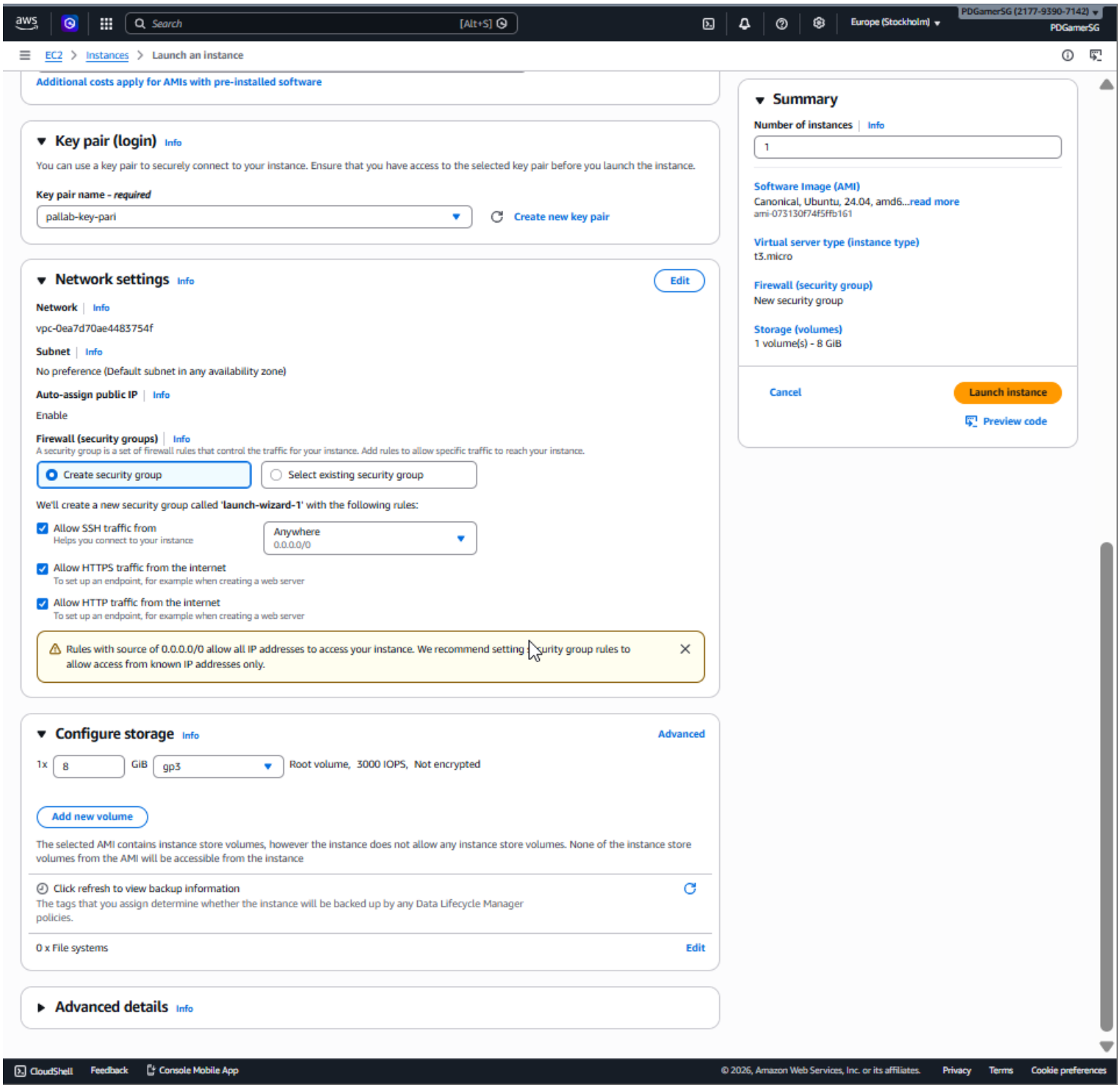


TO TAKE ACCESS:
we first check the name of the user using
whoami
icacls "D:\Data\Save\Keys\pallab-key-pari.pem" /grant desktop-abc123\pallab:F

```
icacls "D:\Data\Save\Keys\pallab-key-pari.pem"
/remove "BUILTIN\Users"
icacls "D:\Data\Save\Keys\pallab-key-pari.pem"

output: desktop-abc123\pallab:(F)

ssh -i pdkey.pem ubuntu@13.48.10.208

ssh -i D:\Data\Save\Keys\pallab-key-pari.pem ec2-
user@your-ip
done

then make a new folder and add
run sudo apt install nodejs
sudo apt install npm
npm init -y
npm i express

lsof  = what is running on what port
lsof -i :3000 = to know what all processes running on
the port 3000
kill 300 to know the port at which the node js file
is running

sudo npm I -g pm2

pm2 start app.js is the file we are running

now when we again try to find the 3000 and try to
kill
it will still be online

and curl localhost:3000 will give me the output
curl command == this is like a post command from the
postman
```

```
pm2 stop 0
pm2 ls
pm2 examples == shows all the commands
```

Continuous Integration

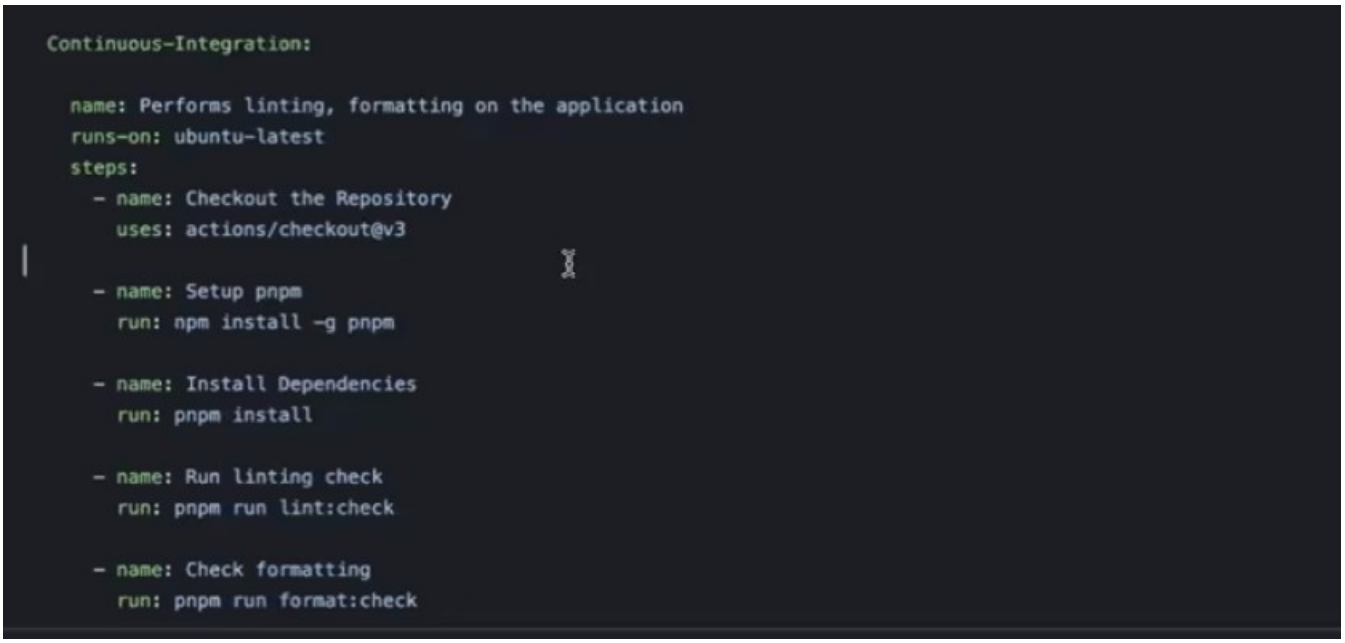
Continuous Integration (CI) is a development practice where developers frequently integrate their code changes into a shared repository, preferably several times a day. Each integration is automatically verified by

1. Building the project and
2. Running automated tests.

This process allows teams to detect problems early, improve software quality, and reduce the time it takes to validate and release new software updates.

