

Question1 : You are provided with a ReactJS application and it can be found on the repository with the link provided below.

Create a Dockerfile for this React application and also create image and run the image as container and the output of the ReactJS application should be shown on the localhost.

o/p:

```
C:\Windows\System32\cmd.exe
Microsoft Windows [Version 10.0.22000.1335]
(c) Microsoft Corporation. All rights reserved.

D:\Desktop\kalpana-20a91a04f3\sample_react_aditya_devops>docker login
Authenticating with existing credentials...
Login Succeeded

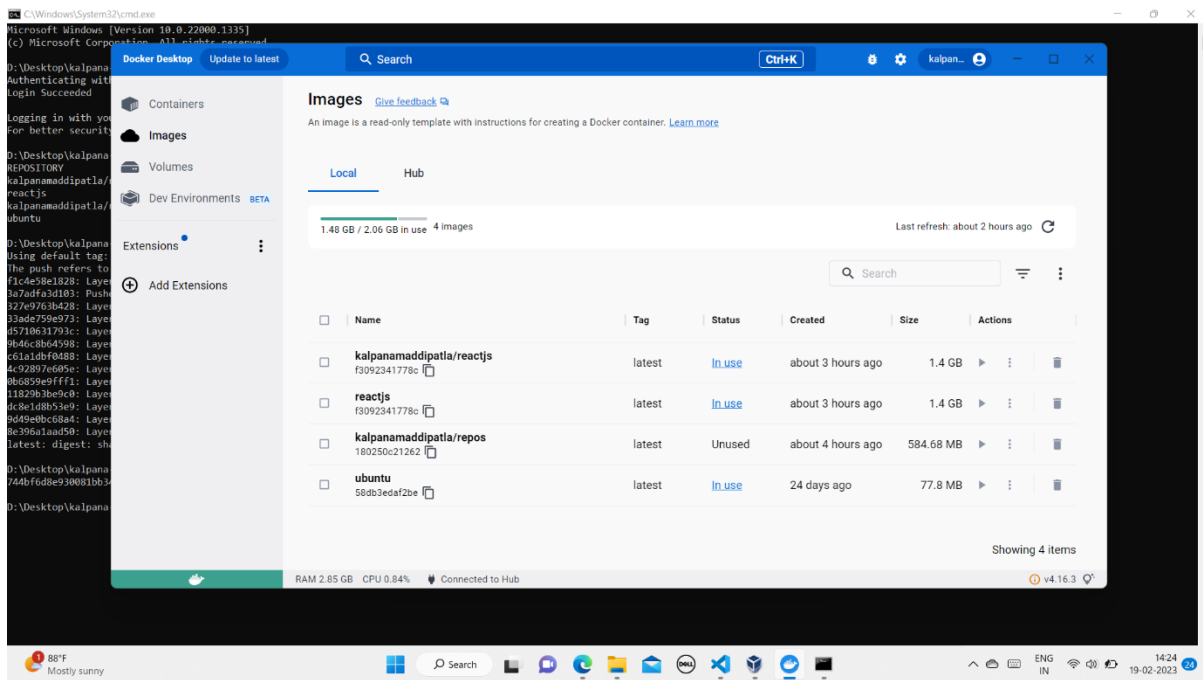
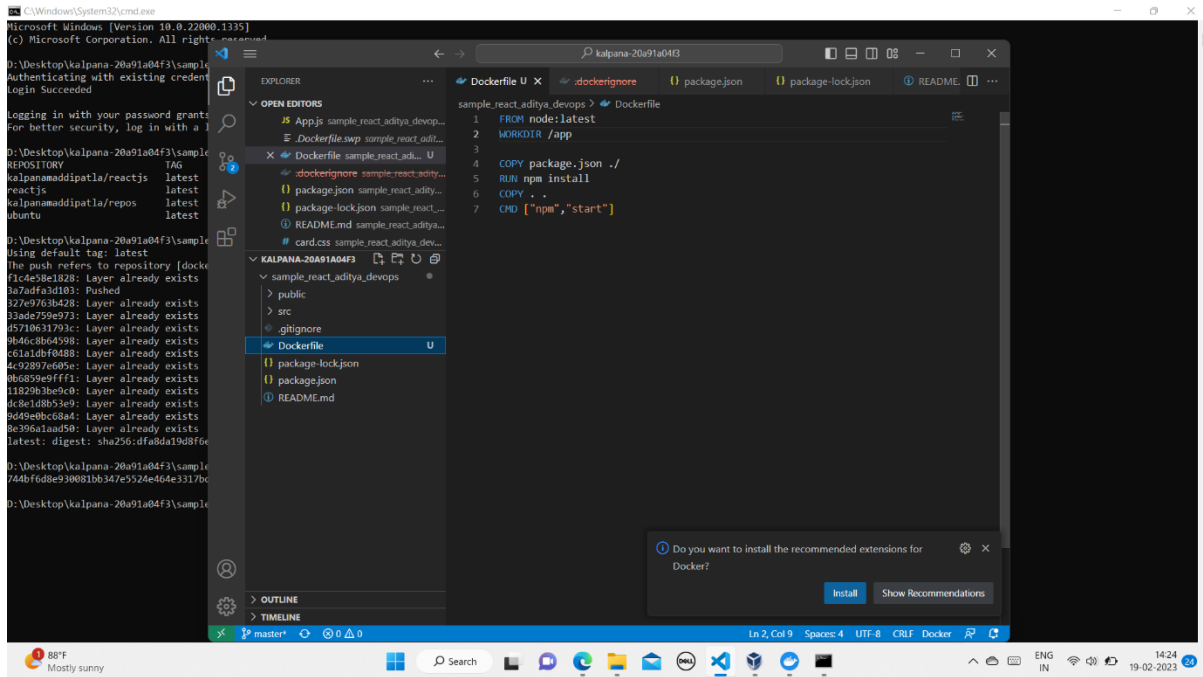
Logging in with your password grants your terminal complete access to your account.
For better security, log in with a limited-privilege personal access token. Learn more at https://docs.docker.com/go/access-tokens/

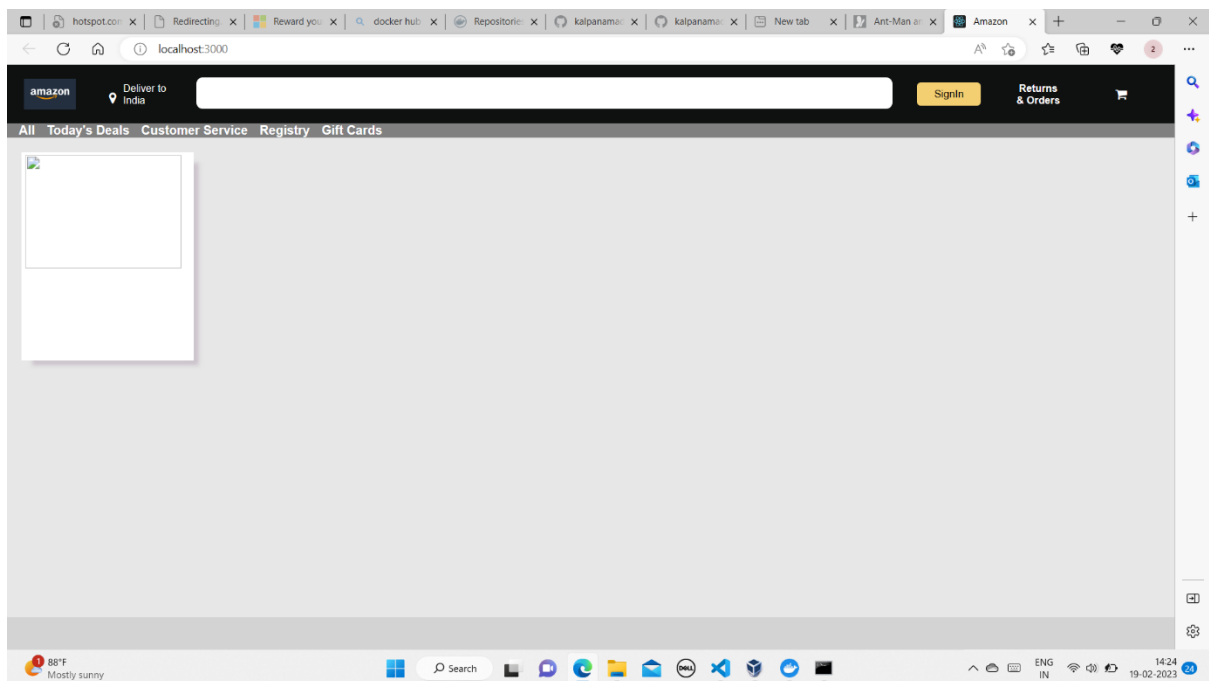
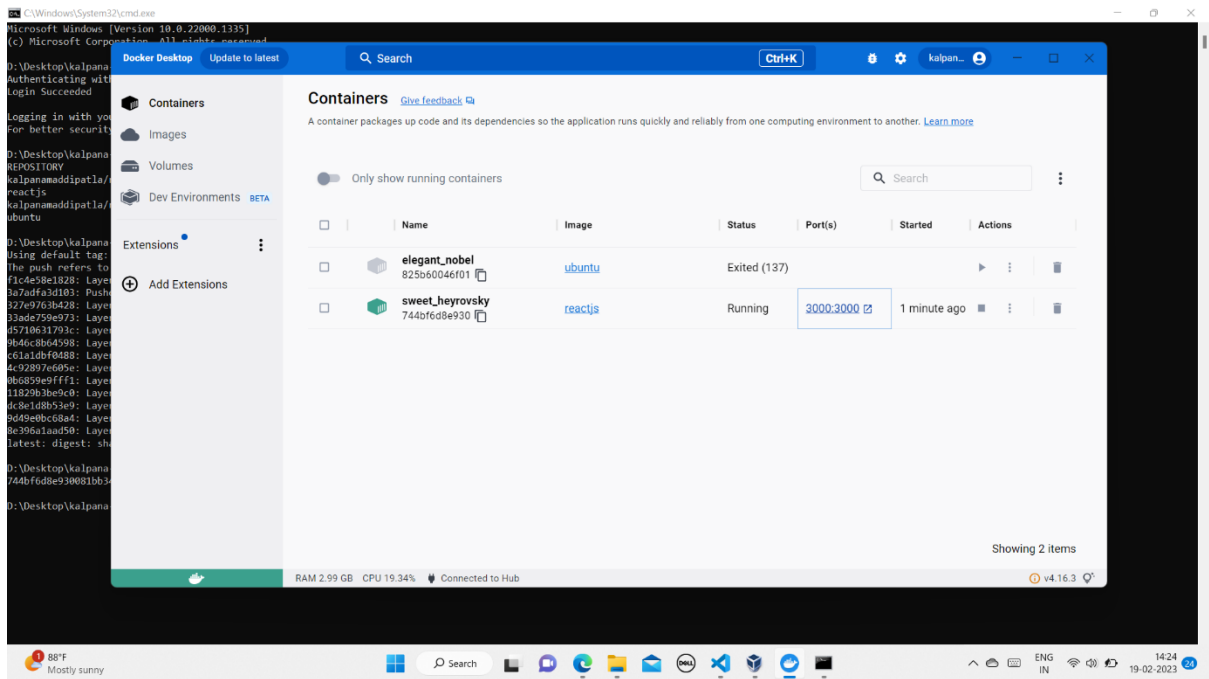
D:\Desktop\kalpana-20a91a04f3\sample_react_aditya_devops>docker images
