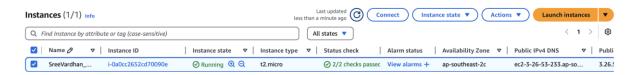
## **CSE322 Cloud Computing**

Lab-4.2.2025

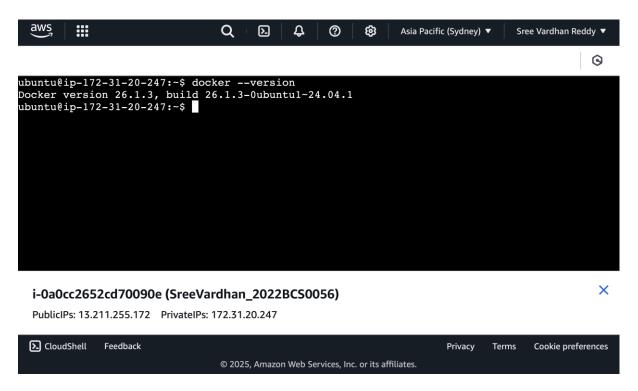
Name: Sree Vardhan Reddy

Roll no: 2022BCS0056

### STARTING INSTANCE

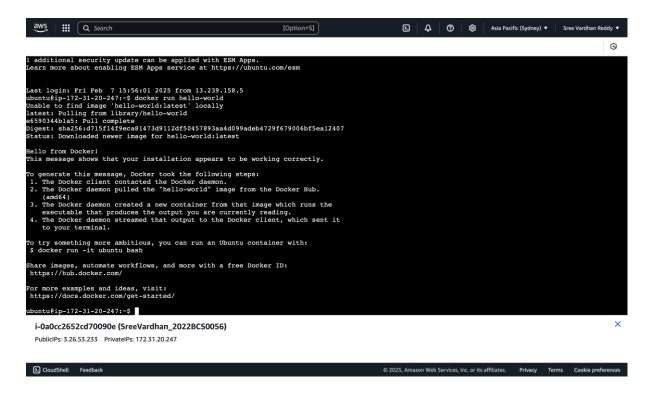


## **DOCKER INSTALLATION**



Task 1: Explore atleast 8 docker commands after installing docker container on AWS EC2 instance.

## 1. Helloworld in docker



2. ps command: gives the running container names.



3.docker images: gives the image names that are found

```
ubuntu@ip-172-31-20-247:-$ docker images
REPOSITORY TAG IMAGE ID CREATED SIZE
hello-world latest 74cc54e27dc4 2 weeks ago 10.1kB
ubuntu@ip-172-31-20-247:-$
```

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## 4. docker pull nginx

```
ubuntu@ip-172-31-20-247:-$ docker pull nginx
Using default tag: latest
latest: Pulling from library/nginx
c29f5b76f736: Pull complete
e19db845ladb: Pull complete
24ff42a0d907: Pull complete
24ff42a0d907: Pull complete
c558df217949: Pull complete
6788b0bala32: Pull complete
6c78b0bala32: Pull complete
84cade77a831: Pull complete
84cade77a831: Pull complete
S4cade77a831: Pull complete
S4cade77a831: Pull complete
6c78b0bala32: Pull complete
6c78b0bala32: Pull complete
84cade77a831: Pull complete
6c78b0bala32: Pull complete
6c78b0bala32: Pull complete
84cade77a831: Pull complete
84cade77a831: Pull complete
6c78b0bala32: Pull complete
```

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# 5. docker rmi nginx

```
ubuntu@ip-172-31-20-247:-$ docker rmi nginx
Untagged: nginx@sha256:91734281cOebfc6flaea979cffeed5079cfe786228a71cc6flf46a228cde6e34
Deleted: sha256:97662d24417b316f60607afbca9f226a2ba58f09d642f27b8e197a89859ddc8e
Deleted: sha256:370743f4a662caa24478adaea2f35df5e064b030d5ae991f99d559cf80484103
Deleted: sha256:d5d7a9136c37528de696c22750013876035584c16bfce28f4bc5f6d232af6803
Deleted: sha256:d4f33622e2347fa63ba6c3e6adbd9bd53ed3aa46d28bbc8040a06b1d5965b241
Deleted: sha256:0712905f64a4cd60835ld3de55b34debcale7f2b43d8105c49df767b84ce6064
Deleted: sha256:870227b568adc7ac6b9fa4cb7758622126b793a6b70826266e8eda0bf7e071f2
Deleted: sha256:43797ede8397d2c49d364065a734b0bele2f4a546c77451902156e66383efb2
Deleted: sha256:7914c8f600f532b7adbd0b003888e3aa921687d62dbe2f1f829d0ab6234a158a
ubuntu@ip-172-31-20-247:-$
```

