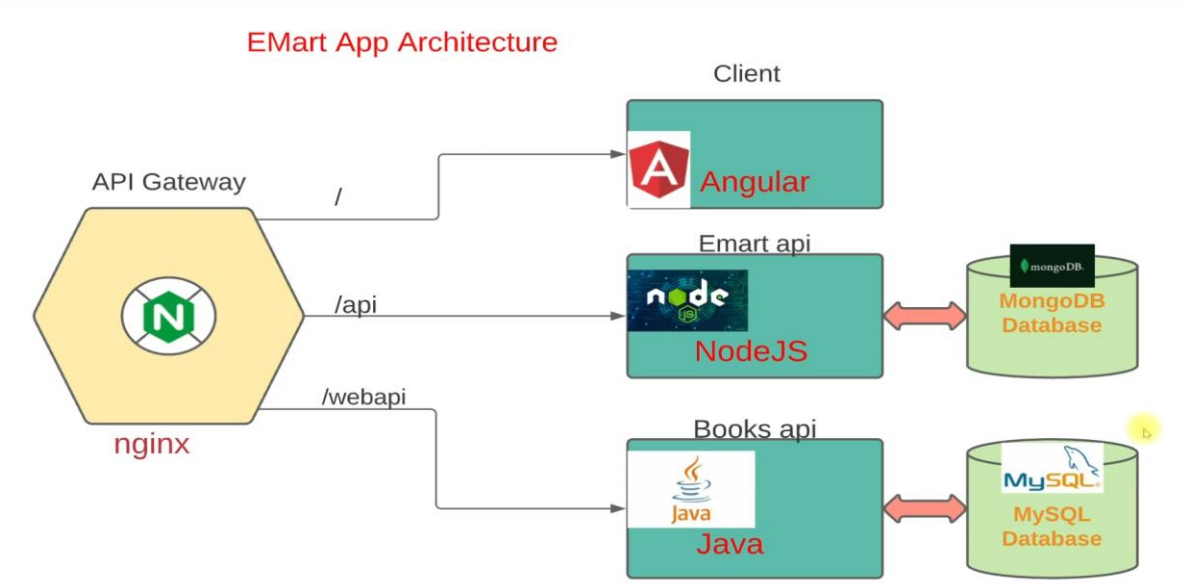
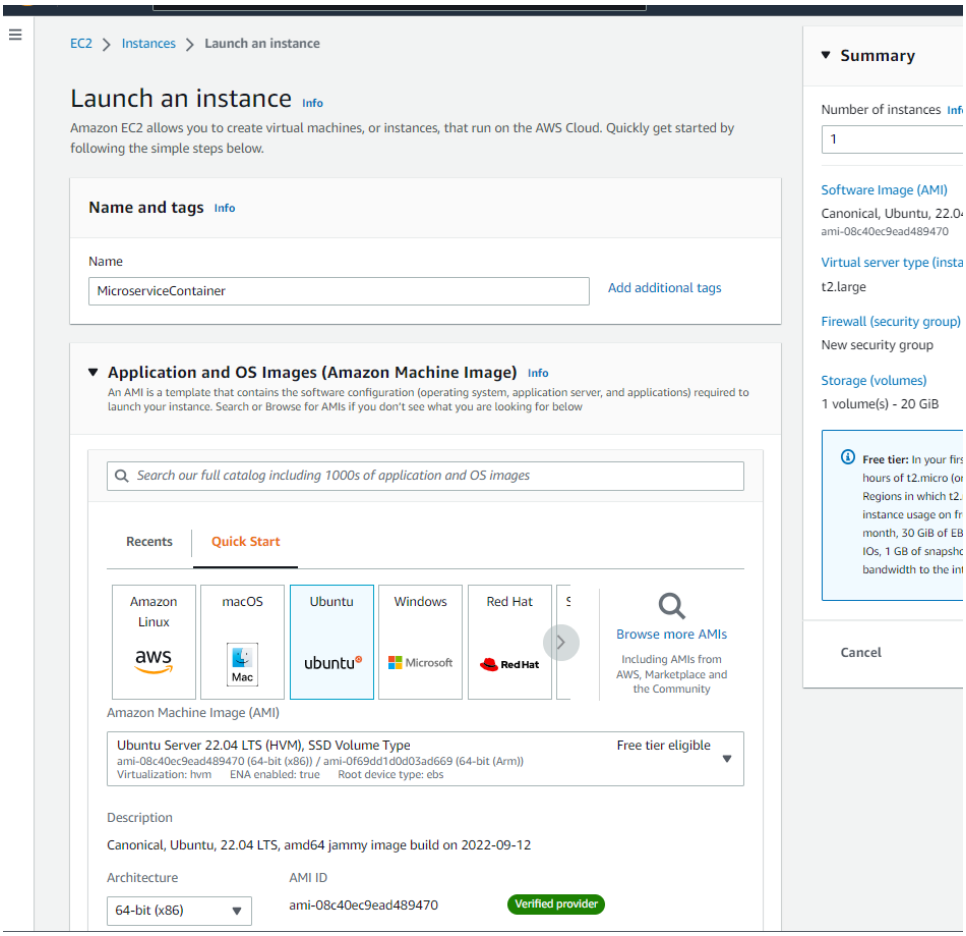