REPOSITORY          TAG                 IMAGE ID            CREATED             SIZE
kalpanamaddipatla/reactjs   latest             f3092341778c       3 hours ago        1.41GB
reactjs              latest             f3092341778c       3 hours ago        1.41GB
kalpanamaddipatla/repos    latest             180250c21262       4 hours ago        585MB
ubuntu               latest             58db3edaf2be       3 weeks ago        77.8MB

D:\Desktop\kalpana-20a91a04f3\sample_react_aditya_devops>docker push kalpanamaddipatla/reactjs
Using default tag: latest
The push refers to repository [docker.io/kalpanamaddipatla/reactjs]
f1c4e58e1828: Layer already exists
3a7adfa3d103: Pushed
327e9763b428: Layer already exists
33ade759e973: Layer already exists
d5710631793c: Layer already exists
9b46c8b64598: Layer already exists
c61a1dbf0488: Layer already exists
4c92897e605e: Layer already exists
8b6859e9fff1: Layer already exists
11829b3be9c0: Layer already exists
dc8e1d8b53e9: Layer already exists
9d49e0bc68a4: Layer already exists
8e396a1aad50: Layer already exists
latest: digest: sha256:dfa8da19d8f6e8a03788cd89d29b2a038c3120999588c9a5110a777950f3bc9b size: 3052

D:\Desktop\kalpana-20a91a04f3\sample_react_aditya_devops>docker run -d -p 3000:3000 reactjs
744bf6d8e930081bb347e5524e464e3317bd08f47a6e36f3f6d07a478990cc7c

D:\Desktop\kalpana-20a91a04f3\sample_react_aditya_devops>
```





Question 2:

Describe the CI-CD pipeline and also describe the role of Jenkins here.

You have to create a manual ci-cd pipeline through bash script and cron jobs for a nodejs simple application.

For the Node JS application, you can have the same application provided to you on the repository here

```
Activities Terminal Feb 19 02:10
osboxes@osboxes: ~/Desktop/nodejs-activity/nodejs-activity

osboxes@osboxes:~/Desktop$ ls
20A91A04F3 awk.txt checkstatus.sh c1cd-flask deploy.sh kalpana-20A91A04F3 kalpi nodejs-activity sample.sh test.sh
osboxes@osboxes:~/Desktop$ cd nodejs-activity
osboxes@osboxes:~/Desktop/nodejs-activity$ git clone https://github.com/kalpanamaddipatla/nodejs-activity.git
Cloning into 'nodejs-activity'...
remote: Enumerating objects: 515, done.
remote: Counting objects: 100% (515/515), done.
remote: Compressing objects: 100% (398/398), done.
remote: Total 515 (delta 94), reused 515 (delta 94), pack-reused 0
Receiving objects: 100% (515/515), 659.20 KiB | 137.00 KiB/s, done.
Resolving deltas: 100% (94/94), done.
osboxes@osboxes:~/Desktop/nodejs-activity$ sudo apt install nodejs
[sudo] password for osboxes:
Reading package lists... Done
Building dependency tree
Reading state information... Done
The following additional packages will be installed:
  libc-ares2 libnode64 nodejs-doc
Suggested packages:
  npm
The following NEW packages will be installed:
  libc-ares2 libnode64 nodejs nodejs-doc
0 upgraded, 4 newly installed, 0 to remove and 101 not upgraded.
Need to get 6.807 kB of archives.
After this operation, 30.7 MB of additional disk space will be used.
