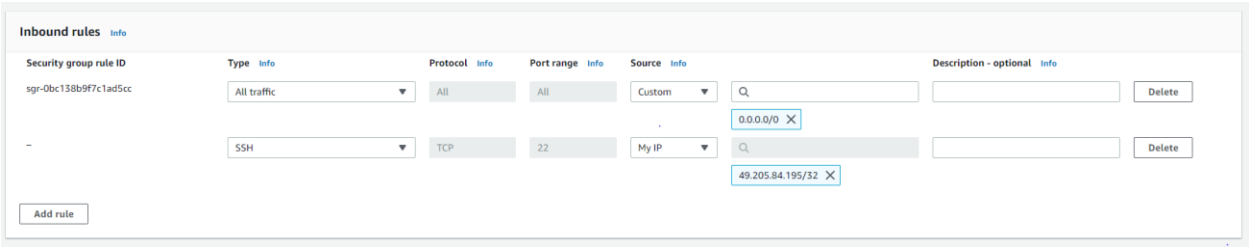
Step1.

EC2 instance with below mentioned **Security Groups.**



Step2.

In EC2 instance installation packages

1. sudo apt-get update
2. sudo apt install docker.io -y
3. sudo apt install docker-compose -y

   <u>adding docker user to the ubuntu group</u>

   sudo usermod -aG docker ubuntu – and restart the terminal

   sudo chmod 777 /var/run/docker.sock
4. Jenkins installation steps

   {Install jdk first - sudo apt install openjdk-11-jre –y

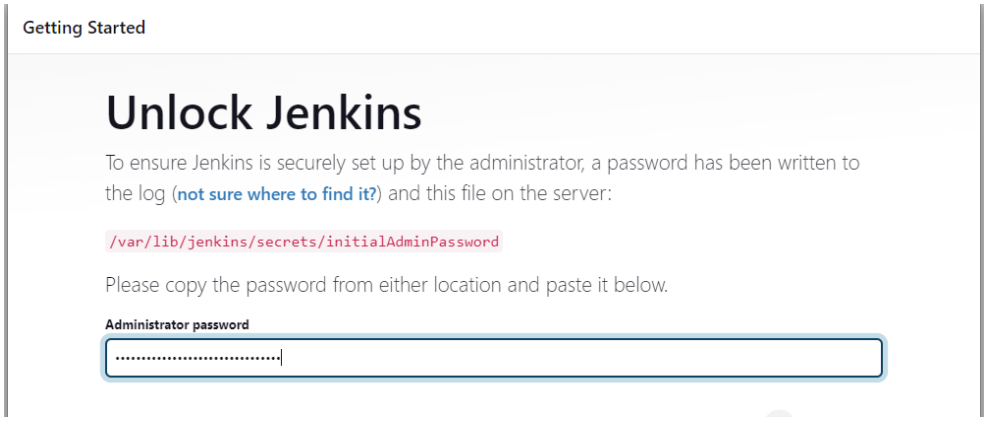
   And following the steps mentioned in this Jenkins website