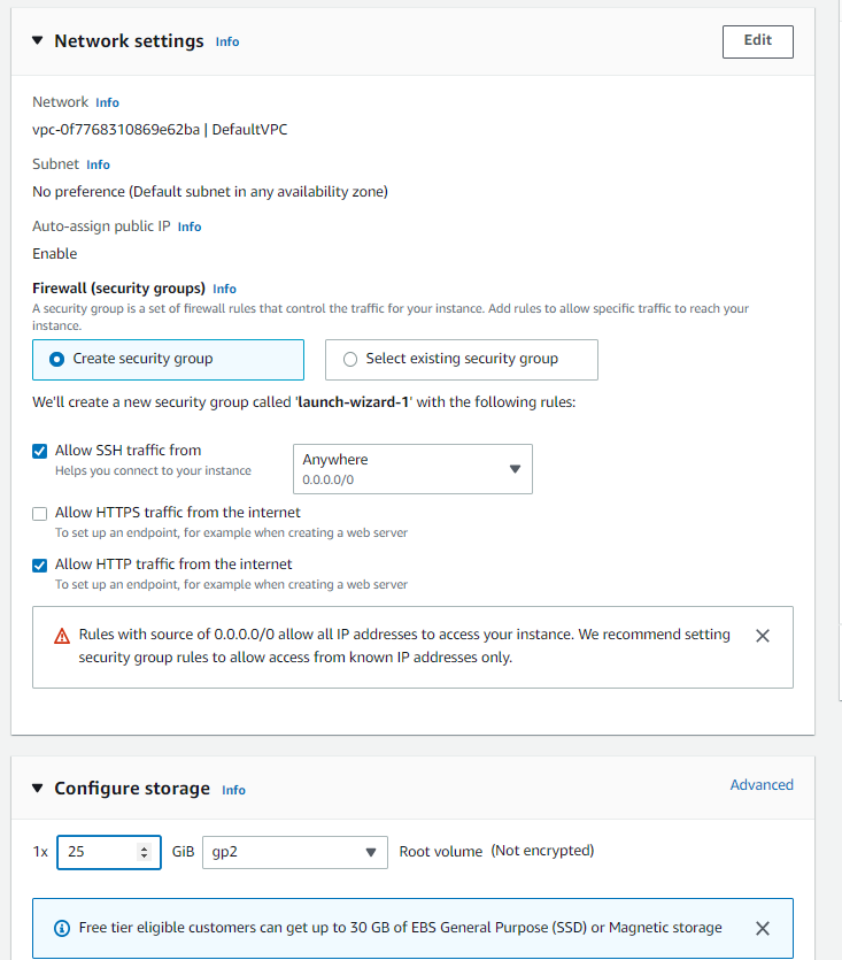
Container Microservice Architecture