Do you want to continue? [Y/n] Y
Get:1 http://us.archive.ubuntu.com/ubuntu focal-updates/main amd64 libc-ares2 amd64 1.15.0-1ubuntu0.1 [30.2 kB]
Get:2 http://us.archive.ubuntu.com/ubuntu focal/universe amd64 libnode64 amd64 10.19.0-dfsg-3ubuntu1 [5,765 kB]
Get:3 http://us.archive.ubuntu.com/ubuntu focal/universe amd64 nodejs-doc all 10.19.0-dfsg-3ubuntu1 [942 kB]
Get:4 http://us.archive.ubuntu.com/ubuntu focal/universe amd64 nodejs amd64 10.19.0-dfsg-3ubuntu1 [61.1 kB]
Fetched 6.807 kB in 21s (321 kB/s)
Selecting previously unselected package libc-ares2:amd64.
(Reading database ... 185356 files and directories currently installed.)
Preparing to unpack .../libc-ares2_1.15.0-1ubuntu0.1_amd64.deb ...
Unpacking libc-ares2:amd64 (1.15.0-1ubuntu0.1) ...
Selecting previously unselected package libnode64:amd64.
Preparing to unpack .../libnode64_10.19.0-dfsg-3ubuntu1_amd64.deb ...
Unpacking libnode64:amd64 (10.19.0-dfsg-3ubuntu1) ...
Selecting previously unselected package nodejs-doc.
Preparing to unpack .../nodejs-doc_10.19.0-dfsg-3ubuntu1_all.deb ...
Unpacking nodejs-doc (10.19.0-dfsg-3ubuntu1) ...
Selecting previously unselected package nodejs.
Preparing to unpack .../nodejs_10.19.0-dfsg-3ubuntu1_amd64.deb ...
Unpacking nodejs (10.19.0-dfsg-3ubuntu1) ...
Setting up libc-ares2:amd64 (1.15.0-1ubuntu0.1) ...
Setting up libnode64:amd64 (10.19.0-dfsg-3ubuntu1) ...
Setting up nodejs-doc (10.19.0-dfsg-3ubuntu1) ...
Setting up nodejs (10.19.0-dfsg-3ubuntu1) ...
```

```
Activities Terminal Feb 19 02:11
osboxes@osboxes: ~/Desktop/nodejs-activity/nodejs-activity

Unpacking nodejs-doc (10.19.0-dfsg-3ubuntu1) ...
Selecting previously unselected package nodejs.
Preparing to unpack .../nodejs_10.19.0-dfsg-3ubuntu1_amd64.deb ...
Unpacking nodejs (10.19.0-dfsg-3ubuntu1) ...
Setting up libc-ares2:amd64 (1.15.0-1ubuntu0.1) ...
Setting up libnode64:amd64 (10.19.0-dfsg-3ubuntu1) ...
Setting up nodejs-doc (10.19.0-dfsg-3ubuntu1) ...
Setting up nodejs (10.19.0-dfsg-3ubuntu1) ...
update-alternatives: using /usr/bin/nodejs to provide /usr/bin/js (js) in auto mode
Processing triggers for libc-bin (2.31-0ubuntu9.7) ...
Processing triggers for man-db (2.9.1-1) ...
