QUESTION-1:

```
prasanna chowdary@LAPTOP-EH1C7GMN MINGW64 ~/OneDrive/Desktop/task-2/sample_react_aditya_devops (20a91a0429)
$ docker build -t nodeapp .
#1 [internal] load build definition from Dockerfile
#1 sha256:a1275505ba1bc064dcf0d22dcfee1c8f26a86c58fdad2a643ac538e8734ff570
#1 transferring dockerfile: 138B 0.0s done
#1 DONE 0.1s

#2 [internal] load .dockerignore
#2 sha256:8abd5039a5d54d3b880e8fae6aca5ed568312f13f9d56b64c4966c479c81ebd7
#2 transferring context:
#2 transferring context: 2B done
#2 DONE 0.0s

#3 [internal] load metadata for docker.io/library/node:alpine
#3 sha256:440cd33ff514df5503750388d638f6b0bbb72e04f006adc8bd2850fc89ac6073
#3 ...

#4 [auth] library/node:pull token for registry-1.docker.io
#4 sha256:7df5f61c266317ceef277e06d05a83efa9cbab4b187c697176d2b0acdcea3ea2
#4 DONE 0.0s

#3 [internal] load metadata for docker.io/library/node:alpine
#3 sha256:440cd33ff514df5503750388d638f6b0bbb72e04f006adc8bd2850fc89ac6073
#3 DONE 7.1s

#5 [1/5] FROM docker.io/library/node:alpine@sha256:78fa26eb2b8081e9005253e816ed75eaf6f828feeca1e1956f476356f050d816
#5 sha256:28befcffdfaeb3be937304d757568842634b355650b869ee4a0cb0677e6ae91b
#5 resolve docker.io/library/node:alpine@sha256:78fa26eb2b8081e9005253e816ed75eaf6f828feeca1e1956f476356f050d816 0.0s done
#5 sha256:78fa26eb2b8081e9005253e816ed75eaf6f828feeca1e1956f476356f050d816 1.43kB / 1.43kB done
#5 sha256:64b0af3059f2471184168d366aa5a9fbad9c29e104e87e35336d03e409a27623 1.16kB / 1.16kB done
#5 sha256:4615c4abcbab35281fd1189dd2dbbdea0b251eb4d0a7db3462d8bb4f80285518 6.44kB / 6.44kB done
#5 sha256:2012da848ea4fd3e46323afa054b6a85d42b81a969b79f2d0ac371b2e54016eb 0B / 48.05MB 0.1s
#5 sha256:5ac0500b54c02f53fcbc496baecc4a8f3d8acb353d93b112be7453764b7135a9 0B / 2.35MB 0.1s
#5 sha256:63b65145d645c1250c391b2d16ebe53b3747c295ca8ba2fcb6b0cf064a4dc21c 0B / 3.37MB 0.2s
#5 ...

#7 [internal] load build context
#7 sha256:53fb27c4f3ccb27337fb53539400b05cdb74f6bb5ea7a22c3fc9a2cedb8ed951
#7 transferring context: 1.68MB 0.4s done
#7 DONE 0.5s

#5 [1/5] FROM docker.io/library/node:alpine@sha256:78fa26eb2b8081e9005253e816ed75eaf6f828feeca1e1956f476356f050d816
#5 sha256:28befcffdfaeb3be937304d757568842634b355650b869ee4a0cb0677e6ae91b
#5 sha256:2012da848ea4fd3e46323afa054b6a85d42b81a969b79f2d0ac371b2e54016eb 3.15MB / 48.05MB 2.2s
#5 sha256:5ac0500b54c02f53fcbc496baecc4a8f3d8acb353d93b112be7453764b7135a9 1.05MB / 2.35MB 2.9s
#5 sha256:2012da848ea4fd3e46323afa054b6a85d42b81a969b79f2d0ac371b2e54016eb 6.29MB / 48.05MB 4.1s
#5 sha256:5ac0500b54c02f53fcbc496baecc4a8f3d8acb353d93b112be7453764b7135a9 2.10MB / 2.35MB 4.5s
#5 sha256:5ac0500b54c02f53fcbc496baecc4a8f3d8acb353d93b112be7453764b7135a9 2.35MB / 2.35MB 4.8s
```

```
#11 exporting layers 8.2s done
#11 writing image sha256:f25c72fe1972840d8da7a54ee51ddb85dde3de04ffd41366111bc7c88e4c2f79 done
#11 naming to docker.io/library/nodeapp done
#11 DONE 8.3s

Use 'docker scan' to run Snyk tests against images to find vulnerabilities and learn how to fix them

prasanna chowdary@LAPTOP-EH1C7GMN MINGW64 ~/OneDrive/Desktop/task-2/sample_react_aditya_devops (20a91a0429)
$ 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/

prasanna chowdary@LAPTOP-EH1C7GMN MINGW64 ~/OneDrive/Desktop/task-2/sample_react_aditya_devops (20a91a0429)