ITS SIMPLY LIKE PASSING ALL THE CHECKS IF YES THEN THE DEVLOPER WILL LOOK INTO YOUR PR AND TRY TO SOLVE IT AND IF NOT IT WILL SHOW ERROR AFTER THAT

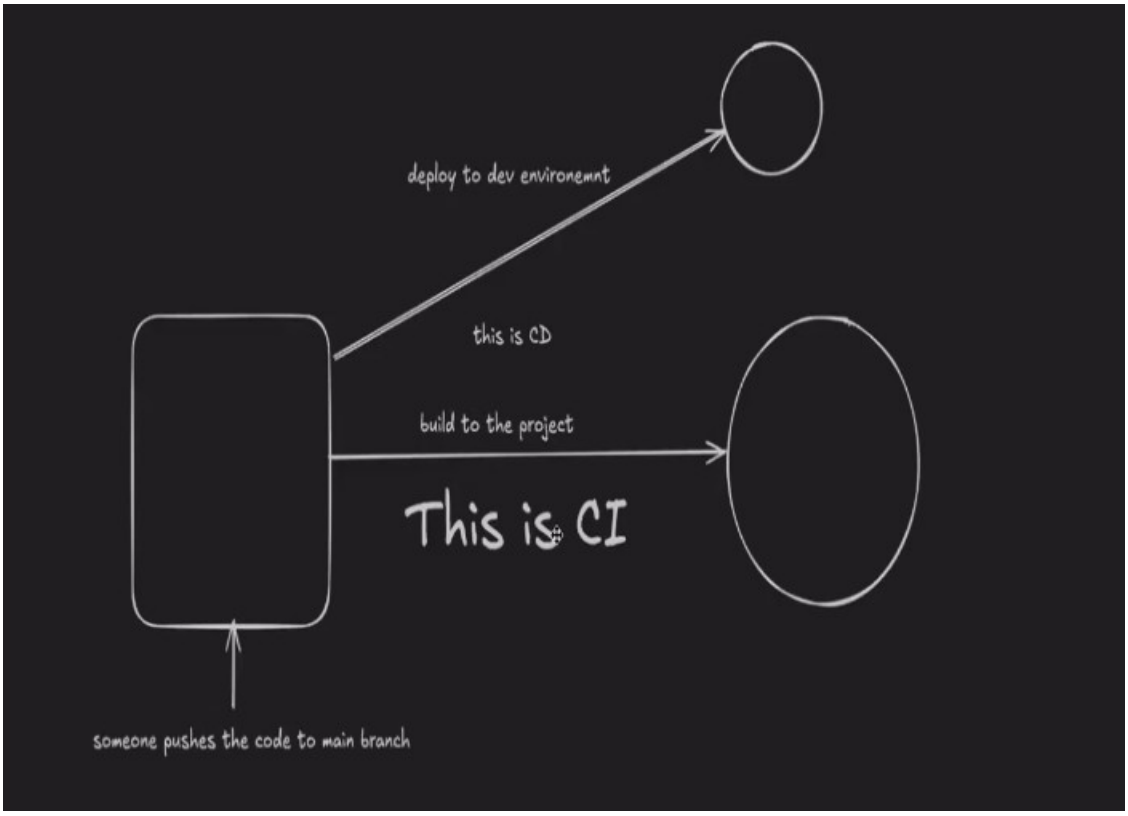
ITS LIKE WHENEVER SOMEONE PUSHES CODE TO MAIN BRANCH THEN IT SHOULD BE DEPLOYED TO THE SERVER



Continuous Deployment

As the name suggests, deploying your code continuously to various environments (dev/stage/prod)

THIS HAS LIKE THE STAGES DEV AND PROD
THE WORKING PART IS FIRST DONE IN DEV REPO AND IS HIGHLY UNSTABLE

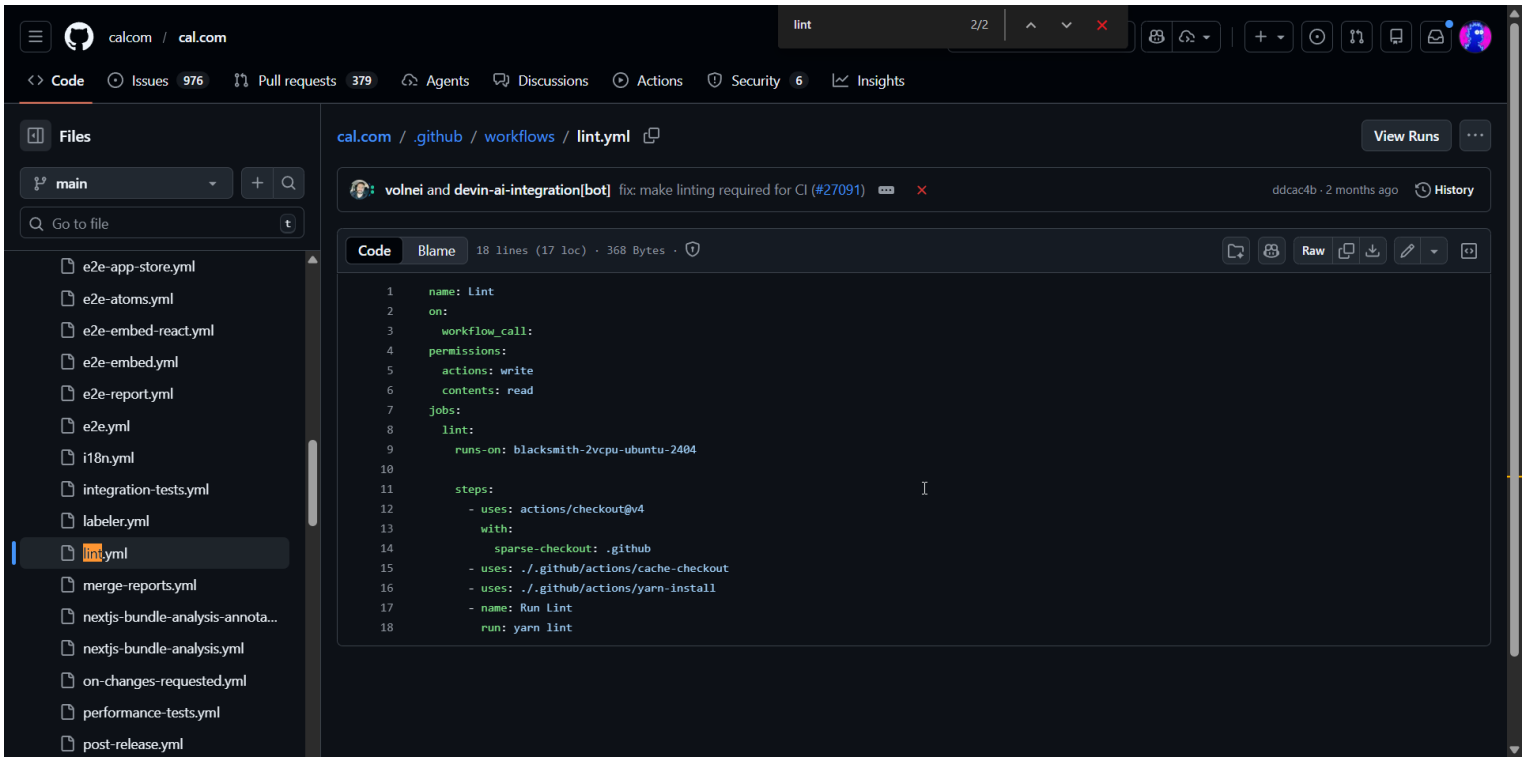


LINTING MEANING :::
This means when we add some checks to the code like the callbacks should follow this method, the async function should be used like this, its like defining a format and then everyone should follow it
eg: eslint

Some special files in github

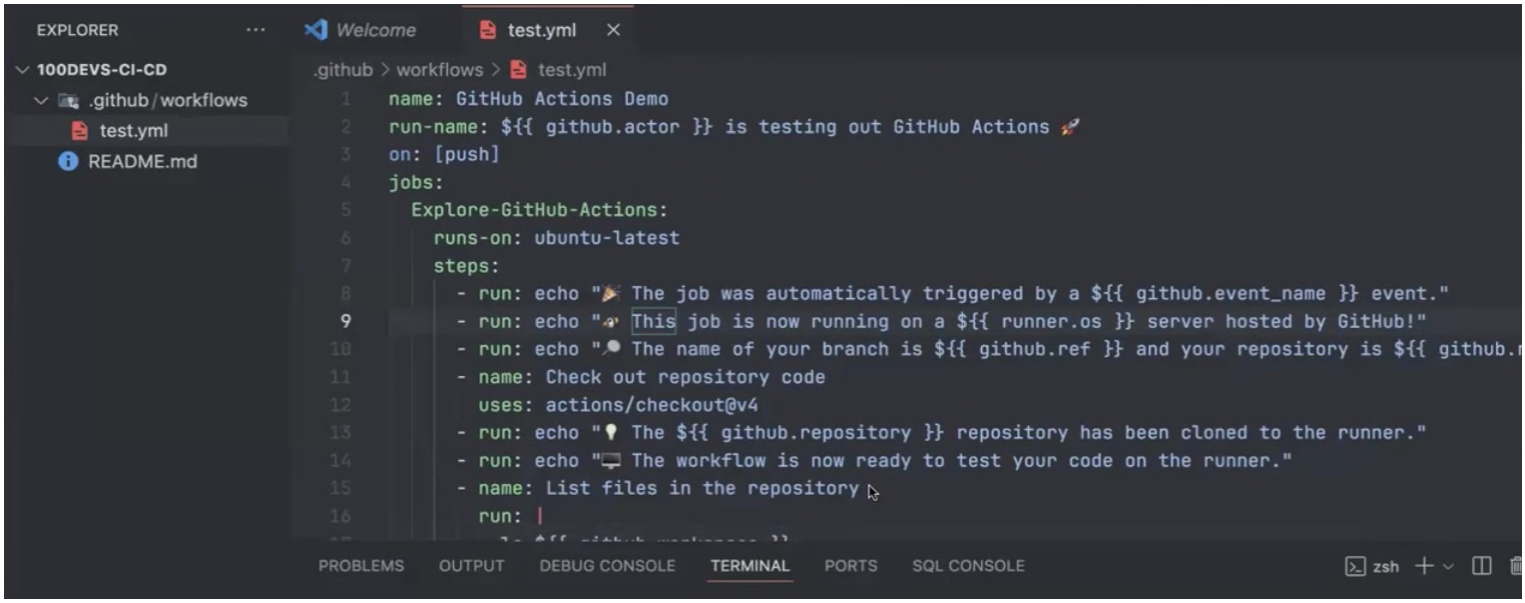
In a codebase if a file is inside of .github/workflows

It is considered a CI file which means github will run the contents of the files whenever the conditions are met.