osboxes@osboxes:~/Desktop/nodejs-activity$ ls
nodejs-activity
osboxes@osboxes:~/Desktop/nodejs-activity$ cd nodejs-activity
osboxes@osboxes:~/Desktop/nodejs-activity/nodejs-activity$ ls -l
total 36
-rw-rw-r-- 1 osboxes osboxes 370 Feb 19 01:45 Dockerfile
-rw-rw-r-- 1 osboxes osboxes 222 Feb 19 01:45 index.js
drwxrwxr-x 59 osboxes osboxes 4096 Feb 19 01:45 node_modules
-rw-rw-r-- 1 osboxes osboxes 270 Feb 19 01:45 package.json
-rw-rw-r-- 1 osboxes osboxes 17908 Feb 19 01:45 package-lock.json
osboxes@osboxes:~/Desktop/nodejs-activity/nodejs-activity$ touch checkstatus.sh
osboxes@osboxes:~/Desktop/nodejs-activity/nodejs-activity$ touch test.sh
osboxes@osboxes:~/Desktop/nodejs-activity/nodejs-activity$ nano deploy.sh
osboxes@osboxes:~/Desktop/nodejs-activity/nodejs-activity$ cat deploy.sh
#!/bin/bash
#move to the clone repo or directory
cd /home/osboxes/Desktop/nodejs-activity/nodejs-activity
#pull the code if some changes have been made on the github

git pull
#install any new dependencies coming or any new package
pip install -r requirements.txt
#start the flask server , or restart it if it stopped
if ! pgrep -f "python3 app.py" > /dev/null ;then
    nohup python3 app.py &
fi
osboxes@osboxes:~/Desktop/nodejs-activity/nodejs-activity$ nano deploy.sh
osboxes@osboxes:~/Desktop/nodejs-activity/nodejs-activity$ cat deploy.sh
#!/bin/bash
#move to the clone repo or directory
cd /home/osboxes/Desktop/nodejs-activity/nodejs-activity
#pull the code if some changes have been made on the github
```

```
Activities Terminal Feb 19 02:11
osboxes@osboxes: ~/Desktop/nodejs-activity/nodejs-activity

pip 20.0.2 from /usr/lib/python3/dist-packages/pip (python 3.8)
osboxes@osboxes:~/Desktop/nodejs-activity/nodejs-activity$ chmod +x deploy.sh
osboxes@osboxes:~/Desktop/nodejs-activity/nodejs-activity$ ls -l
total 40
-rw-rw-r-- 1 osboxes osboxes 0 Feb 19 01:48 checkstatus.sh
-rwxrwxr-x 1 osboxes osboxes 402 Feb 19 01:55 deploy.sh
-rw-rw-r-- 1 osboxes osboxes 370 Feb 19 01:45 Dockerfile
-rw-rw-r-- 1 osboxes osboxes 222 Feb 19 01:45 index.js
drwxrwxr-x 59 osboxes osboxes 4096 Feb 19 01:45 node_modules
-rw-rw-r-- 1 osboxes osboxes 270 Feb 19 01:45 package.json
-rw-rw-r-- 1 osboxes osboxes 17908 Feb 19 01:45 package-lock.json
-rw-rw-r-- 1 osboxes osboxes 0 Feb 19 01:48 test.sh
osboxes@osboxes:~/Desktop/nodejs-activity/nodejs-activity$ nano checkstatus.sh
osboxes@osboxes:~/Desktop/nodejs-activity/nodejs-activity$ cat checkstatus.sh
#!/bin/bash

#check if flask is running and provide some output to confirm it

if pgrep -f "python3 app.py" >/dev/null ;then
    echo "Flask is running"
else
    echo "Flask is not running"
fi

osboxes@osboxes:~/Desktop/nodejs-activity/nodejs-activity$ chmod +x checkstatus.sh
osboxes@osboxes:~/Desktop/nodejs-activity/nodejs-activity$ ls -l
total 44
-rwxrwxr-x 1 osboxes osboxes 193 Feb 19 01:59 checkstatus.sh
-rwxrwxr-x 1 osboxes osboxes 402 Feb 19 01:55 deploy.sh
-rw-rw-r-- 1 osboxes osboxes 370 Feb 19 01:45 Dockerfile
-rw-rw-r-- 1 osboxes osboxes 222 Feb 19 01:45 index.js
drwxrwxr-x 59 osboxes osboxes 4096 Feb 19 01:45 node_modules
-rw-rw-r-- 1 osboxes osboxes 270 Feb 19 01:45 package.json
