827 msg="Comp>
Oct 25 23:10:51 ip-172-31-84-175 prometheus[3828]: level=info ts=2022-10-25T23:10:51.673Z caller=main.go:646 msg="Serv>
lines 1-19/19 (END)...skipping...
```

Prometheus Alerts Graph Status Help

Targets

All Unhealthy

node_exporter (1/1 up) show less

Endpoint	State	Labels	Last Scrape	Scrape Duration	Error
http://ec2-54-242-175-40.compute-1.amazonaws.com:9100/metrics	UP	instance="ec2-54-242-175-40.compute-1.amazonaws.com:9100" job="node_exporter"	13.864s ago	14.15ms	

Prometheus Alerts Graph Status Help

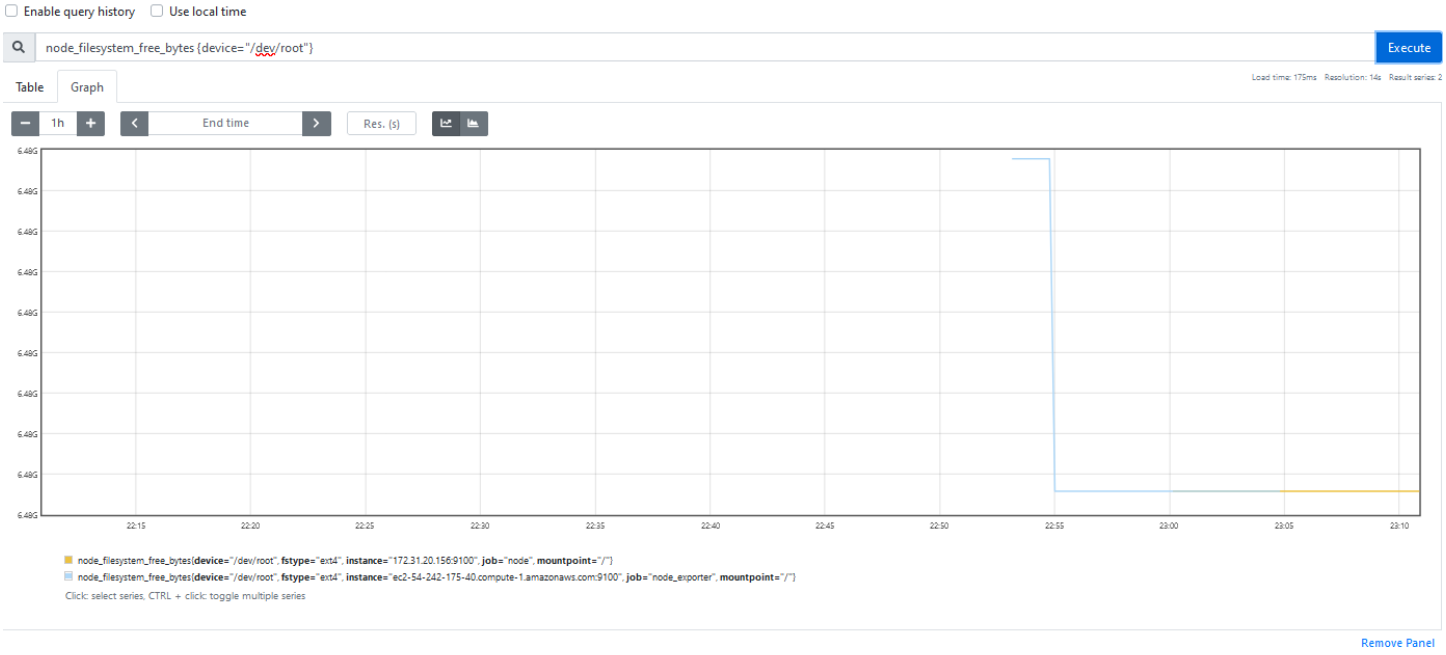