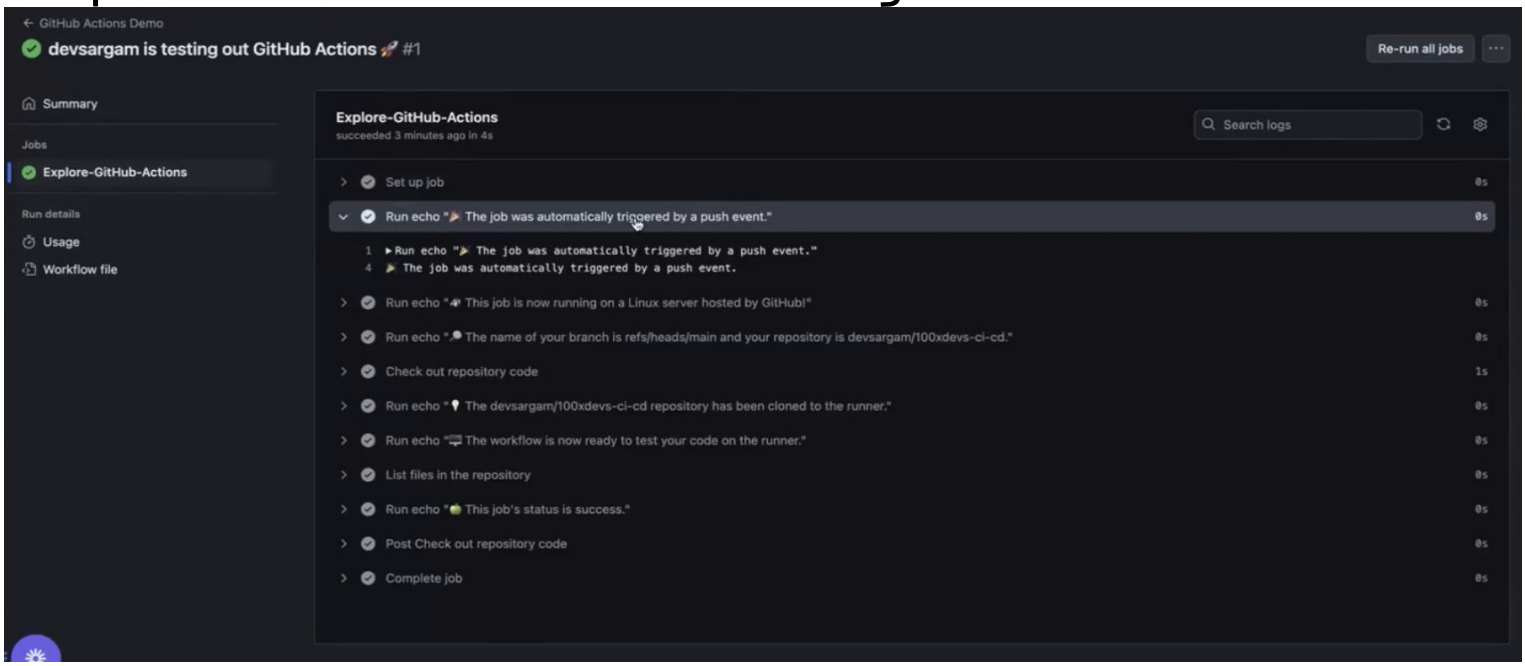


Some useful cases where this might be handy:

- To run unit/integrated tests
- To run lint/format checking
- To build the application
- Deploy it whenever someone pushes their code



like this we have to create a yml file and then when it passes it shows tick in the github



this is what happening under the hood

this CD is like checks whether the code follows the things listed and if not it will not add the code and if yes then the code will be added
this can also like run py files, convert ts to js and also in this github runs its own ec2 machines to verify the code

MAIN USECASE:

1. whenever a pr is raised , we have to check whether the code inside the pr is correct or not, then we build that project
2. then deploy it to check if functional or not

FOR WHAT CI/CD IS USED FOR?

- to test the code if passing or failing the test cases
- to deploy the code to somewhere
- to test linting and formatting errors

to add the file in the ubuntu
use git clone
npm i

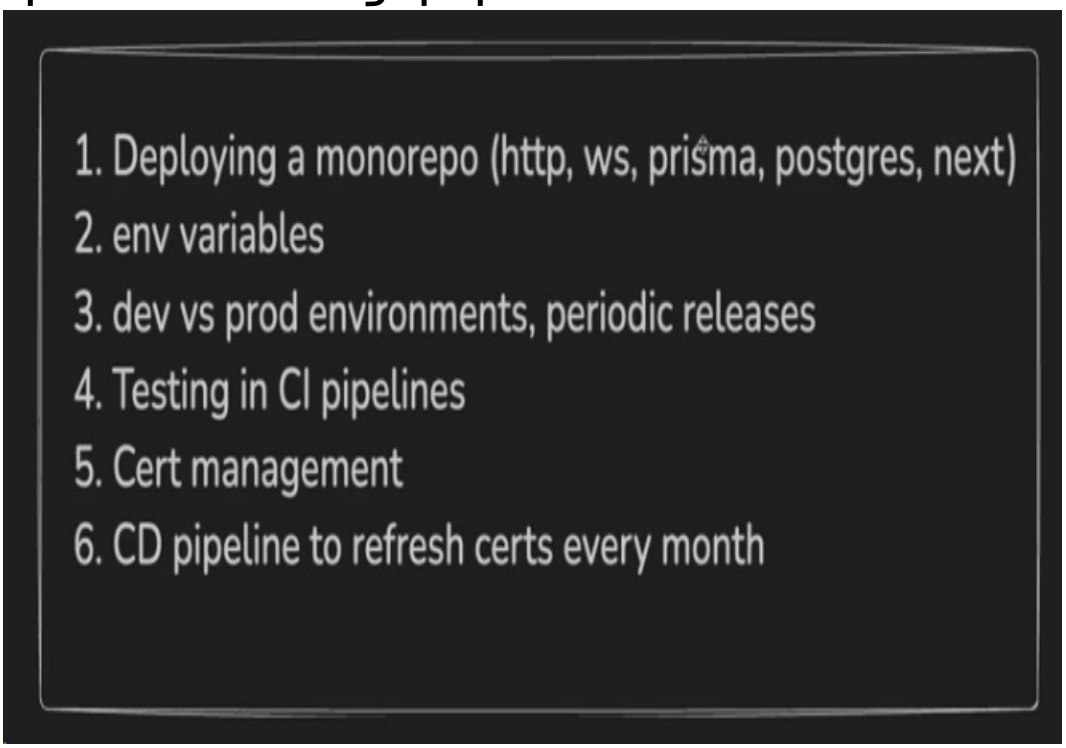
https://github.com/appleboy/ssh-action

add the code from the above to the yml file

```yaml
name: Execute remote SSH commands using password
    uses: appleboy/ssh-action@v1
    with:
      host: ${{ secrets.HOST }}
      username: ${{ secrets.USERNAME }}
      password: ${{ secrets.PASSWORD }}
      port: ${{ secrets.PORT }}
      script: whoami
```

to need the secrets and all we need to access that from the website for ssh key in the ec2 machine

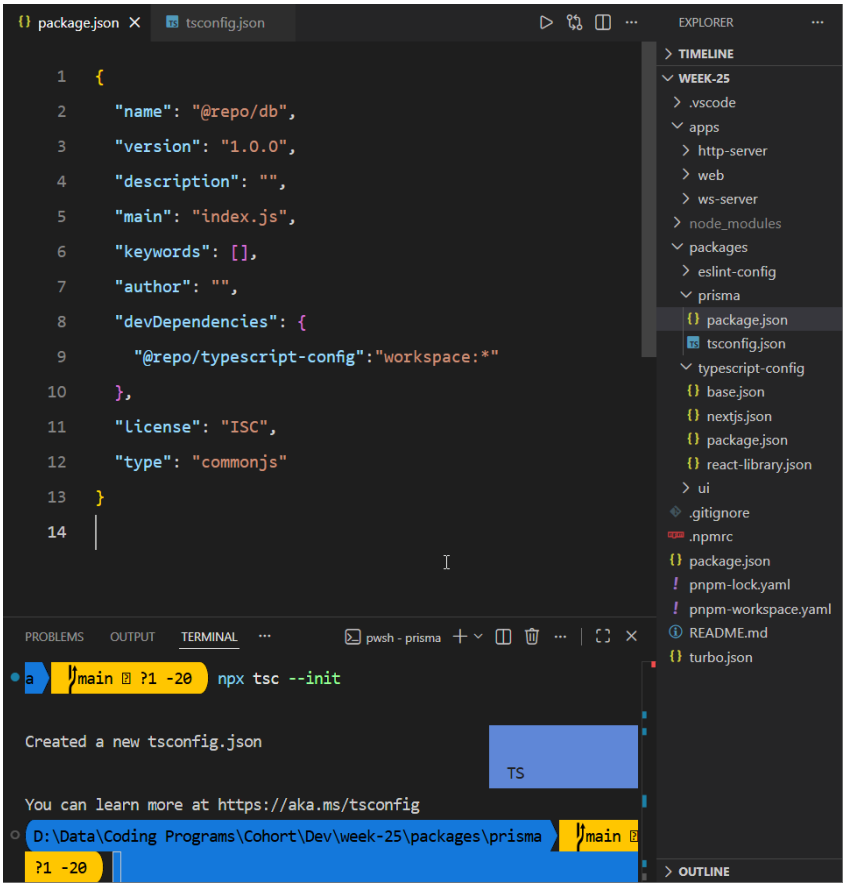
npm install -g pnpm



created the http, ws-server,
setting up primsa in package as it will be used by everyone