This project explains the setup of container Microservice architecture, there are 4 services used in this project api gateway which is in nginx service, it listens for request and route based on the url.If the request is on root, then the Angular client home page will be loading, for backend we have two api's Nodejs and Java, and two databses one for Mongo Db and one for MYsQL DB. Active Containers living in the project are nginx, Angular client, Nide JS, Java Api, Mongo Db and My SQL DB.



1. Launch a EC2 instance with user data for Docker, Docker compose and add user to the docke rgroup.





Add the below user data,

```
#!/bin/bash

# Install docker on Ubuntu
sudo apt-get update
  sudo apt-get install \
    ca-certificates \
    curl \
    gnupg \
    lsb-release -y
  curl -fsSL https://download.docker.com/linux/ubuntu/gpg | sudo gpg --dearmor -o /usr/share/keyrings/docker-archive-keyring.gpg
  echo \
 "deb [arch=$(dpkg --print-architecture) signed-by=/usr/share/keyrings/docker-archive-keyring.gpg] https://download.docker.com/linux/ubuntu \
 $(lsb_release -cs) stable" | sudo tee /etc/apt/sources.list.d/docker.list > /dev/null

# Install docker-compose
  sudo apt-get update
  sudo apt-get install docker-ce docker-ce-cli containerd.io -y
  sudo curl -L "https://github.com/docker/compose/releases/download/1.29.2/docker-compose-$(uname -s)-$(uname -m)" -o /usr/local/bin/docker-compose
  sudo chmod +x /usr/local/bin/docker-compose

# Add ubuntu user into docker group
   sudo usermod -a -G docker ubuntu
```

2. Login to the ubuntu machine

```
ubuntu@ip-172-31-27-42:~$ id
uid=1000(ubuntu) gid=1000(ubuntu) groups=1000(ubuntu),4(adm),20(dialout),24(cdrom),25(floppy),27(sudo),29(audio),30(dip),44(video),46(plugdev),118(netdev),119(lxd),999(docker)
ubuntu@ip-172-31-27-42:~$ docker-compose --version
docker-compose version 1.29.2, build 5becea4c
ubuntu@ip-172-31-27-42:~$
```

3. Clone the source code from Git repo, and execute docker-compose build

https://github.com/devopshydclub/emartapp.git

```
docker-compose version 1.29.2, build 5becea4c
ubuntu@ip-172-31-27-42:~$ git clone https://github.com/devopshydclub/emartapp.git
Cloning into 'emartapp'...
remote: Enumerating objects: 310, done.
remote: Counting objects: 100% (310/310), done.
remote: Compressing objects: 100% (251/251), done.
remote: Total 310 (delta 36), reused 301 (delta 31), pack-reused 0
Receiving objects: 100% (310/310), 3.78 MiB | 40.34 MiB/s, done.
Resolving deltas: 100% (36/36), done.
ubuntu@ip-172-31-27-42:~$ ls
emartapp
ubuntu@ip-172-31-27-42:~$ cd emartapp/
ubuntu@ip-172-31-27-42:~/emartapp$ ls
Dockerfile   README.md  docker-compose.yaml  kkartchart  nodeapi
Jenkinsfile  client     javaapi              nginx       package-lock.json
ubuntu@ip-172-31-27-42:~/emartapp$ docker-compose build
```

4. Show the docke images created in the machine,

```
# Use official nginx image as the base image
FROM nginx:latest

# Copy the build output to replace the default nginx contents.
COPY --from=web-build /usr/src/app/client/dist/client/ /usr/share/nginx/html
COPY nginx.conf /etc/nginx/conf.d/default.conf

# Expose port 4200
EXPOSE 4200
ubuntu@ip-172-31-27-42:~/emartapp/client$ cd ..
ubuntu@ip-172-31-27-42:~/emartapp$ docker images
REPOSITORY        TAG       IMAGE ID       CREATED          SIZE
emartapp_client   latest    a6b345c726ac   13 minutes ago   148MB
<none>            <none>    8bbe3a096924   13 minutes ago   1.44GB
emartapp_webapi   latest    c626454cb7de   15 minutes ago   564MB
<none>            <none>    917527bb6c1f   15 minutes ago   957MB
emartapp_api      latest    1b18259e1408   16 minutes ago   934MB
<none>            <none>    b8891e719a82   16 minutes ago   939MB
node              14        7a8bb5c30f83   4 days ago       916MB
nginx             latest    88736fe82739   4 days ago       142MB
openjdk           8         b273004037cc   3 months ago     526MB
ubuntu@ip-172-31-27-42:~/emartapp$
```

```
emartapp_api      latest    1b18259e1408   16 minutes ago   934MB
<none>            <none>    b8891e719a82   16 minutes ago   939MB
node              14        7a8bb5c30f83   4 days ago       916MB
nginx             latest    88736fe82739   4 days ago       142MB
openjdk           8         b273004037cc   3 months ago     526MB
ubuntu@ip-172-31-27-42:~/emartapp$ docker-compose up
Creating network "emartapp_default" with the default driver
Pulling emongo (mongo:4)...
4: Pulling from library/mongo
eaead16dc43b: Pull complete
8a00eb9f68a0: Pull complete
f683956749c5: Pull complete
b33b2f05ea20: Pull complete
```

5. All the required docker instances are up and running, and the web application is loading from the EC2 machine.