$ docker info
Client:
 Context:    default
 Debug Mode: false
 Plugins:
  buildx: Docker Buildx (Docker Inc., v0.10.0)
  compose: Docker Compose (Docker Inc., v2.15.1)
  dev: Docker Dev Environments (Docker Inc., v0.0.5)
  extension: Manages Docker extensions (Docker Inc., v0.2.17)
  sbom: View the packaged-based Software Bill Of Materials (SBOM) for an image (Anchore Inc., 0.6.0)
  scan: Docker Scan (Docker Inc., v0.23.0)

Server:
 Containers: 0
  Running: 0
  Paused: 0
  Stopped: 0
 Images: 1
 Server Version: 20.10.22
 Storage Driver: overlay2
  Backing Filesystem: extfs
  Supports d_type: true
  Native Overlay Diff: true
  userxattr: false
 Logging Driver: json-file
 Cgroup Driver: cgroupfs
 Cgroup Version: 1
 Plugins:
  Volume: local
  Network: bridge host ipvlan macvlan null overlay
  Log: awslogs fluentd gcplogs gelf journald json-file local logentries splunk syslog
 Swarm: inactive
 Runtimes: io.containerd.runc.v2 io.containerd.runtime.v1.linux runc
```

```
MINGW64:/c/Users/prasanna chowdary/OneDrive/Desktop/task-2/sample_react_aditya_devops

WARNING: No blkio throttle.write_bps_device support
WARNING: No blkio throttle.read_iops_device support
WARNING: No blkio throttle.write_iops_device support

prasanna chowdary@LAPTOP-EH1C7GMN MINGW64 ~/OneDrive/Desktop/task-2/sample_react_aditya_devops (20a91a0429)
$ docker images
REPOSITORY    TAG       IMAGE ID       CREATED          SIZE
nodeapp       latest    f25c72fe1972   About a minute ago   585MB

prasanna chowdary@LAPTOP-EH1C7GMN MINGW64 ~/OneDrive/Desktop/task-2/sample_react_aditya_devops (20a91a0429)
$ docker tag nodeapp:latest prasannamaddipati/nodeapp

prasanna chowdary@LAPTOP-EH1C7GMN MINGW64 ~/OneDrive/Desktop/task-2/sample_react_aditya_devops (20a91a0429)
$ docker push prasannamaddipati/nodeapp
Using default tag: latest
The push refers to repository [docker.io/prasannamaddipati/nodeapp]
0beb9fc920a7: Preparing
5f076e89ab8b: Preparing
629800609133: Preparing
90ec69686bd4: Preparing
ac2cf0b27220: Preparing
73181d522b46: Preparing
4a3c4267f4ec: Preparing
7cd52847ad77: Preparing
73181d522b46: Waiting
4a3c4267f4ec: Waiting
7cd52847ad77: Waiting
ac2cf0b27220: Mounted from library/node
629800609133: Pushed
90ec69686bd4: Pushed
0beb9fc920a7: Pushed
73181d522b46: Mounted from library/node
7cd52847ad77: Mounted from library/node
4a3c4267f4ec: Mounted from library/node
5f076e89ab8b: Pushed
latest: digest: sha256:ea9d59eaa2f10b2df06d416b5e983bede3dbf230e4573dc55753c5a2b5ac6bc1 size: 1995

prasanna chowdary@LAPTOP-EH1C7GMN MINGW64 ~/OneDrive/Desktop/task-2/sample_react_aditya_devops (20a91a0429)
$ docker run -d 3000:3000 nodeapp
Unable to find image '3000:3000' locally
docker: Error response from daemon: pull access denied for 3000, repository does not exist or may require 'docker login': denied: requested access to the resource is denied.
See 'docker run --help'.

prasanna chowdary@LAPTOP-EH1C7GMN MINGW64 ~/OneDrive/Desktop/task-2/sample_react_aditya_devops (20a91a0429)
$ docker run -d -p 3000:3000 nodeapp
3be058c04e8801610d0b4eb63cd96c3d4765f0f1204bc6448038114641433bc9

prasanna chowdary@LAPTOP-EH1C7GMN MINGW64 ~/OneDrive/Desktop/task-2/sample_react_aditya_devops (20a91a0429)
$
```