making the folder and then intializeing npm init -y

make changes in the package.json file
change the name
remove the script



npx tsc --init

create this and then just change the json

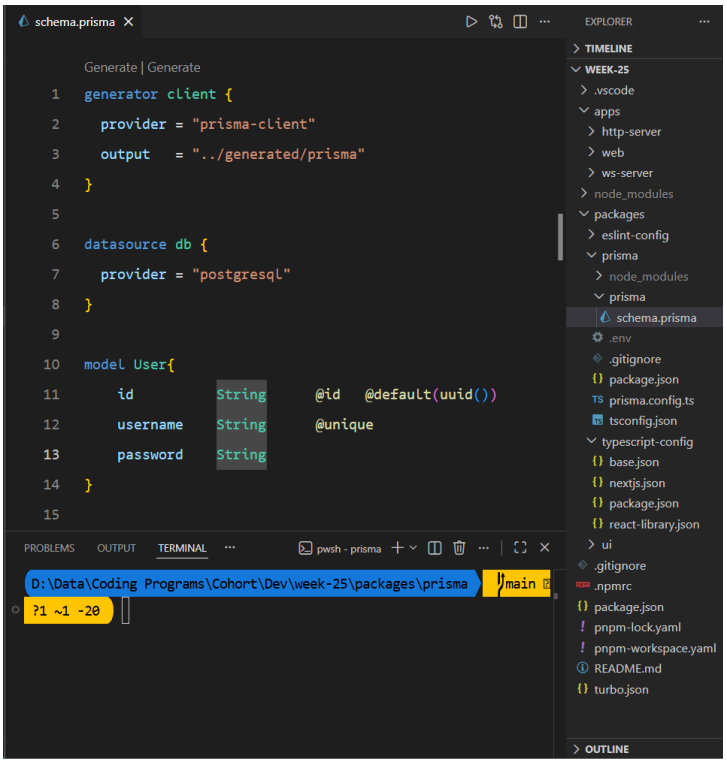
we have to extend from the typescript folder base.json file (takki yeh code hame khud na likhna pade)

```
{
    "extends" : "@repo/typescript-config/base.json"
}
```

this we have to write in the tsx file

in the above image of package.json when we use node we will add:
* in the dev dependencies otherwise for pnpm workspace:* for node

pnpm add prisma (prisma is a orm as we know, easier to connect to db)



npx prisma init

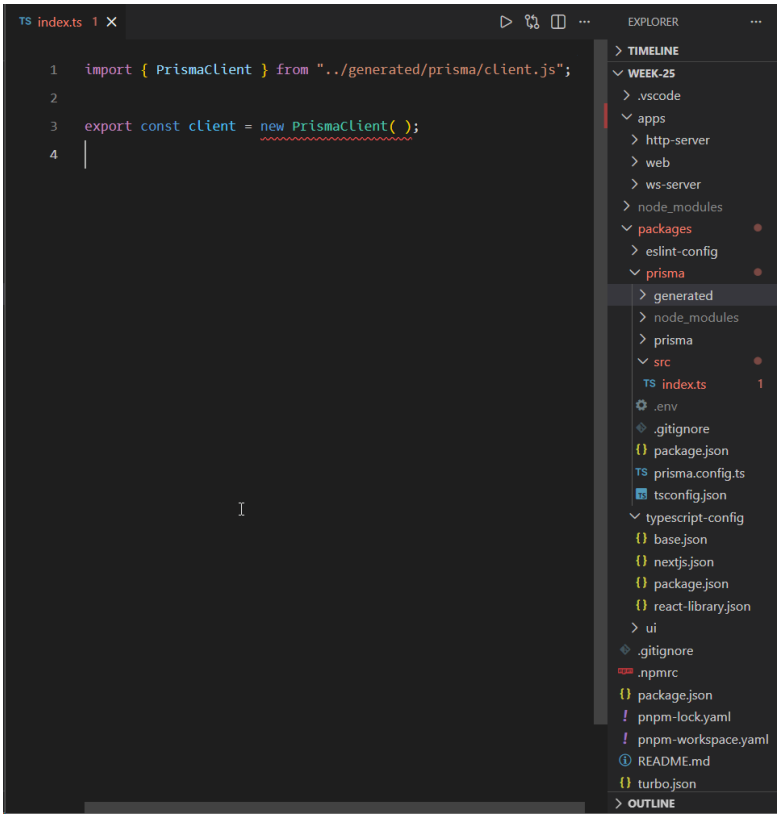
then making changes to the schema.prisma

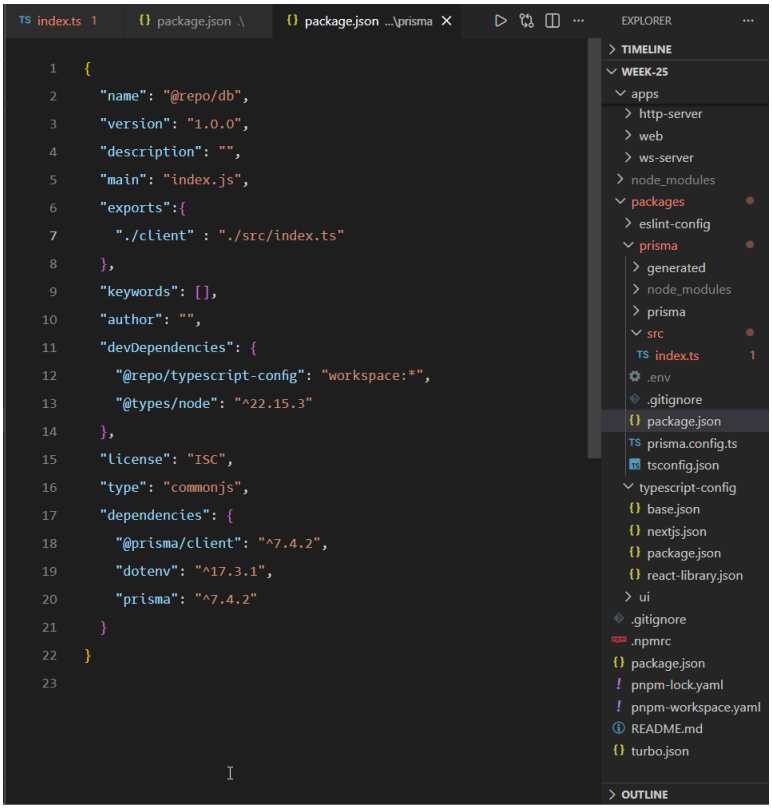
then get a db from neon.tech

then add the db url in the env file

use azure aws is shit for neon tech
then do npx prisma migrate dev
enter a name for the migration
npx prisma generate npm install dotenv

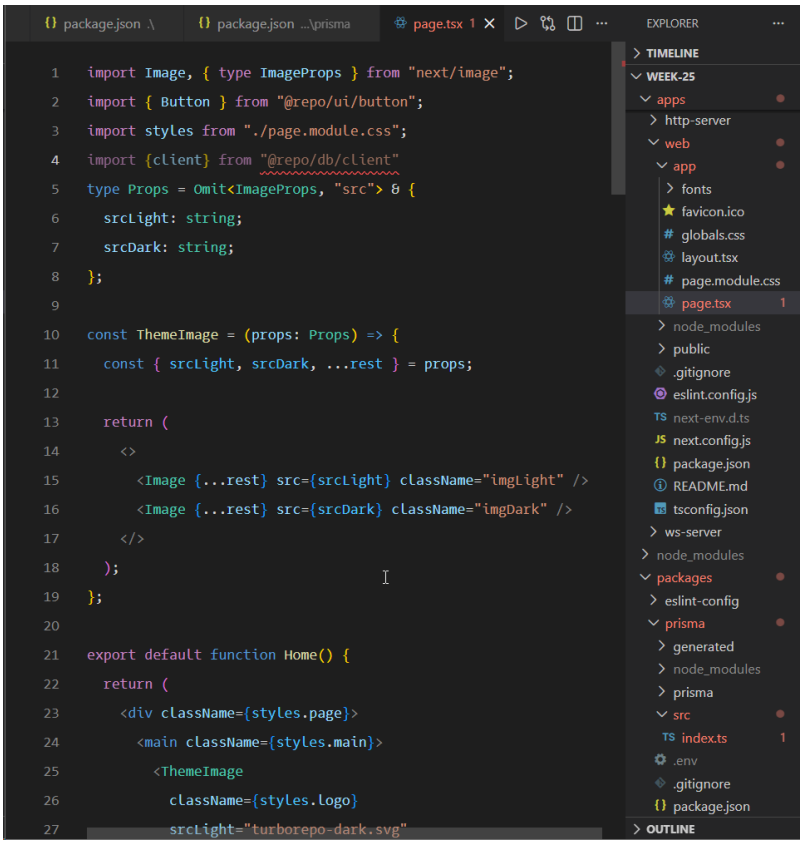
now to export this primsa folder you have to create it a package
then create a src folder inside the prisma folder