-rw-rw-r-- 1 osboxes osboxes 17908 Feb 19 01:45 package-lock.json
-rw-rw-r-- 1 osboxes osboxes 0 Feb 19 01:48 test.sh
osboxes@osboxes:~/Desktop/nodejs-activity/nodejs-activity$ crontab -e
crontab: installing new crontab
osboxes@osboxes:~/Desktop/nodejs-activity/nodejs-activity$ cat deploy.sh
#!/bin/bash
#move to the clone repo or directory
cd /home/osboxes/Desktop/nodejs-activity/nodejs-activity

#pull the code if some changes have been made on the github
git pull

#install any new dependencies coming or any new package
```

```
Activities Terminal Feb 18 10:53
osboxes@osboxes: ~/Desktop/nodejs-activity/nodejs

nohup python3 app.py &
fi
osboxes@osboxes:~/Desktop/nodejs-activity/nodejs$ ls -l
total 52
-rw-rw-r-- 1 osboxes osboxes 72 Feb 18 10:44 checkstatuslog.txt
-rwxrwxr-x 1 osboxes osboxes 214 Feb 18 10:30 checkstatus.sh
-rw-rw-r-- 1 osboxes osboxes 2628 Feb 18 10:44 deploylog.txt
-rwxrwxr-x 1 osboxes osboxes 395 Feb 18 10:32 deploy.sh
-rw-rw-r-- 1 osboxes osboxes 370 Feb 18 10:27 Dockerfile
-rw-rw-r-- 1 osboxes osboxes 222 Feb 18 10:27 index.js
drwxrwxr-x 59 osboxes osboxes 4096 Feb 18 10:27 node_modules
-rw-rw-r-- 1 osboxes osboxes 270 Feb 18 10:27 package.json
-rw-rw-r-- 1 osboxes osboxes 17908 Feb 18 10:27 package-lock.json
-rw-rw-r-- 1 osboxes osboxes 0 Feb 18 10:31 test.sh
osboxes@osboxes:~/Desktop/nodejs-activity/nodejs$ cat deploylog.txt
Already up to date.
Requirement already satisfied: click==8.0.3 in /home/osboxes/.local/lib/python3.8/site-packages
(from -r requirements.txt (line 1)) (8.0.3)
Requirement already satisfied: Flask==2.0.2 in /home/osboxes/.local/lib/python3.8/site-packages
(from -r requirements.txt (line 2)) (2.0.2)
Requirement already satisfied: itsdangerous==2.0.1 in /home/osboxes/.local/lib/python3.8/site-packages
(from -r requirements.txt (line 3)) (2.0.1)
Requirement already satisfied: Jinja2==3.0.2 in /home/osboxes/.local/lib/python3.8/site-packages
(from -r requirements.txt (line 4)) (3.0.2)
Requirement already satisfied: MarkupSafe==2.0.1 in /home/osboxes/.local/lib/python3.8/site-packages
(from -r requirements.txt (line 5)) (2.0.1)
Requirement already satisfied: Werkzeug==2.0.2 in /home/osboxes/.local/lib/python3.8/site-packages
(from -r requirements.txt (line 6)) (2.0.2)
Already up to date.
Requirement already satisfied: click==8.0.3 in /home/osboxes/.local/lib/python3.8/site-packages
(from -r requirements.txt (line 1)) (8.0.3)
Requirement already satisfied: Flask==2.0.2 in /home/osboxes/.local/lib/python3.8/site-packages
(from -r requirements.txt (line 2)) (2.0.2)
Requirement already satisfied: itsdangerous==2.0.1 in /home/osboxes/.local/lib/python3.8/site-packages
(from -r requirements.txt (line 3)) (2.0.1)
Requirement already satisfied: Jinja2==3.0.2 in /home/osboxes/.local/lib/python3.8/site-packages
(from -r requirements.txt (line 4)) (3.0.2)
Requirement already satisfied: MarkupSafe==2.0.1 in /home/osboxes/.local/lib/python3.8/site-packages
(from -r requirements.txt (line 5)) (2.0.1)
Requirement already satisfied: Werkzeug==2.0.2 in /home/osboxes/.local/lib/python3.8/site-packages
(from -r requirements.txt (line 6)) (2.0.2)
Already up to date.
Requirement already satisfied: click==8.0.3 in /home/osboxes/.local/lib/python3.8/site-packages
(from -r requirements.txt (line 1)) (8.0.3)
Requirement already satisfied: Flask==2.0.2 in /home/osboxes/.local/lib/python3.8/site-packages
(from -r requirements.txt (line 2)) (2.0.2)
Requirement already satisfied: itsdangerous==2.0.1 in /home/osboxes/.local/lib/python3.8/site-packages
(from -r requirements.txt (line 3)) (2.0.1)
Requirement already satisfied: Jinja2==3.0.2 in /home/osboxes/.local/lib/python3.8/site-packages
(from -r requirements.txt (line 4)) (3.0.2)
Requirement already satisfied: MarkupSafe==2.0.1 in /home/osboxes/.local/lib/python3.8/site-packages
```



```
Activities Terminal Feb 18 10:53
osboxes@osboxes: ~/Desktop/nodejs-activity/nodejs
Requirement already satisfied: MarkupSafe==2.0.1 in /home/osboxes/.local/lib/python3.8/site-pack
ages (from -r requirements.txt (line 5)) (2.0.1)
Requirement already satisfied: Werkzeug==2.0.2 in /home/osboxes/.local/lib/python3.8/site-packag
es (from -r requirements.txt (line 6)) (2.0.2)
Already up to date.
Requirement already satisfied: click==8.0.3 in /home/osboxes/.local/lib/python3.8/site-packages
 (from -r requirements.txt (line 1)) (8.0.3)
Requirement already satisfied: Flask==2.0.2 in /home/osboxes/.local/lib/python3.8/site-packages
 (from -r requirements.txt (line 2)) (2.0.2)
Requirement already satisfied: itsdangerous==2.0.1 in /home/osboxes/.local/lib/python3.8/site-pa
ckages (from -r requirements.txt (line 3)) (2.0.1)
Requirement already satisfied: Jinja2==3.0.2 in /home/osboxes/.local/lib/python3.8/site-packages
 (from -r requirements.txt (line 4)) (3.0.2)
Requirement already satisfied: MarkupSafe==2.0.1 in /home/osboxes/.local/lib/python3.8/site-pack
ages (from -r requirements.txt (line 5)) (2.0.1)
Requirement already satisfied: Werkzeug==2.0.2 in /home/osboxes/.local/lib/python3.8/site-packag
es (from -r requirements.txt (line 6)) (2.0.2)
Already up to date.
Requirement already satisfied: click==8.0.3 in /home/osboxes/.local/lib/python3.8/site-packages
 (from -r requirements.txt (line 1)) (8.0.3)
Requirement already satisfied: Flask==2.0.2 in /home/osboxes/.local/lib/python3.8/site-packages
 (from -r requirements.txt (line 2)) (2.0.2)
Requirement already satisfied: itsdangerous==2.0.1 in /home/osboxes/.local/lib/python3.8/site-pa
ckages (from -r requirements.txt (line 3)) (2.0.1)
Requirement already satisfied: Jinja2==3.0.2 in /home/osboxes/.local/lib/python3.8/site-packages
 (from -r requirements.txt (line 4)) (3.0.2)
Requirement already satisfied: MarkupSafe==2.0.1 in /home/osboxes/.local/lib/python3.8/site-pack
ages (from -r requirements.txt (line 5)) (2.0.1)
Requirement already satisfied: Werkzeug==2.0.2 in /home/osboxes/.local/lib/python3.8/site-packag
es (from -r requirements.txt (line 6)) (2.0.2)
osboxes@osboxes:~/Desktop/nodejs-activity/nodejs$ cat checkstatuslog.txt
Flask server is running
Flask server is running
Flask server is running
Flask server is running
osboxes@osboxes:~/Desktop/nodejs-activity/nodejs$
osboxes@osboxes:~/Desktop/nodejs-activity/nodejs$
osboxes@osboxes:~/Desktop/nodejs-activity/nodejs$
```