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# 6.docker container prune

```
ubuntu@ip-172-31-20-247:-$ docker container prune
WARNING! This will remove all stopped containers.
Are you sure you want to continue? [y/N] y
Deleted Containers:
c845714a43cbc034273f21c71692f3901a397f93ea28cfc7cd4b9b6fbf58eb73
Total reclaimed space: 0B
ubuntu@ip-172-31-20-247:-$
```

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7.docker run -it ubuntu bin/bash: It opens ubuntu terminal interactively

```
ubuntu@ip-172-31-20-247:-$ docker run -it ubuntu bin/bash
Unable to find image 'ubuntu:latest' locally
latest: Pulling from library/ubuntu
5a7813e071bf: Pull complete
Digest: sha256:72297848456d5d37d1262630108ab308d3e9ec7edlc3286a32fe09856619a782
Status: Downloaded newer image for ubuntu:latest
root@ld66ce8e5c08:/#
```

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8. docker restart: docker stop

```
ubuntu@ip-172-31-20-247:-$ docker restart 1d66ce8e5c08
1d66ce8e5c08
ubuntu@ip-172-31-20-247:-$ docker stop 1d66ce8e5c08
1d66ce8e5c08
ubuntu@ip-172-31-20-247:-$
```

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Task 2: Run two containers that run nodejs and golang-based hello-world services.

Creating a directory with two files in it

Created a folder named node

Created two files server.js and Dockerfile

```
ubuntu@ip-172-31-20-247:~$ mkdir nodejs-app
ubuntu@ip-172-31-20-247:~$ cd nodejs-app
ubuntu@ip-172-31-20-247:~/nodejs-app$ nano server.js
ubuntu@ip-172-31-20-247:~/nodejs-app$ nano server.js
ubuntu@ip-172-31-20-247:~/nodejs-app$ nano dockerfile
```

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-> server.js

```
const http = require('http');
const PORT = 3000;

const server = http.createServer((req, res) => {
    res.writeHead(200, { 'Content-Type': 'text/plain' });
    res.end('Hello from Node.js\n');
});

server.listen(PORT, () => {
    console.log(`Server running at http://localhost:${PORT}`);
});
```

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▶ CloudShell Feedback Privacy

### ->Dockerfile

```
FROM node: latest
WORKDIR /app
COPY server.js.
CMD ["node","server.js"]
^G Help
                   ^O Write Out
                                                                                 ExecuteRead 4^C
                                          Where Is
                                                          ^K Cut
                                                          ^U
                                                                              ^J Justify
                                                                                                    Go
   ExitMark
                  M^R Read File
                                          Replaces
                                                             Paste
   Сору
                  M-W Next
Q Where Was
```

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## docker run -d -p 3000:3000 --name nodejs-container nodejs-hello

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## Start Sever

```
ubuntu@ip-172-31-20-247:-/nodejs-app$ docker logs 333df66d6716
Server running at http://localhost:3000
ubuntu@ip-172-31-20-247:-/nodejs-app$
```

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### Visit Site

```
ubuntu@ip-172-31-20-247:~/nodejs-app$ curl http://0.0.0.0:3000
Hello from Node.js
ubuntu@ip-172-31-20-247:-/nodejs-app$
```

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# For Go-lang

# Creating two files:

```
ubuntu@ip-172-31-20-247:-$ mkdir golang
ubuntu@ip-172-31-20-247:-$ cd golang
ubuntu@ip-172-31-20-247:-/golang$ nano hello.go
ubuntu@ip-172-31-20-247:-/golang$ nano Dockerfile
```

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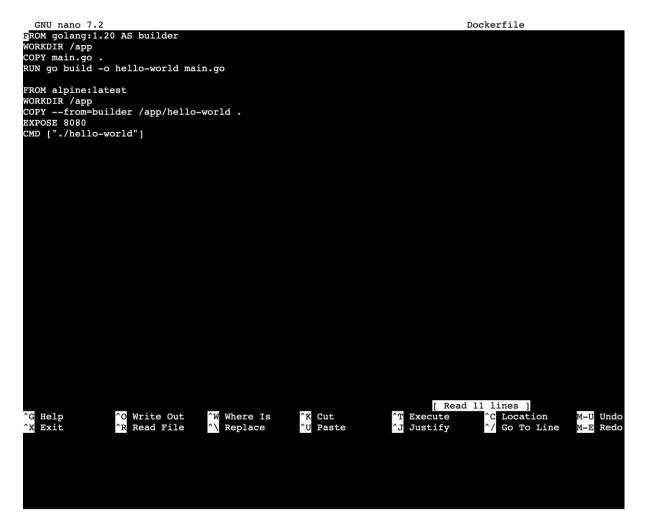
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### Go code:

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## Dockerfile code:



```
ubuntu@ip-172-31-20-247:-/golang$ docker build -t golang-hello .

DEPRECATED: The legacy builder is deprecated and will be removed in a future release.

Install the buildx component to build images with BuildKit:

https://docs.docker.com/go/buildx/
Sending build context to Docker daemon 3.072kB
Step 1/9 : FROM golang:1.20 AS builder
         > d5beeac3653f
 Step 2/9 : WORKDIR /app
   ---> Using cache
---> 9e76ab0bcf13
 Step 3/9 : COPY main.go .
         -> cccdce4cc041
Step 4/9 : RUN go build -o hello-world main.go
---> Running in 3b805161f9c8
---> Removed intermediate container 3b805161f9c8
        -> effa0276abde
Latest: Pulling from library/alpine
latest: Pulling from library/alpine
lf3e46996e29: Pull complete
Digest: sha256:56fa17d2a7e7f168a043a2712e63aed1f8543aeafdcee47c58dcffe38ed51099
Status: Downloaded newer image for alpine:latest
   ---> b0c9d60fc5e3
Step 6/9: WORKDIR /app
---> Running in b6blaldff2dl
---> Removed intermediate container b6blaldff2dl
---> ed5dc4dedcef
 Step 7/9 : COPY --from=builder /app/hello-world . ---> f73655440250
---> f73655440250

Step 8/9: EXPOSE 8080
---> Running in 310cc3ef9a0b
---> Removed intermediate container 310cc3ef9a0b
---> c60c621124b1

Step 9/9: CMD ["./hello-world"]
---> Running in fb83fdc69f92
--> Removed intermediate container fb83fdc69f92
        -> 0621dbabdfe1
Successfully built 0621dbabdfe1
Successfully tagged golang-hello:latest
ubuntu@ip-172-31-20-247:~/golang$
```

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# Creating image and mapping port:

```
ubuntu@ip-172-31-20-247:-/golang-app$ docker run -d -p 8080:8080 --name golang-container golang-app
98b342687ee8897445a10dofacf891ac9d9fdaf7bed004f6cb25c5600a0e76dc
ubuntu@ip-172-31-20-247:-/golang-app$ docker ps -a
COMPAND CREATED STATUS PORTS
COMPAND CREATED STATUS PORTS
98b342687ee8 golang-app './server' 8 seconds ago Up 7 seconds 0.0.0:8080->8080/tcp, :::8080->8080/tcp golang-container
1045ce88e5c08 ubutu "bin/bash" About an hour ago
ubuntu@ip-172-31-20-247:-/golang-app$ docker logs 98b342687ee8

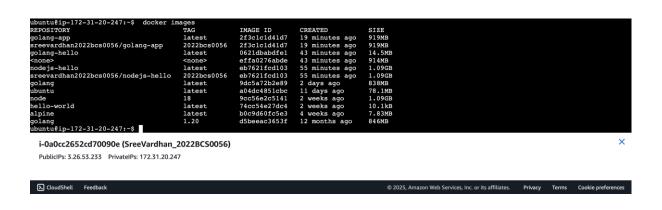
**Exited (137) About an hour ago
ubuntu@ip-172-31-20-247:-/golang-app$ docker logs 98b342687ee8
```

Hello from Go-lang:



Task 3: List the state of running containers and remove all running docker images.

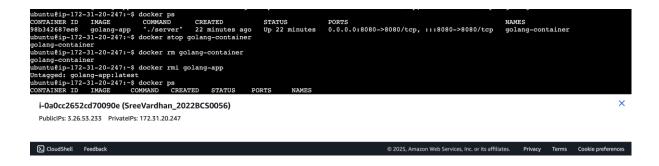
# Docker images:



# Removing node image:



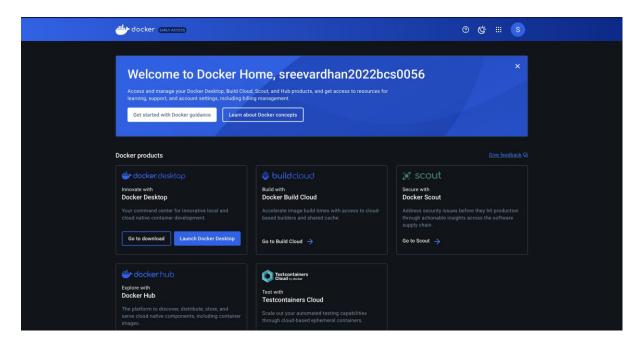
# Removing Golang-app:



Task 4: Create a dockerhub on your name and upload the newly created image

to the dockerhub. Use your rollnumber as the tag of the docker image.