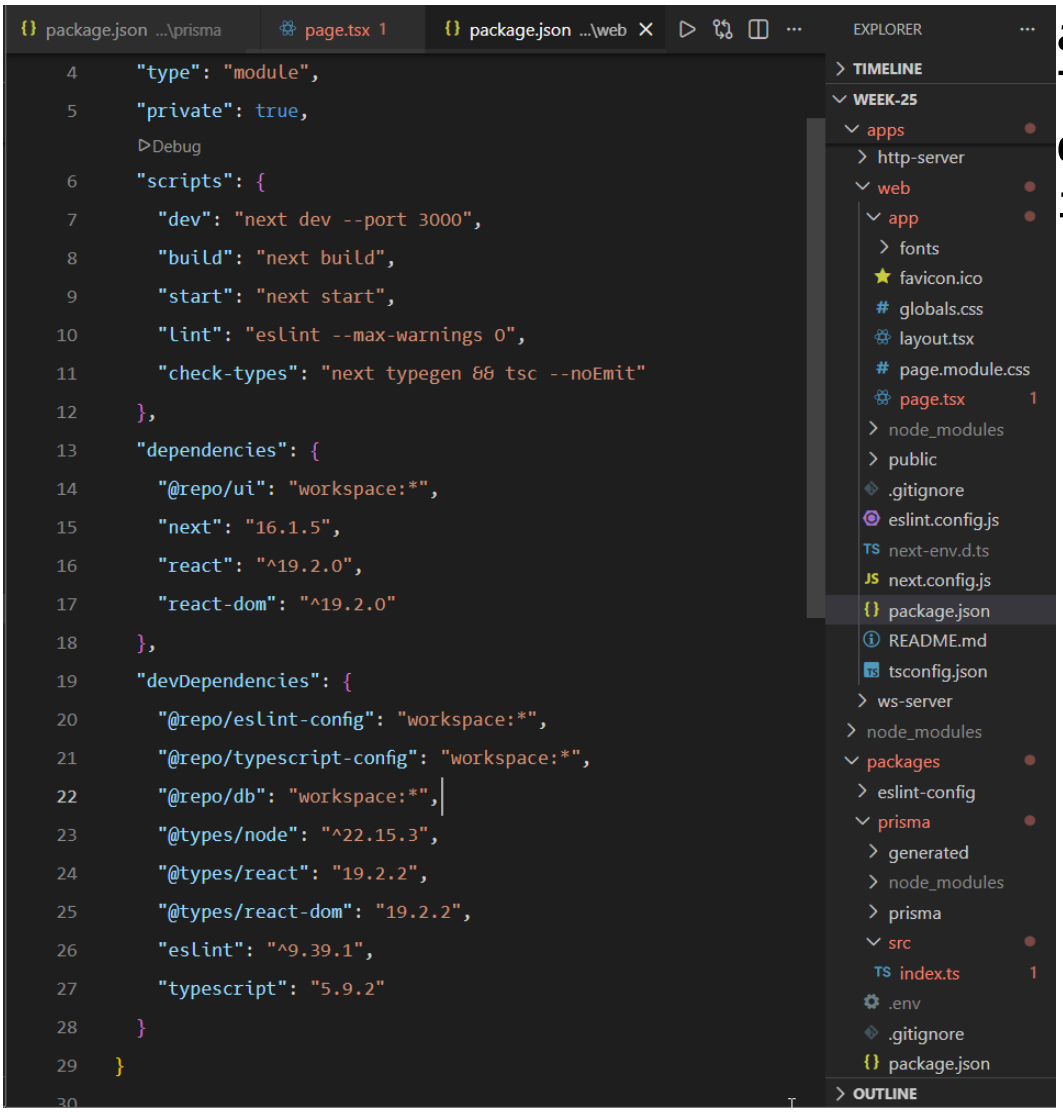




add the index.ts code and also add a exports section in the src package.json file

now just import it in the page.tsx folder using the command
and also
dub.sh follows the same method





add the repo/db line in the dependency to import that also

and to get all the libraries you have to do
pnpm install
using this the red squiggle of the repo will go away as it will download the things we require

now the prisma can be used in the web project and we have to do in both the projects
http-server
ws-server

for http server
npm init -y
npx tsc -init
add this in package.json also

```
  "scripts": {
    "build":"tsc-b",
    "dev" :"npm run build && npm run start",
    "start":"node dist/index.js"
  },
  "devDependencies": {
    "@repo/db":"workspace:*",
    "@repo/typescript-config":"workspace:*"
  },
```

we have to extend from the typescript folder base.json file (takki yeh code hame khud na likhna pade)

```
{
    "extends" : "@repo/typescript-config/base.json",
    "compilerOptions": {
        "rootDir": "./src",
        "outDir": "./dist"
    }
}
```

for the tsconfig file

we have to do same for both http and the ws-server

setup is done time to write the code

First for http server
add
pnpm add express @types/express

you can also reload the ts server

for ws server
pnpm add ws @types/ws

client is used to just connect to db

restart ts server

```
npx install -g pnpm
npx create-turbo@latest


now removing the dev folder and adding the http, ws-
server and then creating prisma folder in the
packages

in prisma folder initialize
npm init -y
in the package.json file changing the name to
"name": "@repo/db", and remove the script section

  "dependencies": {
    "@repo/typescript-config":"workspace:*"
  },

and this workspace:* is for pnpm
for npm its only *

npx tsc -init

then remove everything and add this
{
    "extends":"@repo/typescript-config/base.json"
}

to reduce the copy thing we just using the exsting
base.json file

then do pnpm add prisma (ORM for the day - lets to
connect to the db, gives objects to conencting to the
db)
```

```
then do npx prisma init(this will initialize
prisma.schema)

add the schema in the schema file

then setup neon.tech(use azure it connets man)

then add the db link in the env file
npx  prisma migrate dev

npx prisma generate
now to export we have to do smthg

now in the packages/prisma/src/index.ts create this
and then add the export thingy in this
in the index.ts add this

import { PrismaPg } from '@prisma/adapter-pg'
import { PrismaClient } from
'../generated/prisma/client.js'

const adapter = new PrismaPg({ connectionString:
process.env.DATABASE_URL })
export const client = new PrismaClient({ adapter })

and then install
pnpm add prisma --save-dev
pnpm add @prisma/client @prisma/adapter-pg pg dotenv
pnpm i --save-dev @types/node



now in the prisma package.json  add this
  "exports":{
    "./client":"./src/index.ts"
  },
```

the above line helps us to use the prisma file in the codebase to use that we have write this in the project
for the next js project:
import {client} from "@repo/db/client";

and in the package.json add this
"@repo/db":"workspace:*"

adding the package is just not enough you have to go to root folder and do pnpm install to make it work properly
now doing the same things in the http folder
npm init -y
npx tsc --init
add this in the package.json folder

```
  "scripts": {
    "build":"tsc -b",
    "dev":"npm run build && npm run start",
    "start":"node dist/index.js"
  },
  "devDependencies": {
    "@repo/db":"workspace:*",
    "@repo/typescript-config":"workspace:*"
  },
```

tsconfig file for the http server

```
{
    "extends":"@repo/typescript-config/base.json",
    "compilerOptions": {
        "rootDir": "./src",
        "outDir": "./dist"
    }
}
```

in the http folder create src folder with index.ts

same for the ws-server

```
npm init -y
npx tsc --init
add this in the package.json folder

    "scripts": {
    "build":"tsc -b",
    "dev":"npm run build && npm run start",
    "start":"node dist/index.js"
  },
  "devDependencies": {
    "@repo/db":"workspace:*",
    "@repo/typescript-config":"workspace:*"
  },

tsconfig file for the http server
{
    "extends":"@repo/typescript-config/base.json",
    "compilerOptions": {
        "rootDir": "./src",
        "outDir": "./dist"
    }
}
in the http folder create src folder with index.ts
```

NOW SETTING UP THE HTTP SERVER

```
pnpm add express @types/express
```

to fix the ts error use this

```
import * as express from "express";
```

to remove the red squiggle we have to restart the ts server
and the ts server restart only comes in the when we are in a ts file