Docker Desktop   Upgrade plan

Images Give feedback

An image is a read-only template with instructions for creating a Docker container. Learn more

Local   Hub

Refresh to see disk usage   2 images   Last refresh: 19 minutes ago

	Name	Tag	Status	Created	Size	Actions
	nodeapp f25c72fe1972	latest	In use	14 minutes ago	584.68 MB	▶ ⋮ 🗑
	prasannamaddipati/nodeapp f25c72fe1972	latest	In use	14 minutes ago	584.68 MB	▶ ⋮ 🗑

Showing 2 items

Containers
Images
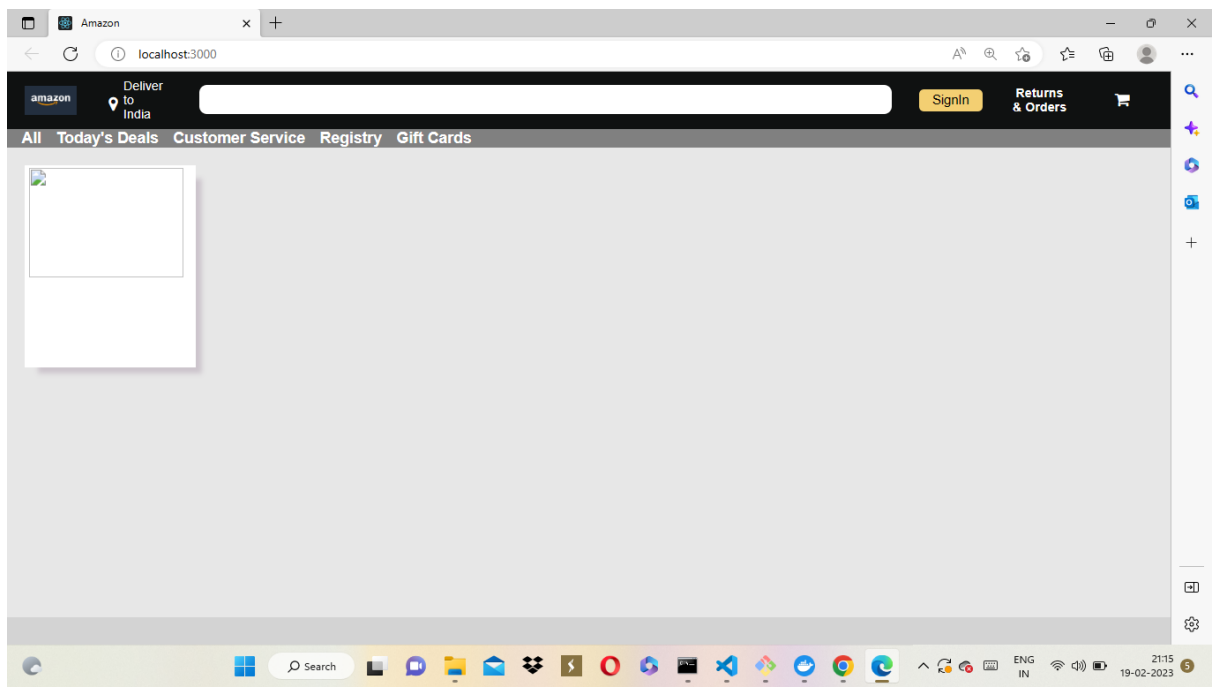Volumes
Dev Environments BETA