Targets

All Unhealthy

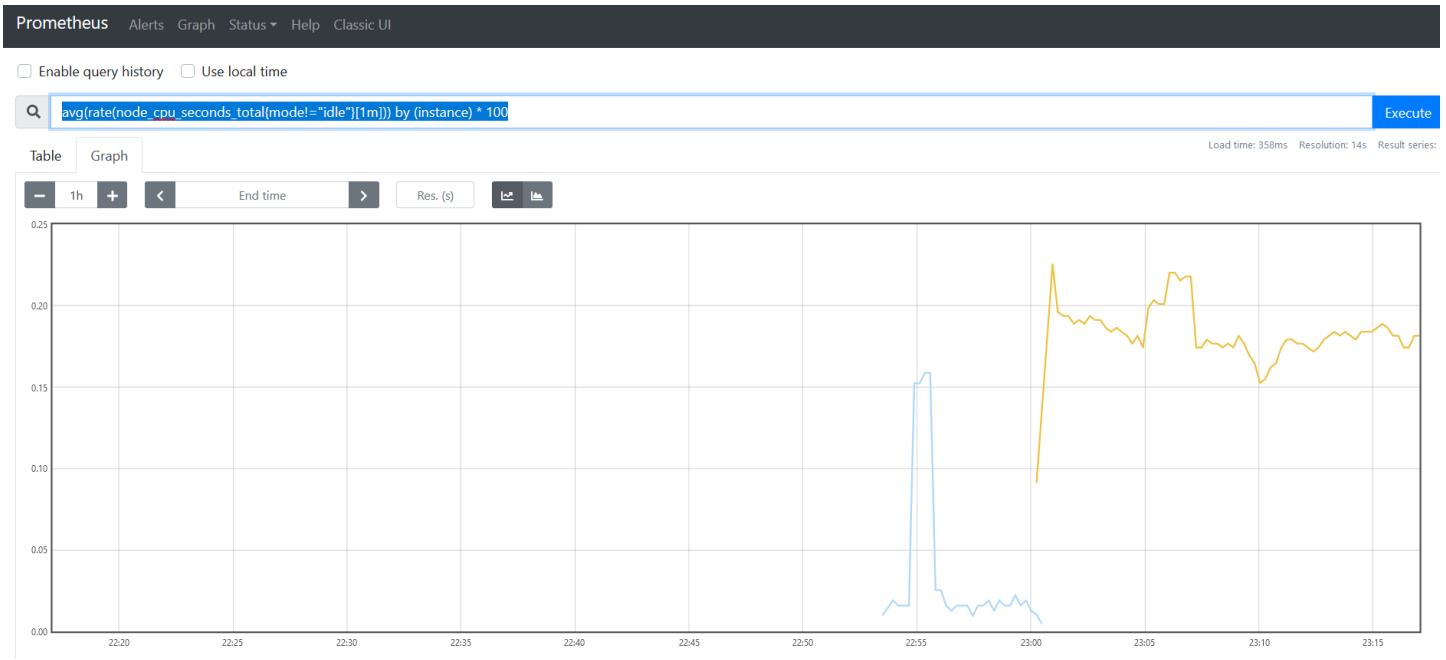
node (1/2 up) show less

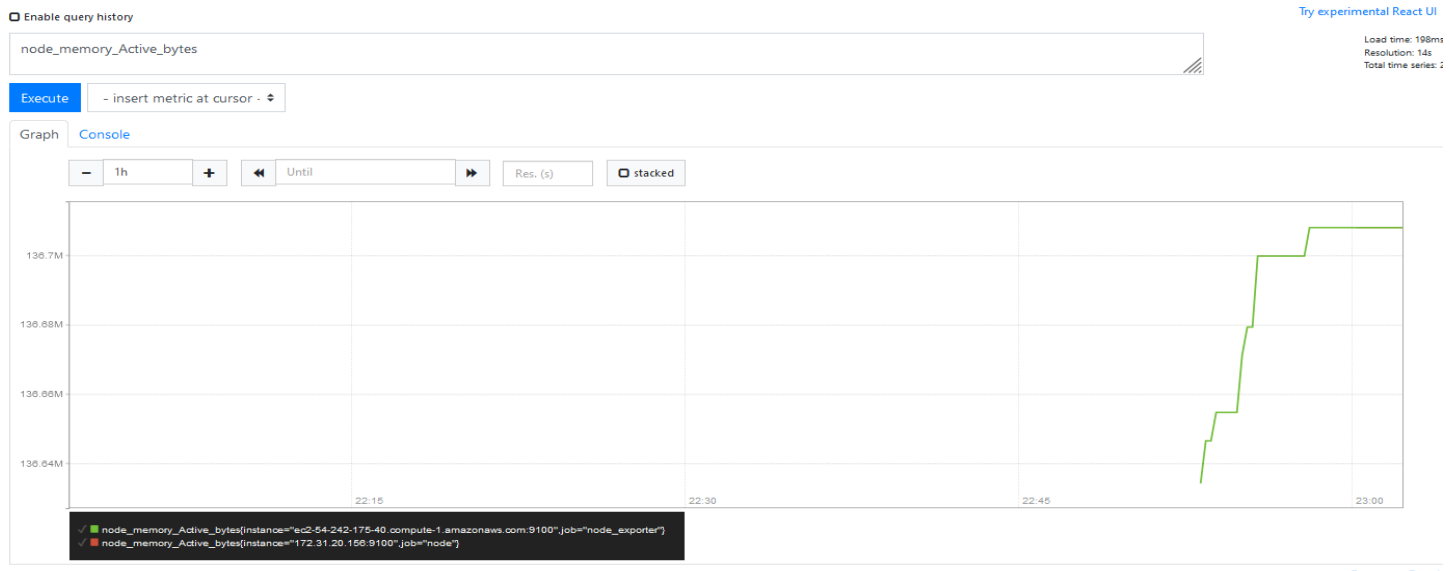
Endpoint	State	Labels	Last Scrape	Scrape Duration	Error
http://172.31.20.156:9100/metrics	UP	instance="172.31.20.156:9100" job="node"	929ms ago	14.41ms	