do pnpm install in the root dir if any issues

NOW SETTING UP THE WS SERVER

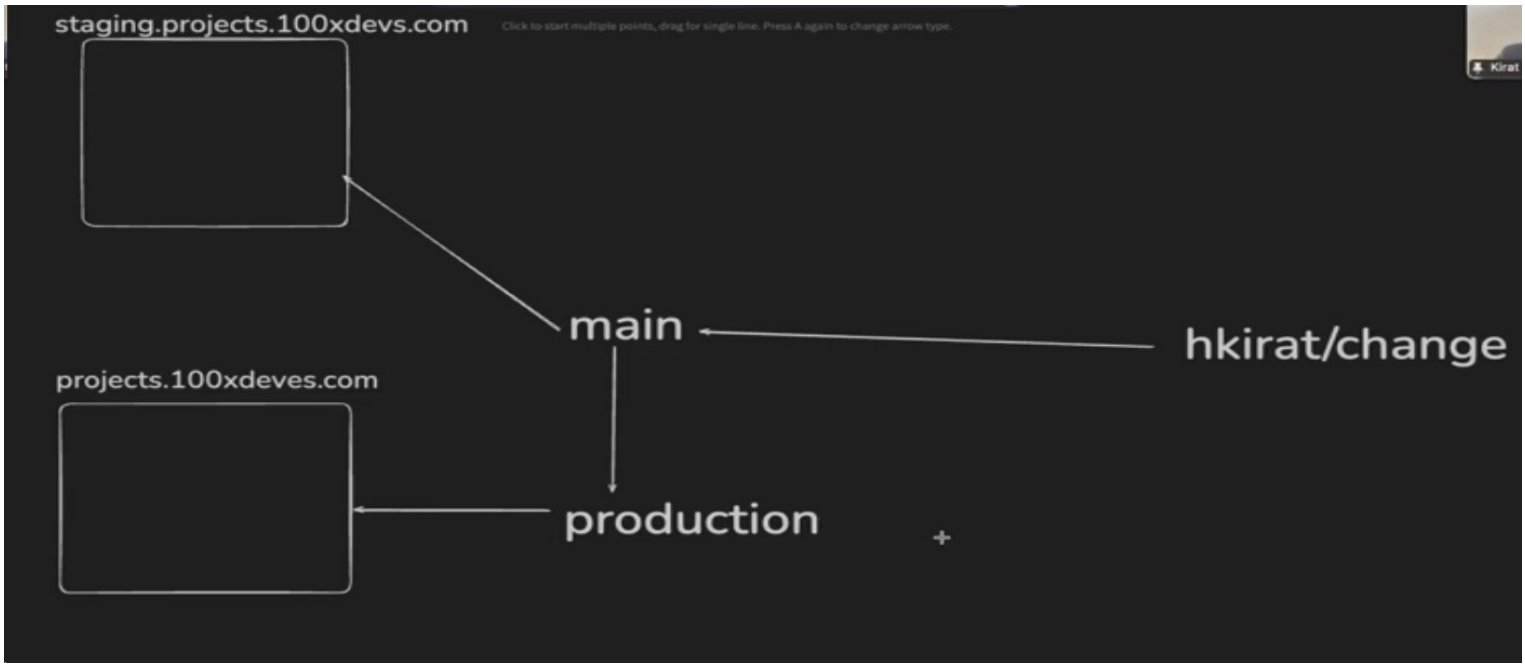
```
pnpm add ws @types/ws
```

now to remove the error of the prisma for nextjs projects

make changes in this

```
generator client {
  provider        = "prisma-client-js"
  output          = "../generated/prisma"
  previewFeatures = ["driverAdapters"]
}

datasource db {
  provider = "postgresql"
  url      = env("DATABASE_URL")
}

model User {
  id       Int    @id @default(autoincrement())
```

```
  username String
  password String
}


pnpm remove prisma @prisma/client
pnpm add -D prisma@6.6.0
pnpm add @prisma/client@6.6.0


bss yahi sahab karke thik hoga

add this to nextjs ki configuration
const nextConfig = {
  transpilePackages: ["@repo/db/client"],
};
```



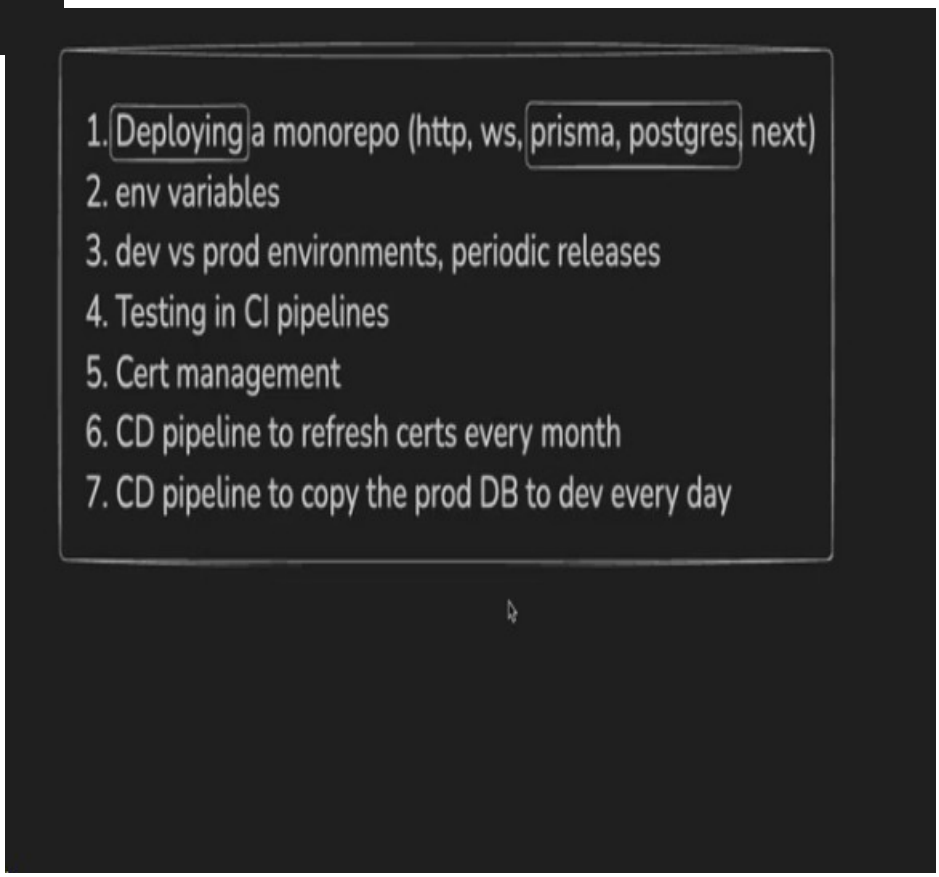
all the devs when pushes to main it shows the work on the staging website and once a week the work is pushed to the production repo and then the original websites sees the changes

creating another branch
git checkout -b production
now the main branch will push to the main website
production branch will push to production website

DEPLOYING THE MONOREPO SERVER

setup two machines and add node and nginx

one more step in this install pnpm

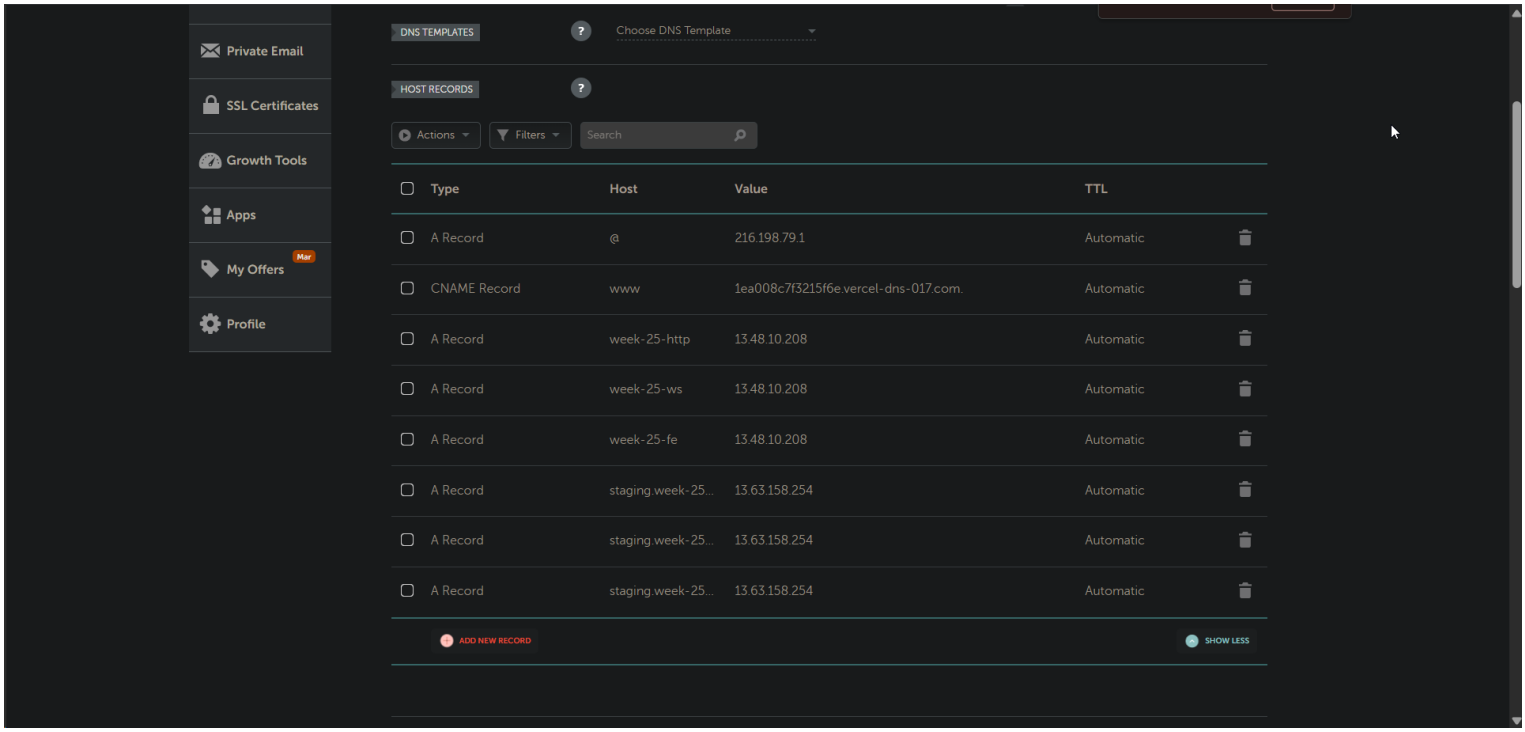


STEP 1
To install node
https://www.digitalocean.com/community/tutorials/how-to-install-node-js-on-ubuntu-20-04

use from step 3 of this

curl -o- https://raw.githubusercontent.com/nvm-sh/nvm/v0.40.3/install.sh | bash

```
source ~/.bashrc
nvm install -lts

to check type node
const x = 1
console.log(x)

STEP 2 nginx
sudo apt update
sudo apt install nginx
```




```
added these ips for prod and dev


npm install -g npm@11.11.0
```