   https://www.jenkins.io/doc/book/installing/linux/

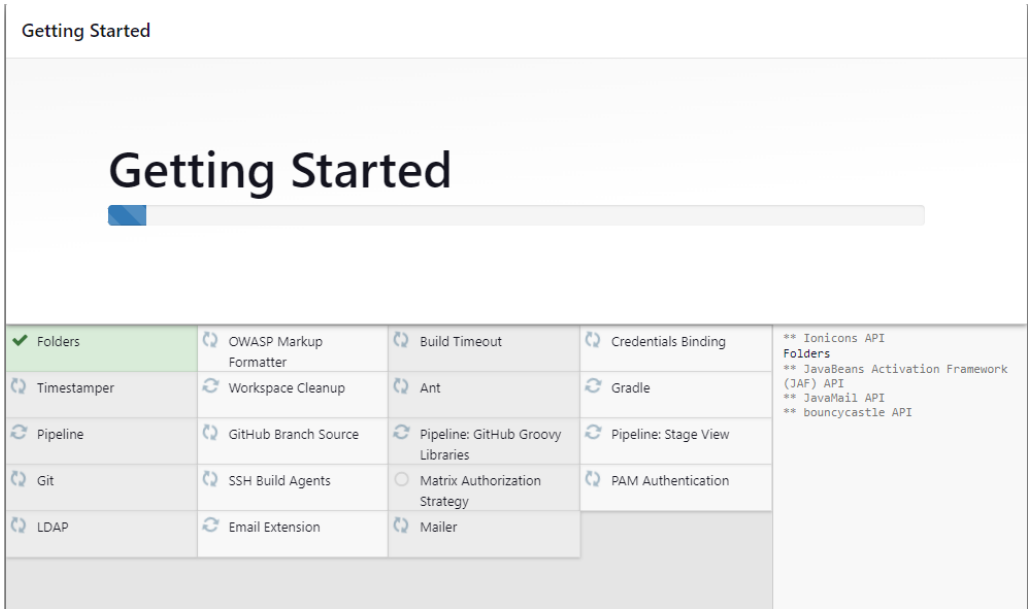
Step3.

Jenkins

sudo cat /var/lib/jenkins/secrets/initialAdminPassword



Installing plug-in



Jenkins Admin User

Description

This is Capstone project

[Plain text] Preview

Discard old builds ?

Strategy

Log Rotation

Days to keep builds

if not empty, build records are only kept up to this number of days

Max # of builds to keep

if not empty, only up to this number of build records are kept

5

This project is parameterized ?

String Parameter ?

Name ?

IMAGE_NAME

Default Value ?

reactjs:version1

Description ?

This parameter for docker image name and version

Git ?

Repositories ?

Repository URL ?

https://github.com/Pakas142/Capstone.git

Credentials ?

Pakas142/****** (git user name and passwords)

Add

Advanced

Add Repository

Branches to build ?

Branch Specifier (blank for 'any') ?

*/master

Branch Specifier (blank for 'any') ?

*/dev

Build Triggers

- [ ] Trigger builds remotely (e.g., from scripts) ?
- [ ] Build after other projects are built ?
- [ ] Build periodically ?
- [x] GitHub hook trigger for GITScm polling ?
- [ ] Poll SCM ?