Extensions
Add Extensions

RAM 2.68 GB   CPU 27.77%   Connected to Hub   v4.16.3
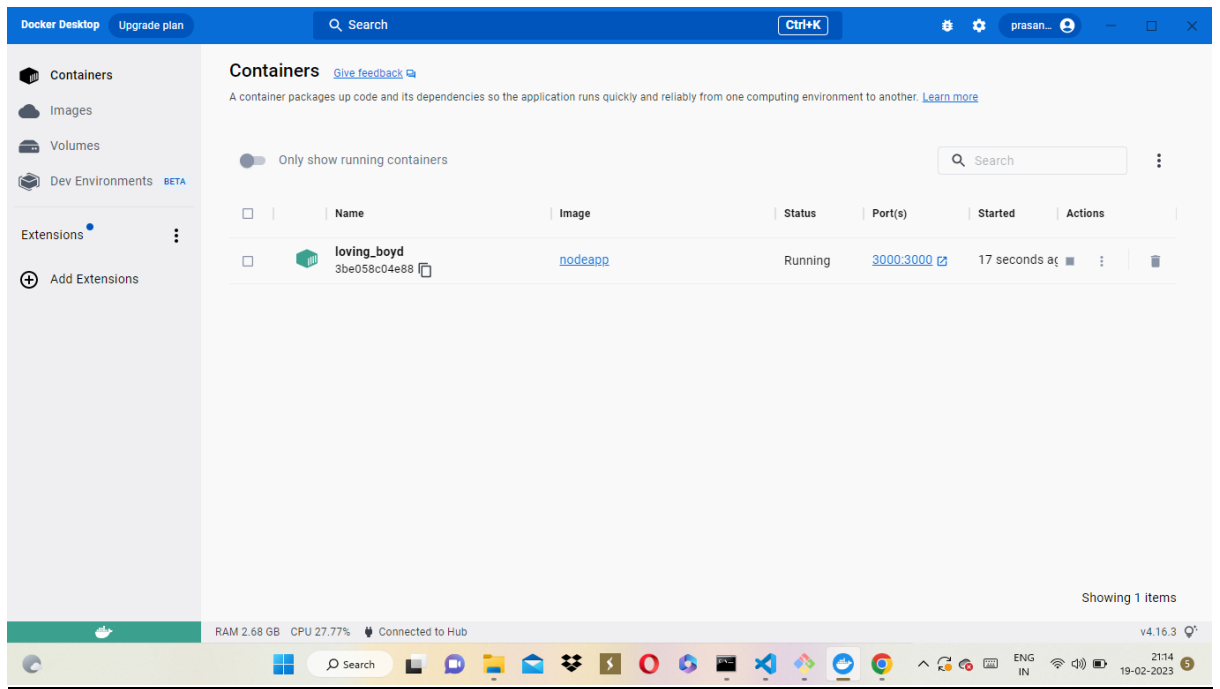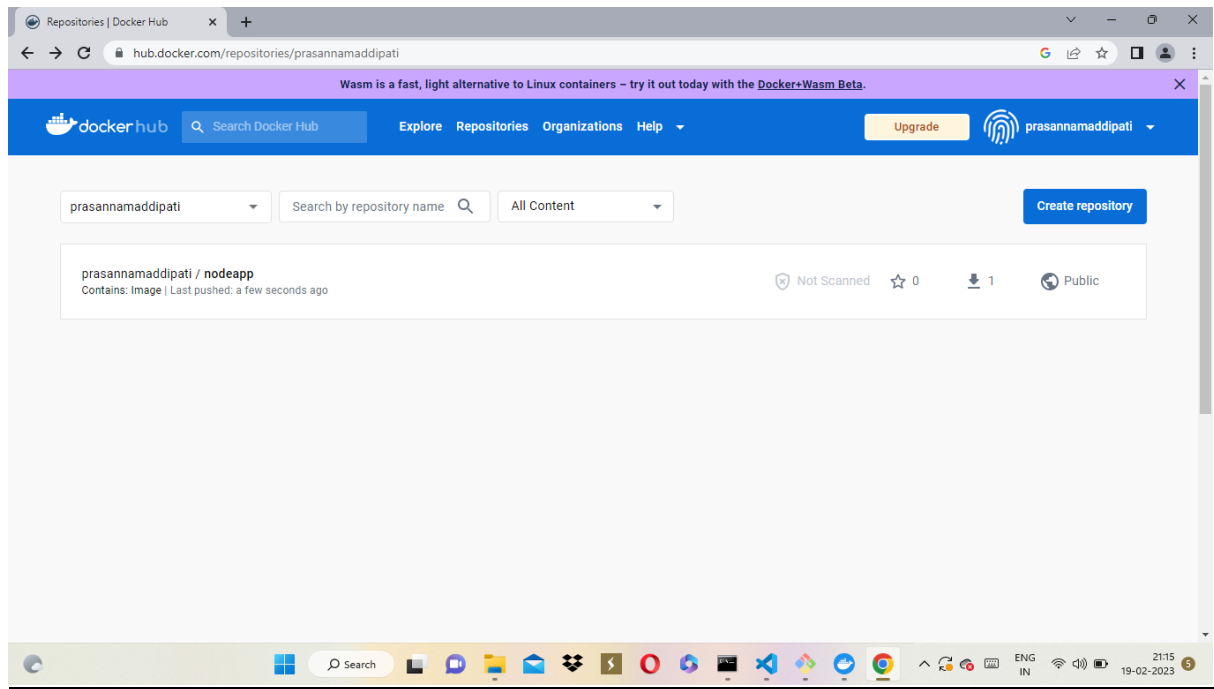
QUESTION-2:

CI-CD PIPELINE:

- It means continuous integration and continuous deployment.

- It is a method to frequently deliver apps to customers by introducing automation into the stages of continuous delivery, and continuous deployment

- Continuous deployment is a strategy in software development where code changes to an application are released automatically into the production environment.

- Continuous integration is the practice of automating the integration of code changes from multiple contributors into a single software project.

PROCESS OF CI-CD PIPELINE:

1.Code

2.Fetch

3.Build

4.Test

5.Notify

6.Feedback

- Code--->Merge--->Build--->Test Automatically deploy to production.
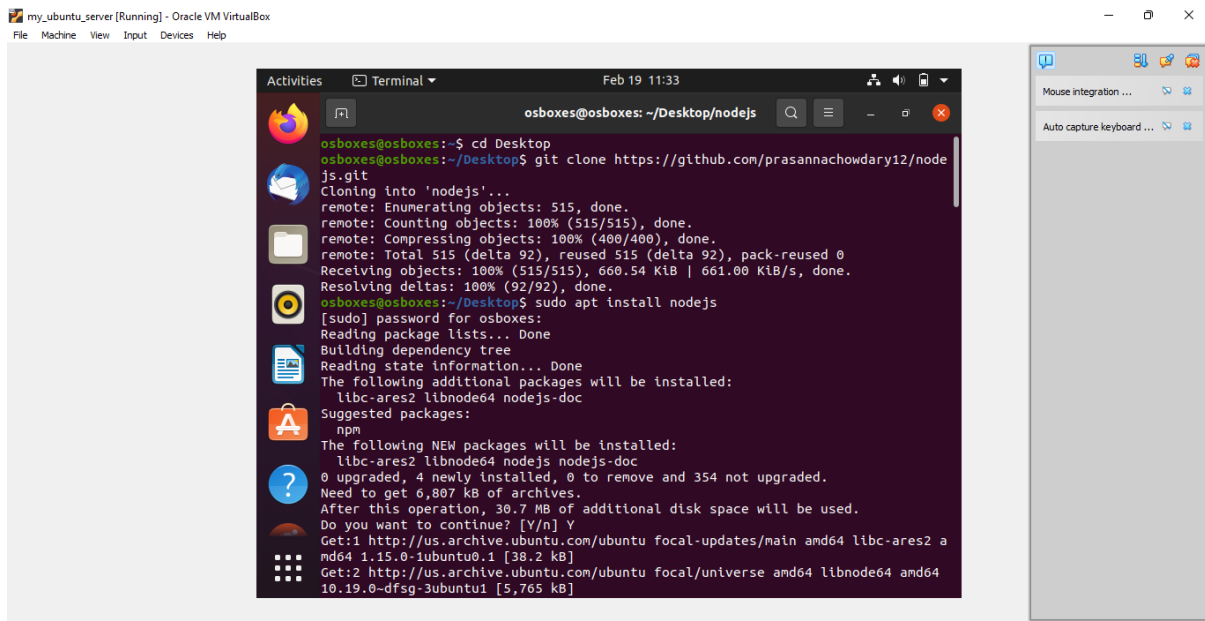
JENKINS:

- It is an opensource automation server.

  - Building
  - Testing
  - Deploying

- It is used to implement CI-CD workflows, called pipelines.