STEP 3
clone the repo

STEP 4
now to start the fe, ws, and http servers
do pnpm install

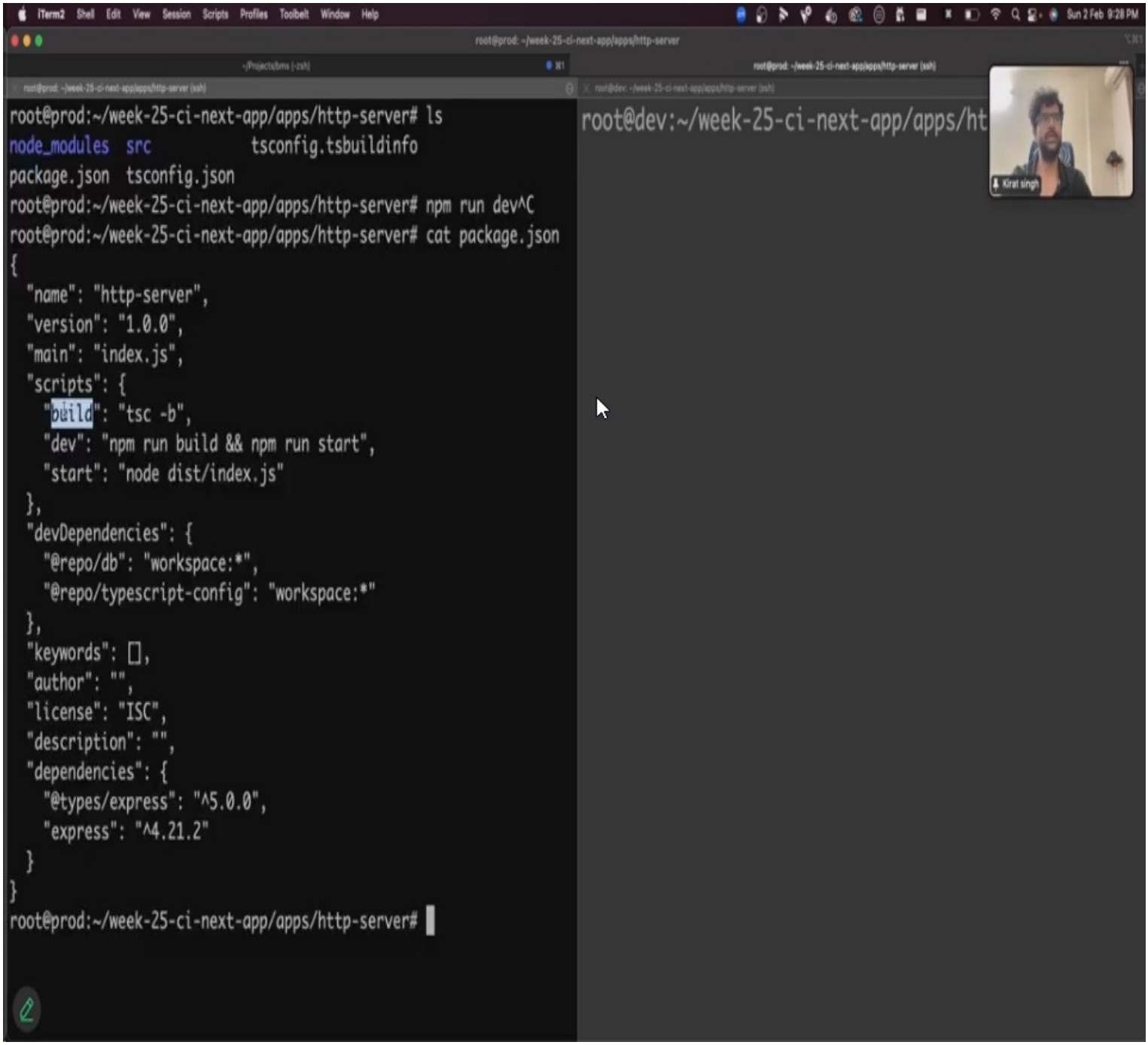
```
sudo fallocate -l 2G /swapfile
sudo chmod 600 /swapfile
sudo mkswap /swapfile
sudo swapon /swapfile

free -h
pnpm install -frozen-lockfile
```

also need to create two db for dev and production

then add the db url to the .env file by going to package/primsa/.env file and adding the urls

and then in both the machines do
npx prisma migrate dev

now after this go to http folder and should I run npm run dev?
No the start command is for production use that but before that run build



pnpm run build

this check passes

iske baad test karne kae liye teeno process thodi chalengye iske liye use hoga process management

pm2 huhuhu

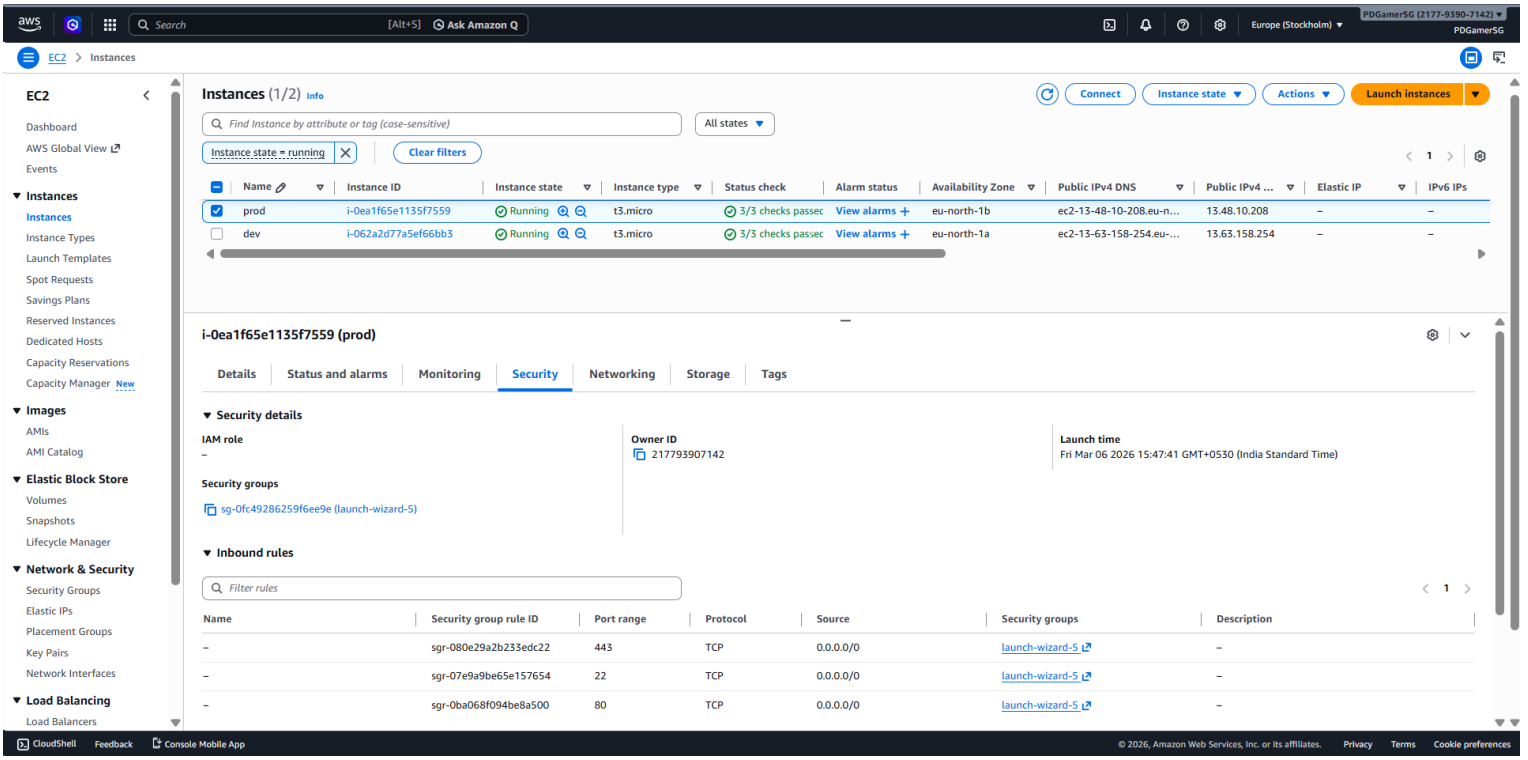
npm install -g pm2

pm2 start npm --name "http-server" -- start
pm2 start npm --name "ws-server" - start
pm2 start npm --name "fe-server" -- start
this helps in keep the server running

pm2 list

do this same in dev server

to make this work need to open these ports also



BY CLICKING ON THE LAUNCH WIZARD YOU HAVE TO ADD THE 3000, 3001, 3002 PORT TO MAKE IT WORK ON THE URL OTHERWISE THE MACHINE URL+ THE PORT WILL NOT WORK
you can check dns using
check dns propagation

http://staging.week-25-http.pallabdas.me:3000,3001,3002

our application is deployed now but
write now the nginx is not setuped thats why we have to use the port and if we change the starting port that does not matter that much

to configure that write

sudo vi /etc/nginx/nginx.conf

to remove everything is this use :%d

```
events {
    # Event directives...
}

http {
        server {
            listen 80;
            server_name staging.week-25-ws.pallabdas.me;
            location / {
                proxy_pass http://localhost:3001;
                proxy_http_version 1.1;
                proxy_set_header Upgrade $http_upgrade;
                proxy_set_header Connection 'upgrade';
                proxy_set_header Host $host;
                proxy_cache_bypass $http_upgrade;
            }
              }
        server {
            listen 80;
            server_name staging.week-25-http.pallabdas.me;
            location / {
                proxy_pass http://localhost:3002;
                proxy_http_version 1.1;
                proxy_set_header Upgrade $http_upgrade;
                proxy_set_header Connection 'upgrade';
                proxy_set_header Host $host;
                proxy_cache_bypass $http_upgrade;
            }
              }
        server {
            listen 80;
            server_name staging.week-25-fe.pallabdas.me;
            location / {
                proxy_pass http://localhost:3000;
                proxy_http_version 1.1;
                proxy_set_header Upgrade $http_upgrade;
                proxy_set_header Connection 'upgrade';
                proxy_set_header Host $host;
                proxy_cache_bypass $http_upgrade;
            }
              }
}
```

after adding the nginx code like this just
use this
sudo nginx -s reload

now all the routes will start working
http://staging.week-25-http.pallabdas.me/
http://week-25-http.pallabdas.me/
just like this replace the http with ws, fe etc
DAMN BRO

NOW THE DEPLOYING OF THE MONOREPO IS DONE LOL JUST THE FIRST STEP

signed commit = this is like in github like with a name just that person can commit not anyone else

now we have to add rules to production branch so that no one else can commit to production branch
THIS IS CALLED AS BRANCH PROTECTION RULES

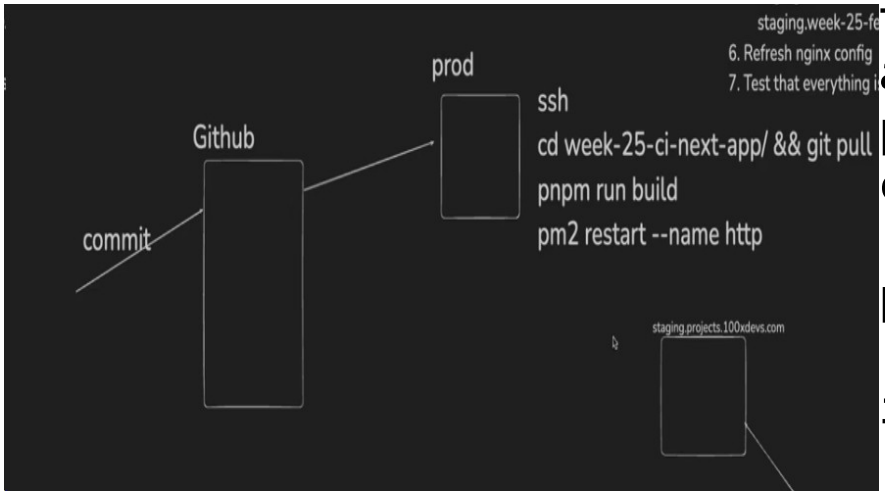
go to github with production branch open settings
go to branches
go to ruleset name
add a target branch by clicking on the include by pattern and then add the production branch

tick restrict deletion
tick signed commits (only pallab can commit as pallab)
Require a pull request before merging(we can add like after 2 people has approved it can be added)

MANUALLY DEPLOYMENT IS ALL DONE

Now if you want to create a continous deployment pipeline
created a.github/workflows/cd_prod.yml, cd_staging.yml

now like imagine you made some changes in the repo and then you want to deploy that to production server so first you will do is git pull



then run pnpm run build and then restart the pm2 server for the changes to see

pm2 restart fe-server

if already running then

if doing again then you have to change the ip in the a records and also start the pm2 again if once the instance is closed

TO RUN THE PNPM COMMAND USE THIS FIRST
sudo fallocate -l 2G /swapfile
sudo chmod 600 /swapfile
sudo mkswap /swapfile
sudo swapon /swapfile
then pnpm turbo run build --concurrency=1

you are busy person you want to automate this you can do this using ci/cd pipeline

for this you will write the yml file

like its like called as **github actions/CI CD Actions** in which the above process is done by github only we manually don’t have to do that

go to setting
secret and variables
actions
then add a secret(the key ec2 gave)

cd_staging.yml

```yaml
name: Deploy to staging

on:
  push:
    branches: [ main ]

jobs:
  redeploy_everything:
    runs-on: ubuntu-latest
    name: Deploying everything to the staging cluster
    steps:
      - run: |
          echo "${{ secrets.SSH_PRIVATE_KEY }}" > ~/ssh_key chmod 600 ~/ssh_key
          ssh -o StrictHostKeyChecking=no -i ~/ssh_key ubuntu@13.49.18.127 <<
          'EOF'
          cd ~/turborepo-project && git pull
          pnpm install
          pnpm run build
          pm2 restart http-server
          pm2 restart fe-server
          pm2 restart ws-server
```

in this the echo lines means that we have added a secret in the github actions it access that secret and that create a ssh key file and then ssh into the machine using that key file and run all the below commands
ez as f

we can validate the yml file using the yml validator online

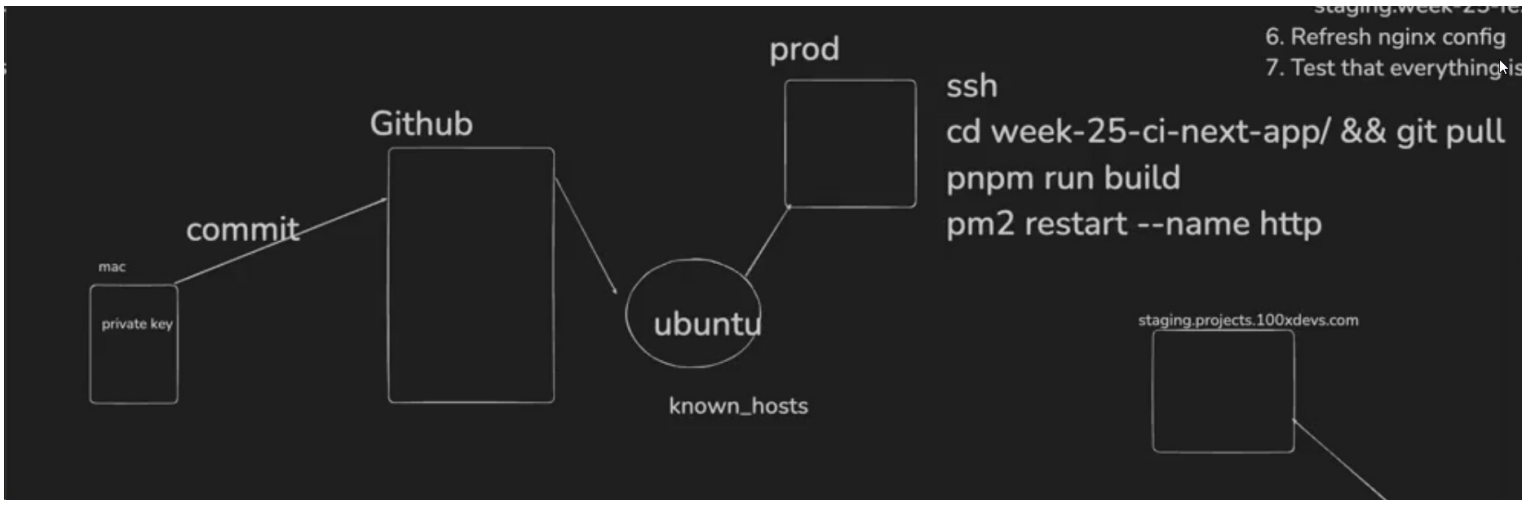
there is problem in this like when we try to access the ec2 using the github actions it shows no access bcoz when we login it asks for yes or no and by default it chooses noo thats the problem

this script fucking god

```
name: Deploy to staging
on:
  push:
    branches: [ main ]

jobs:
  redeploy_everything:
    runs-on: ubuntu-latest
    name: Deploying everything to the staging cluster
    steps:
      - run: |
          echo "${{ secrets.SSH_PRIVATE_KEY }}" &> ~/ssh_key
          mkdir -p /home/runner/.ssh
          ls /home/runner/.ssh
          touch /home/runner/.ssh/known_hosts
          echo "${{ secrets.KNOWN_HOSTS }}" &> /home/runner/.ssh/known_hosts
          chmod 700 /home/runner/ssh_key
          ssh -o StrictHostKeyChecking=no -i ~/ssh_key ubuntu@13.49.18.127 -t "cd turborepo-
project/ && git pull origin main && export
PATH=/home/ubuntu/.nvm/versions/node/v24.14.0/bin:/usr/local/sbin:/usr/local/bin:/usr/sbin:/usr/
bin:/sbin:/bin:/usr/games:/usr/local/games:/snap/bin && npm install -g pnpm && pnpm install &&
pnpm run build && pm2 restart fe-server && pm2 restart http-server && pm2 restart ws-server"
```

IN THIS THE PATH MUST BE TAKEN FROM THE SYSTEM USING THE COMMAND
echo $PATH fucking node path and check the name of ws-server also, change ip also

now its working



same yml for production top par name change to production