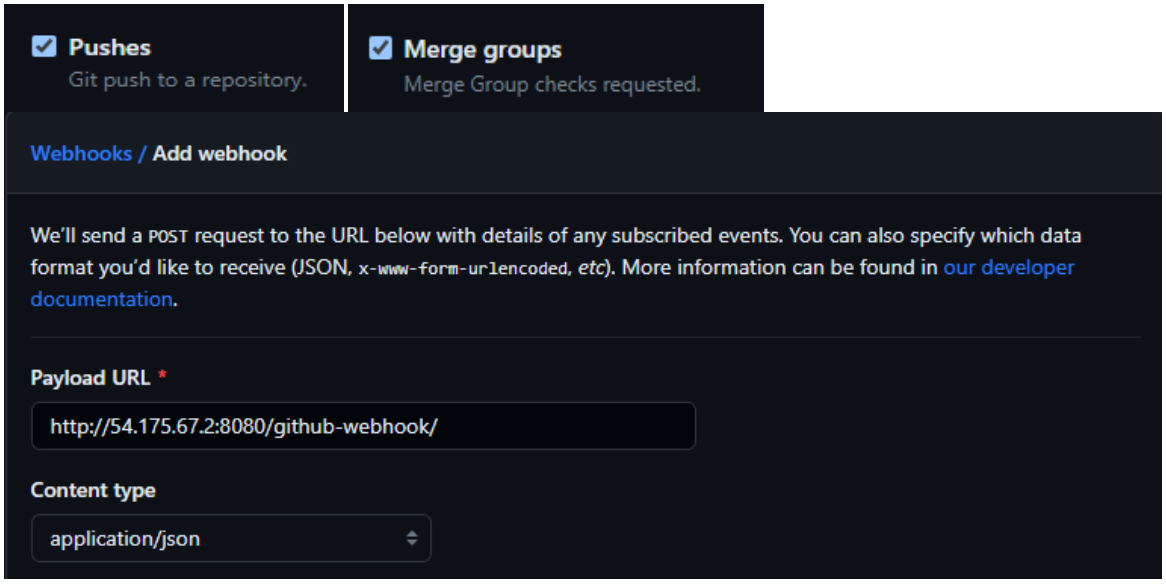
Build Environment

- [x] Delete workspace before build starts

Advanced

- [ ] Use secret text(s) or file(s) ?
- [ ] Add timestamps to the Console Output
- [ ] Inspect build log for published build scans
- [ ] Terminate a build if it's stuck
- [ ] With Ant ?

Github Webhook configuration



Linux CLI Commands

- git clone https://github.com/rvsp/reactjs-demo.git
- cd reactjs-demo/

vi Dockerfile

```
FROM node:16-alpine as build
WORKDIR /usr/app
COPY . /usr/app
RUN npm install
COPY . .
RUN npm run build

FROM nginx:1.21-alpine
RUN rm
/usr/share/nginx/html/index.html
WORKDIR /usr/share/nginx/html/
COPY --from=build /usr/app/build/ ./
EXPOSE 80
CMD ["nginx", "-g", "daemon off;"]
```

vi docker-compose.yml

```
version: "3"
services:
  reactjs:
    image: $IMAGE_NAME
    container_name: reactjs
    ports:
      - "80:80"
```

vi build.sh

```
if [ "$GIT_BRANCH" = "origin/dev" ]; then
   docker stop $(docker ps -aq)
   docker image prune -af
   docker build -t $IMAGE_NAME .
   docker login -u pakas142 -p Pakas@142
   docker tag $IMAGE_NAME pakas142/dev:latest
   docker push pakas142/dev:latest
elif [ "$GIT_BRANCH" = "origin/master" ]; then
   docker stop $(docker ps -aq)
   docker image prune -af
   docker build -t $IMAGE_NAME .
   docker login -u pakas142 -p Pakas@142
   docker tag $IMAGE_NAME pakas142/prod:latest
   docker push pakas142/prod:latest
else echo "either git pull not available in dev or
master "
fi
```

vi deploy.sh

```
docker stop $(docker ps -aq)
docker-compose up -d
docker ps
```

vi .dockerignore

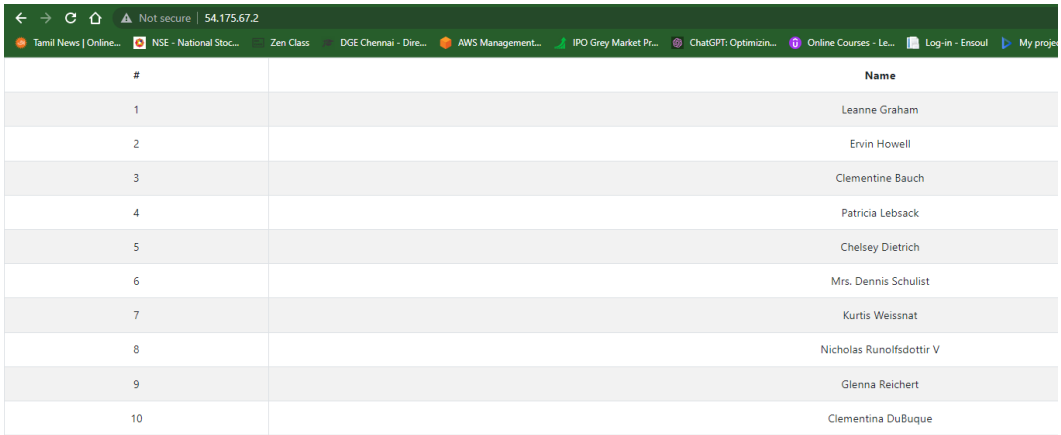
```
node_modules
.gitignore
build.sh
deploy.sh
```