- Jenkins is used to build and test the software projects continuously making it easier for developers to integrate changes to the project, and making it easier for users to obtain a fresh build.

- It also allows you to continuously deliver your software by integrating with a large number of testing and deployment technologies.

ADVANTAGES:

1.It is easy to install.

2.It is free of cost

3.It is an opensource tool with a great community support.

File   Machine   View   Input   Devices   Help

Activities   Terminal ▾   Feb 19 11:34

osboxes@osboxes: ~/Desktop/nodejs

```
Processing triggers for man-db (2.9.1-1) ...
osboxes@osboxes:~/Desktop$ ls
herovired  learn.txt  learn.txt.save  nodejs
osboxes@osboxes:~/Desktop$ cd nodejs
osboxes@osboxes:~/Desktop/nodejs$ ls
Dockerfile  index.js  node_modules  package.json  package-lock.json
osboxes@osboxes:~/Desktop/nodejs$ ls -l
total 36
-rw-rw-r--  1 osboxes osboxes    370 Feb 19 11:01 Dockerfile
-rw-rw-r--  1 osboxes osboxes    222 Feb 19 11:01 index.js
drwxrwxr-x 59 osboxes osboxes   4096 Feb 19 11:01 node_modules
-rw-rw-r--  1 osboxes osboxes    270 Feb 19 11:01 package.json
-rw-rw-r--  1 osboxes osboxes  17908 Feb 19 11:01 package-lock.json
osboxes@osboxes:~/Desktop/nodejs$ touch deploy.sh
osboxes@osboxes:~/Desktop/nodejs$ touch checkstatus.sh
osboxes@osboxes:~/Desktop/nodejs$ touch test.sh
osboxes@osboxes:~/Desktop/nodejs$ nano deploy.sh
osboxes@osboxes:~/Desktop/nodejs$ cat deploy.sh
#!usr/bin/bash
cd /home/osboxes/Desktop/nodejs
git pull
pip install -r requirements.txt
if ! pgrep -f "nodejs" > /dev/null ; then
     nohup nodejs  &
fi
osboxes@osboxes:~/Desktop/nodejs$ sudo apt-get install pip
[sudo] password for osboxes:
Reading package lists... Done
Building dependency tree
```

File   Machine   View   Input   Devices   Help

Activities   Terminal ▾   Feb 19 11:35

osboxes@osboxes: ~/Desktop/nodejs

```
fi
osboxes@osboxes:~/Desktop/nodejs$ sudo apt-get install pip
[sudo] password for osboxes:
Reading package lists... Done
Building dependency tree
Reading state information... Done
Note, selecting 'python3-pip' instead of 'pip'
python3-pip is already the newest version (20.0.2-5ubuntu1.7).
0 upgraded, 0 newly installed, 0 to remove and 354 not upgraded.
osboxes@osboxes:~/Desktop/nodejs$ pip --version
pip 20.0.2 from /usr/lib/python3/dist-packages/pip (python 3.8)
osboxes@osboxes:~/Desktop/nodejs$ chmod +x deploy.sh
osboxes@osboxes:~/Desktop/nodejs$ ls -l
total 40
-rw-rw-r--  1 osboxes osboxes      0 Feb 19 11:11 checkstatus.sh
-rwxrwxr-x  1 osboxes osboxes    154 Feb 19 11:19 deploy.sh
-rw-rw-r--  1 osboxes osboxes    370 Feb 19 11:01 Dockerfile
-rw-rw-r--  1 osboxes osboxes    222 Feb 19 11:01 index.js
drwxrwxr-x 59 osboxes osboxes   4096 Feb 19 11:01 node_modules
-rw-rw-r--  1 osboxes osboxes    270 Feb 19 11:01 package.json
-rw-rw-r--  1 osboxes osboxes  17908 Feb 19 11:01 package-lock.json
-rw-rw-r--  1 osboxes osboxes      0 Feb 19 11:11 test.sh
osboxes@osboxes:~/Desktop/nodejs$ nano checkstatus.sh
osboxes@osboxes:~/Desktop/nodejs$ cat checkstatus.sh
#!usr/bin/bash
if pgrep -f "nodejs" > /dev/null ; then
     echo "flask server is running"
else
     echo "flask server is not running"
```

Screenshot 1 — Terminal (my_ubuntu_server [Running] - Oracle VM VirtualBox)

```
osboxes@osboxes:~/Desktop/nodejs$ chmod +x checkstatus.sh
osboxes@osboxes:~/Desktop/nodejs$ ls -l
total 44
-rwxrwxr-x  1 osboxes osboxes   135 Feb 19 11:22 checkstatus.sh
-rwxrwxr-x  1 osboxes osboxes   154 Feb 19 11:19 deploy.sh
-rw-rw-r--  1 osboxes osboxes   370 Feb 19 11:01 Dockerfile
-rw-rw-r--  1 osboxes osboxes   222 Feb 19 11:01 index.js
drwxrwxr-x 59 osboxes osboxes  4096 Feb 19 11:01 node_modules
-rw-rw-r--  1 osboxes osboxes   270 Feb 19 11:01 package.json
-rw-rw-r--  1 osboxes osboxes 17908 Feb 19 11:01 package-lock.json
-rw-rw-r--  1 osboxes osboxes     0 Feb 19 11:11 test.sh
osboxes@osboxes:~/Desktop/nodejs$ crontab -e
crontab: installing new crontab
osboxes@osboxes:~/Desktop/nodejs$ cat deploy.sh
#!usr/bin/bash
cd /home/osboxes/Desktop/nodejs
git pull
pip install -r requirements.txt
if ! pgrep -f "nodejs" > /dev/null ; then
    nohup nodejs  &
fi
osboxes@osboxes:~/Desktop/nodejs$ ls -l
total 44
-rwxrwxr-x  1 osboxes osboxes   135 Feb 19 11:22 checkstatus.sh
-rwxrwxr-x  1 osboxes osboxes   154 Feb 19 11:19 deploy.sh
-rw-rw-r--  1 osboxes osboxes   370 Feb 19 11:01 Dockerfile
-rw-rw-r--  1 osboxes osboxes   222 Feb 19 11:01 index.js
drwxrwxr-x 59 osboxes osboxes  4096 Feb 19 11:01 node_modules
-rw-rw-r--  1 osboxes osboxes   270 Feb 19 11:01 package.json
```


Screenshot 2 — Terminal (my_ubuntu_server [Running] - Oracle VM VirtualBox)

```
osboxes@osboxes:~/Desktop/nodejs$ ls -l
total 44
-rwxrwxr-x  1 osboxes osboxes   135 Feb 19 11:22 checkstatus.sh
-rwxrwxr-x  1 osboxes osboxes   154 Feb 19 11:19 deploy.sh
-rw-rw-r--  1 osboxes osboxes   370 Feb 19 11:01 Dockerfile
-rw-rw-r--  1 osboxes osboxes   222 Feb 19 11:01 index.js
drwxrwxr-x 59 osboxes osboxes  4096 Feb 19 11:01 node_modules
-rw-rw-r--  1 osboxes osboxes   270 Feb 19 11:01 package.json
-rw-rw-r--  1 osboxes osboxes 17908 Feb 19 11:01 package-lock.json
-rw-rw-r--  1 osboxes osboxes     0 Feb 19 11:11 test.sh
osboxes@osboxes:~/Desktop/nodejs$ cat deploylog.txt
/bin/sh: 1: /home/osboxes/Desktop/nodejs/deploy.sh: not found
osboxes@osboxes:~/Desktop/nodejs$ cat checkstatuslog.txt
/bin/sh: 1: /home/osboxes/Desktop/nodejs/checkstatus.sh: not found
/bin/sh: 1: /home/osboxes/Desktop/nodejs/checkstatus.sh: not found
osboxes@osboxes:~/Desktop/nodejs$ crontab -e
crontab: installing new crontab
osboxes@osboxes:~/Desktop/nodejs$ cat deploy.sh
#!usr/bin/bash
cd /home/osboxes/Desktop/nodejs
git pull
pip install -r requirements.txt
if ! pgrep -f "nodejs" > /dev/null ; then
    nohup nodejs  &
fi
osboxes@osboxes:~/Desktop/nodejs$ ls -l
total 52
-rw-rw-r--  1 osboxes osboxes   335 Feb 19 11:30 checkstatuslog.txt
-rwxrwxr-x  1 osboxes osboxes   135 Feb 19 11:22 checkstatus.sh
```