http://172.31.23.221:9100/metrics	DOWN	instance="172.31.23.221:9100" job="node"	482ms ago	390us	Get "http://172.31.23.221:9100/metrics": dial tcp 172.31.23.221:9100: connect connection refused

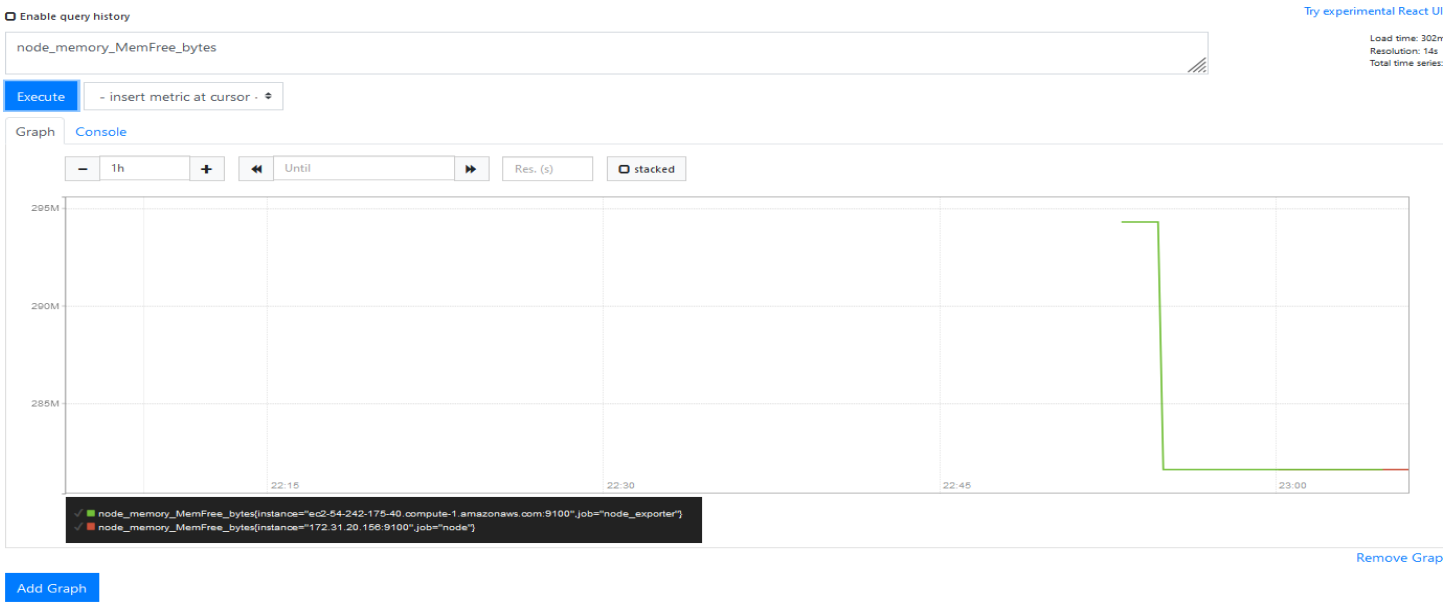
this is dygram for node



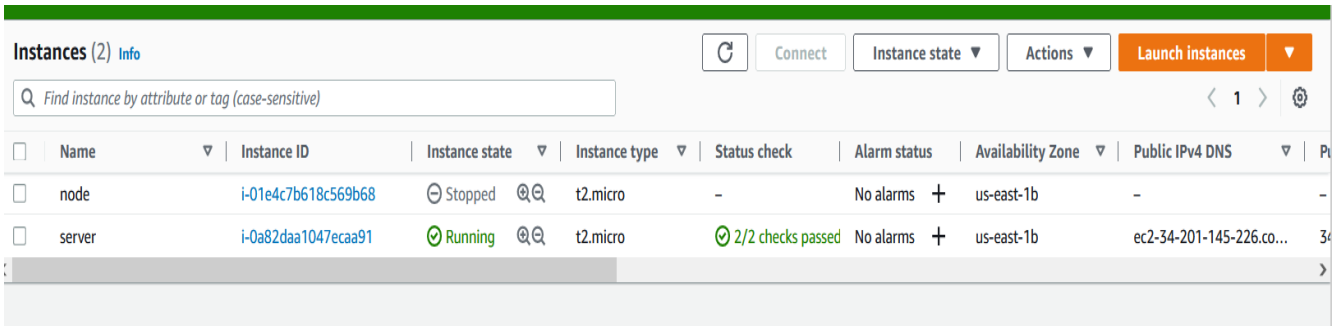
Add Panel



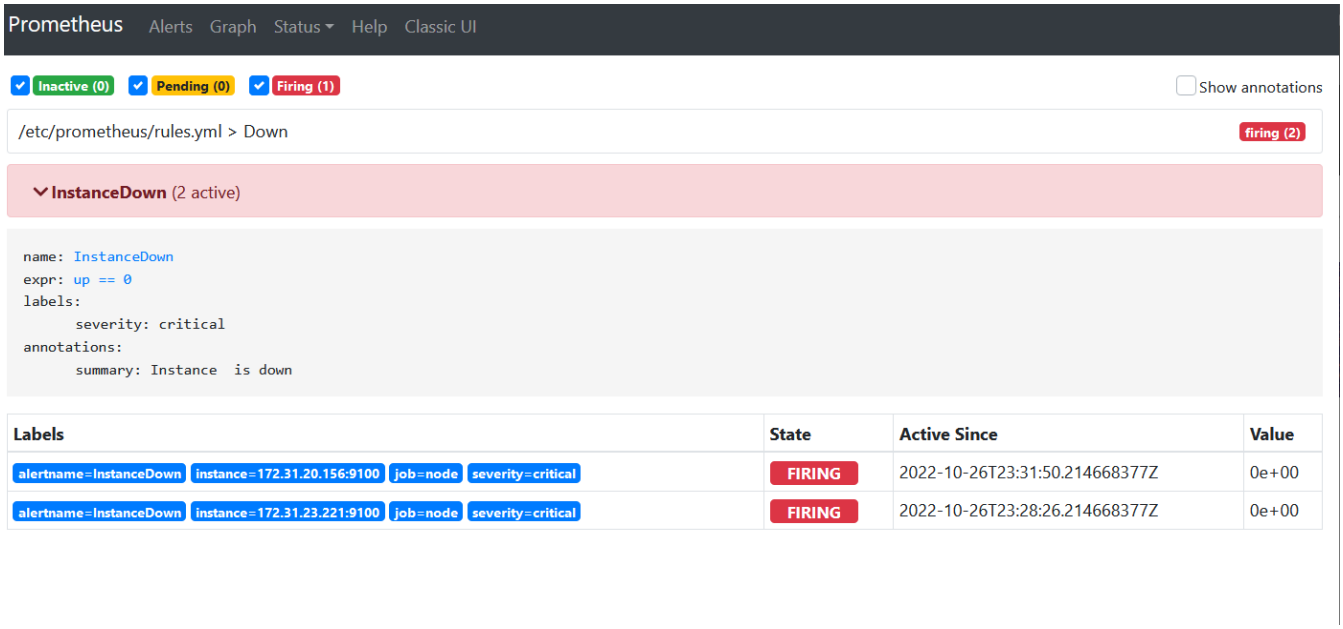




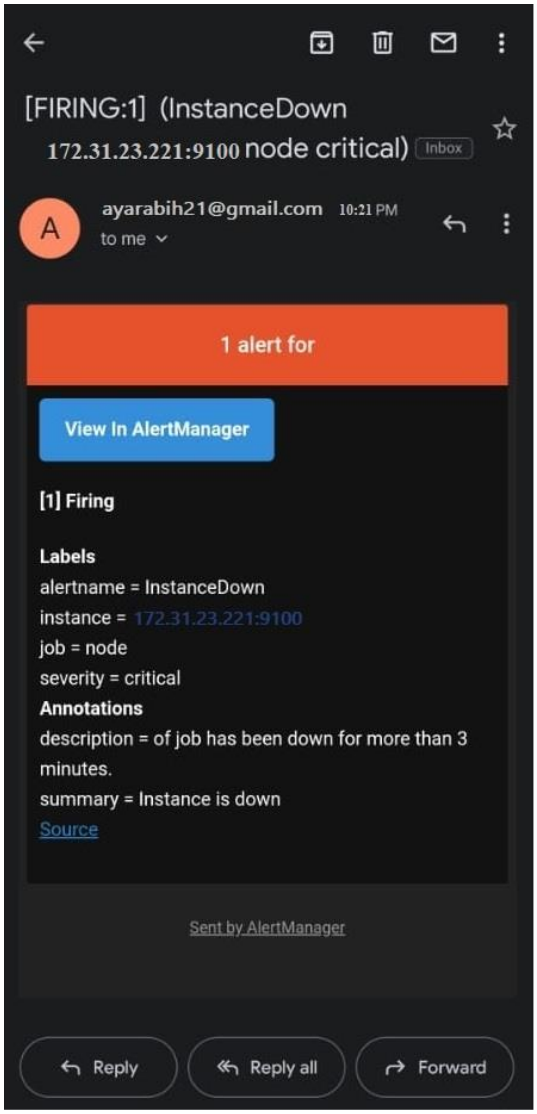
- we will now try to sent notification for our email when instance node down



- We here stop node instance



- This is notification for email frailer



Project is done!