GIT CLI commands

git clone https://github.com/rvsp/reactjs-demo.git
git remote remove origin
git add .
git commit -m "first commit"
git checkout -b master
git remote add origin https://github.com/Pakas142/Capstone.git
git push origin master
git checkout –b dev
git add .
git commit -m "last commit"
git push origin dev
git checkout master
git merge dev

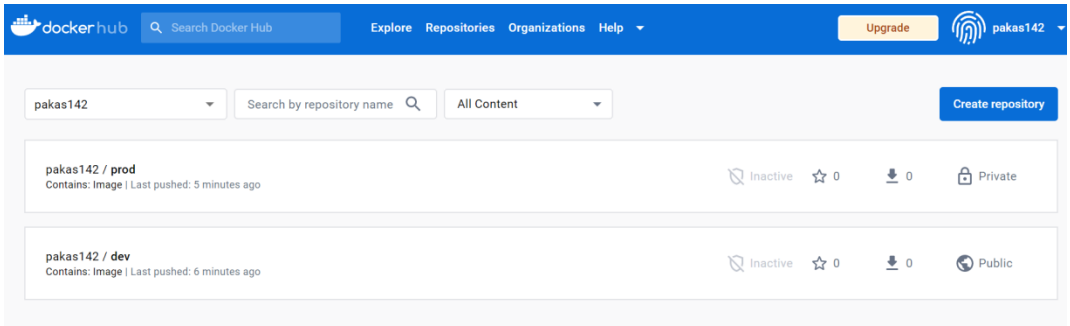
Output of reactjs application

After Jenkins triggered the output be(https://jsonplaceholder.typicode.com/users used this fake address for the output names)



#	Name
1	Leanne Graham
2	Ervin Howell
3	Clementine Bauch
4	Patricia Lebsack
5	Chelsey Dietrich
6	Mrs. Dennis Schulist
7	Kurtis Weissnat
8	Nicholas Runolfsdottir V
9	Glenna Reichert
10	Clementina DuBuque

Pushed image to docker hub



Install monitoring tool (Prometheus & Grafana)

- Creating ec2 instance t2.micro for monitoring
  - cd /opt
  - Sudo wget https://github.com/prometheus/prometheus/releases/download/v2.43.0/prometheus-2.43.0.linux-amd64.tar.gz
  - tar -xvzf prometheus-2.43.0.linux-amd64.tar.gz – untaring
  - sudo cp prometheus promtool /usr/local/bin/
  - ./prometheus --config.file=prometheus.yml &

- After starting Prometheus enter the ipaddress with host of 9090
- http://34.228.157.58:9090/ - Prometheus dashboard
- In deployment server install node exporter
    - cd /opt
    - wget https://github.com/prometheus/node_exporter/releases/download/v1.5.0/node_exporter-1.5.0.linux-amd64.tar.gz
    - tar -xvzf node_exporter-1.5.0.linux-amd64.tar.gz – untaring
    - ./node_exporter – starting a node exporter
- http://54.175.67.2:9100/ - node exporter
- Go to the monitor server and adding the node ip-address and host number in yml file
- then kill the old monitoring Prometheus and start again with this command "./prometheus --config.file=prometheus.yml &"
- Installing Grafana
    - wget https://dl.grafana.com/enterprise/release/grafana-enterprise-9.5.1.linux-amd64.tar.gz
    - cd /opt
    - tar -zxvf grafana-enterprise-9.5.1.linux-amd64.tar.gz – untaring
    - cd bin
    - ./grafana-server & - starting grafana
- 34.228.157.58/3000 – Grafana dashboard monitoring deployment server "Capstone"