Created the docker account



Docker login:

```
ubuntu@ip-172-31-20-247:~$ docker login
Log in with your Docker ID or email address to push and pull images from Docker Hub. If you don't have a
Docker ID, head over to https://hub.docker.com/ to create one.
You can log in with your password or a Personal Access Token (PAT). Using a limited-scope PAT grants bett
er security and is required for organizations using SSO. Learn more at https://docs.docker.com/go/access-
tokens/
Username: sreevardhan2022bcs0056
Password:
WARNING! Your password will be stored unencrypted in /home/ubuntu/.docker/config.json.
Configure a credential helper to remove this warning. See
https://docs.docker.com/engine/reference/commandline/login/#credentials-store
Login Succeeded
ubuntu@ip-172-31-20-247:~$
```

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## Creating tags:

```
ubuntu@ip-172-31-20-247:-$ docker tag nodejs-hello sreevardhan2022bcs0056/nodejs-hello:2022bcs0056
ubuntu@ip-172-31-20-247:-$ docker tag golang-app sreevardhan2022bcs0056/golang-app:2022bcs0056
ubuntu@ip-172-31-20-247:-$

i-0a0cc2652cd70090e (SreeVardhan_2022BCS0056)
```

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## Docker images:

```
        ubuntu@ip-172-31-20-247:-$ docker images

        REFOSITORY
        TAG
        IMAGE ID
        CREATED
        SIZE

        golang-app
        latest
        2f3clold4id7
        11 minutes ago
        919MB

        golang-hello
        latest
        062ldbabdfel
        35 minutes ago
        14.5MB

        chone>
        chone>
        chore
        effe2lfcd103
        47 minutes ago
        1.09GB

        golang
        latest
        eb762lfcd103
        47 minutes ago
        1.09GB

        golang
        latest
        a04dc485lcbc
        11 days ago
        78.1MB

        node
        18
        9c556e2c5141
        2 weeks ago
        1.09GB

        hello-world
        latest
        74c5c427dc4
        2 weeks ago
        1.01kB

        alpine
        latest
        b0c9d60fc5e3
        4 weeks ago
        7.83MB

        golang
        1.20
        d5beeacf65if
        12 months ago
        846MB
```

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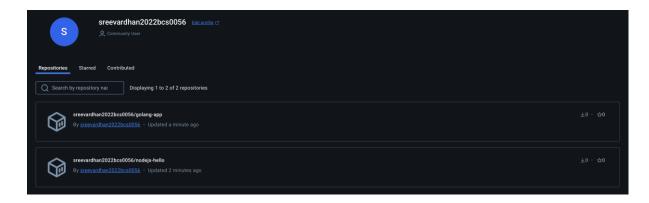
## Pushing the repositories:

```
ubuntu@ip-172-3i-20-247:-$ docker push sreevardhan2022bcs0056/golang-app:2022bcs0056
The push refers to repository [docker.io/sreevardhan2022bcs0056/golang-app]
15af3cec9aaa: Pushed
d091b63c4836: Pushed
746c02a169c3: Pushed
5770bf18a086: Mounted from library/golang
64225facfa27: Mounted from library/golang
727ecdde08c3: Mounted from library/golang
1299c97d7d50: Mounted from library/golang
41d4dc7516bb: Mounted from sreevardhan2022bcs0056/nodejs-hello
01551bbd27d: Mounted from sreevardhan2022bcs0056/nodejs-hello
91b542912d12: Mounted from sreevardhan2022bcs0056/nodejs-hello
2022bcs0056: digest: sha256:c0bc75f6b2la6ecbc5ef89ba80597864318b4f77bc08cc4dafd888cc29ca3509 size: 2415
```

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```
ubuntué_p-172-31-20-247:-$ docker push szewardhan2022bcs0056/nodejs-hello;2022bcs0056
The push refers to repository [docker.io/sreevardhan2022bcs0056/nodejs-hello]
2e3947e3113a: Pushed
48fc0963397d: Pushed
bcfce6d69e55: Nounted from library/node
48b86cff2099: Mounted from library/node
48b86cff2099: Mounted from library/node
48cc925dc4131: Mounted from library/node
48cfb8acd9f7f: Mounted from library/node
48ddc7516bb: Mounted from library/node
41d4dc7516bb: Mounted from library/golang
0151bbd37d: Mounted from library/golang
2022bcs0056: digest: sha256:81la9cd17fe22838334986c95554c2a73be4167727edeaea87ecadae7c7d67fe size: 2417
ubuntuélp-172-31-20-247:-$
```

# Verification of repositories:



# Stopped the AWS instance:

