Task 1

The following commands are used to install docker on Ubuntu 22.04.

```
raisa@tahasen-24141097:~$ sudo apt update
[sudo] password for raisa_tahasen:
Get:1 http://security.ubuntu.com/ubuntu jammy-security InRelease [129 kB]
Hit:2 http://us.archive.ubuntu.com/ubuntu jammy InRelease
Get:3 http://us.archive.ubuntu.com/ubuntu jammy-updates InRelease [128 kB]
Get:4 http://security.ubuntu.com/ubuntu jammy-security/main amd64 Packages [1,58
3 kB]
Get:5 http://us.archive.ubuntu.com/ubuntu jammy-backports InRelease [127 kB]
Get:6 http://us.archive.ubuntu.com/ubuntu jammy-updates/main amd64 Packages [1,7
91 kB]
Get:7 http://security.ubuntu.com/ubuntu jammy-security/main i386 Packages [497 k
B]
Get:8 http://us.archive.ubuntu.com/ubuntu jammy-updates/main i386 Packages [654
kB]
Get:9 http://us.archive.ubuntu.com/ubuntu jammy-updates/main Translation-en [326
 kB]
Get:10 http://security.ubuntu.com/ubuntu jammy-security/main Translation-en [269
 kB]
```

```
raisa@tahasen-24141097:~$ sudo apt install apt-transport-https ca-certificates c
url software-properties-common
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
ca-certificates is already the newest version (20230311ubuntu0.22.04.1).
ca-certificates set to manually installed.
curl is already the newest version (7.81.0-1ubuntu1.16).
curl set to manually installed.
software-properties-common is already the newest version (0.99.22.9).
software-properties-common set to manually installed.
The following NEW packages will be installed:
  apt-transport-https
0 upgraded, 1 newly installed, 0 to remove and 14 not upgraded.
Need to get 1,510 B of archives.
After this operation, 170 kB of additional disk space will be used.
Do you want to continue? [Y/n] y
Get:1 http://us.archive.ubuntu.com/ubuntu jammy-updates/universe amd64 apt-trans
port-https all 2.4.12 [1,510 B]
```

The command below is used to add the GPG key for the official Docker repository to my system.

```
Unpacking apt-transport-https (2.4.12) ...
Setting up apt-transport-https (2.4.12) ...
raisa@tahasen-24141097:~$ curl -fsSL https://download.docker.com/linux/ubuntu/gp
g | sudo gpg --dearmor -o /usr/share/keyrings/docker-archive-keyring.gpg
raisa@tahasen-24141097:~$
```

```
raisa@tahasen-24141097:~$ echo "deb [arch=$(dpkg --print-architecture) signed-by
=/usr/share/keyrings/docker-archive-keyring.gpg] https://download.docker.com/lin
ux/ubuntu $(lsb_release -cs) stable" | sudo tee /etc/apt/sources.list.d/docker.l
ist > /dev/null
raisa@tahasen-24141097:~$
```

```
raisa@tahasen-24141097:~$ echo "deb [arch=$(dpkg --print-architecture) signed-by
=/usr/share/keyrings/docker-archive-keyring.gpg] https://download.docker.com/lin
ux/ubuntu $(lsb_release -cs) stable" | sudo tee /etc/apt/sources.list.d/docker.l
ist > /dev/null
raisa@tahasen-24141097:~$ sudo apt update
Get:1 https://download.docker.com/linux/ubuntu jammy InRelease [48.8 kB]
Hit:2 http://security.ubuntu.com/ubuntu jammy-security InRelease
Get:3 https://download.docker.com/linux/ubuntu jammy/stable amd64 Packages [35.6
 kB]
Hit:4 http://us.archive.ubuntu.com/ubuntu jammy InRelease
Hit:5 http://us.archive.ubuntu.com/ubuntu jammy-updates InRelease
Hit:6 http://us.archive.ubuntu.com/ubuntu jammy-backports InRelease
Fetched 84.4 kB in 2s (52.0 kB/s)
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
14 packages can be upgraded. Run 'apt list --upgradable' to see them.
raisa@tahasen-24141097:~$
```

```
raisa@tahasen-24141097:~$ apt-cache policy docker-ce
docker-ce:
  Installed: (none)
  Candidate: 5:27.0.3-1~ubuntu.22.04~jammy
  Version table:
     5:27.0.3-1~ubuntu.22.04~jammy 500
        500 https://download.docker.com/linux/ubuntu jammy/stable amd64 Packages
     5:27.0.2-1~ubuntu.22.04~jammy 500
        500 https://download.docker.com/linux/ubuntu jammy/stable amd64 Packages
     5:27.0.1-1~ubuntu.22.04~jammy 500
        500 https://download.docker.com/linux/ubuntu jammy/stable amd64 Packages
     5:26.1.4-1~ubuntu.22.04~jammy 500
        500 https://download.docker.com/linux/ubuntu jammy/stable amd64 Packages
     5:26.1.3-1~ubuntu.22.04~jammy 500
```

```
raisa@tahasen-24141097:~$ sudo apt install docker-ce
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
The following additional packages will be installed:
  containerd.io docker-buildx-plugin docker-ce-cli docker-ce-rootless-extras
  docker-compose-plugin git git-man liberror-perl pigz slirp4netns
Suggested packages:
  aufs-tools cgroupfs-mount | cgroup-lite git-daemon-run | git-daemon-sysvinit
  git-doc git-email git-gui gitk gitweb git-cvs git-mediawiki git-svn
The following NEW packages will be installed:
  containerd.io docker-buildx-plugin docker-ce docker-ce-cli
  docker-ce-rootless-extras docker-compose-plugin git git-man liberror-perl
  pigz slirp4netns
0 upgraded, 11 newly installed, 0 to remove and 14 not upgraded.
Need to get 126 MB of archives.
After this operation, 457 MB of additional disk space will be used.
```

The screenshot below shows that docker service is active and running.

```
raisa@tahasen-24141097:~$ sudo systemctl status docker
● docker.service - Docker Application Container Engine
     Loaded: loaded (/lib/systemd/system/docker.service; enabled; vendor preset>
     Active: active (running) since Sun 2024-07-07 02:25:04 +06; 3min 10s ago
TriggeredBy: ● docker.socket
       Docs: https://docs.docker.com
   Main PID: 6539 (dockerd)
      Tasks: 7
     Memory: 31.4M
        CPU: 558ms
     CGroup: /system.slice/docker.service
             └─6539 /usr/bin/dockerd -H fd:// --containerd=/run/containerd/cont>
```

The command below is adding the user to the docker group,

```
Jul 07 02:25:04 tahasen-24141097 systemd[1]: Started Docker Application Contai>
raisa@tahasen-24141097:~$ sudo usermod -aG docker ${USER}
raisa@tahasen-24141097:~$
```

```
raisa@tahasen-24141097:~$ sudo usermod -aG docker ${USER}
raisa@tahasen-24141097:~$ su - ${USER}
Password:
raisa@tahasen-24141097:~$ groups
raisa_tahasen sudo libvirt docker
raisa@tahasen-24141097:~$
```

TASK 2
Below are the screenshot of some basic docker commands and their output.
pull

```
raisa@tahasen-24141097:~$ docker pull ubuntu
Using default tag: latest
latest: Pulling from library/ubuntu
9c704ecd0c69: Pull complete
Digest: sha256:2e863c44b718727c860746568e1d54afd13b2fa71b160f5cd9058fc436217b30
Status: Downloaded newer image for ubuntu:latest
docker.io/library/ubuntu:latest
raisa@tahasen-24141097:~$
```

search

```
raisa@tahasen-24141097:~$ docker search ubuntu
NAME                  DESCRIPTION                                    STARS    OFFICIAL
ubuntu                Ubuntu is a Debian-based Linux operating sys…  17150    [OK]
ubuntu-debootstrap    DEPRECATED; use "ubuntu" instead               52       [OK]
websphere-liberty     WebSphere Liberty multi-architecture images …  299      [OK]
ubuntu-upstart        DEPRECATED, as is Upstart (find other proces…  115      [OK]
open-liberty          Open Liberty multi-architecture images based…  65       [OK]
neurodebian           NeuroDebian provides neuroscience research s…  110      [OK]
ubuntu/nginx          Nginx, a high-performance reverse proxy & we…  114
ubuntu/squid          Squid is a caching proxy for the Web. Long-t…  92
ubuntu/cortex         Cortex provides storage for Prometheus. Long…  4
ubuntu/prometheus     Prometheus is a systems and service monitori…  62
ubuntu/kafka          Apache Kafka, a distributed event streaming …  49
ubuntu/apache2        Apache, a secure & extensible open-source HT…  74
ubuntu/bind9          BIND 9 is a very flexible, full-featured DNS…  91
ubuntu/zookeeper      ZooKeeper maintains configuration informatio…  13
```

run

```
raisa@tahasen-24141097:~$ docker run hello-world
Unable to find image 'hello-world:latest' locally
latest: Pulling from library/hello-world
c1ec31eb5944: Pull complete
Digest: sha256:94323f3e5e09a8b9515d74337010375a456c909543e1ff1538f5116d38ab3989
Status: Downloaded newer image for hello-world:latest

Hello from Docker!
This message shows that your installation appears to be working correctly.

To generate this message, Docker took the following steps:
 1. The Docker client contacted the Docker daemon.
 2. The Docker daemon pulled the "hello-world" image from the Docker Hub.
    (amd64)
 3. The Docker daemon created a new container from that image which runs the
    executable that produces the output you are currently reading.
 4. The Docker daemon streamed that output to the Docker client, which sent it
    to your terminal.
```

build

```
Open ∨    [+]                        Dockerfile                    Save    ≡  —  ▢  ✕
                                        ~/
1 # Use the official Ubuntu image as a base
2 FROM ubuntu:latest
3 #Run a command to print "Hello, Docker!"
4 RUN echo "Hello, Docker!"
```

```
raisa@tahasen-24141097:~$ gedit Dockerfile
raisa@tahasen-24141097:~$ docker build -t myimage .
[+] Building 1.3s (6/6) FINISHED                                     docker:default
 => [internal] load build definition from Dockerfile                          0.0s
 => => transferring dockerfile: 167B                                          0.0s
 => [internal] load metadata for docker.io/library/ubuntu:latest              0.0s
 => [internal] load .dockerignore                                             0.1s
 => => transferring context: 2B                                               0.0s
 => [1/2] FROM docker.io/library/ubuntu:latest                                0.1s
 => [2/2] RUN echo "Hello, Docker!"                                           0.7s
 => exporting to image                                                        0.2s
 => => exporting layers                                                       0.1s
 => => writing image sha256:bd609fd97ee27571ac19b7da0c7909ed70639109f198da492a0b640f3d0d94f7   0.0s
 => => naming to docker.io/library/myimage                                    0.0s
raisa@tahasen-24141097:~$
```

rmi - used to remove docker image

```
raisa@tahasen-24141097:~$ docker images
REPOSITORY      TAG       IMAGE ID        CREATED          SIZE
mynewimage      latest    9d2545832a36    10 minutes ago   78.1MB
myimage         latest    bd609fd97ee2    2 days ago       78.1MB
ubuntu          latest    35a88802559d    4 weeks ago      78.1MB
hello-world     latest    d2c94e258dcb    14 months ago    13.3kB
raisa@tahasen-24141097:~$ docker rmi myimage
Untagged: myimage:latest
Deleted: sha256:bd609fd97ee27571ac19b7da0c7909ed70639109f198da492a0b640f3d0d94f7
raisa@tahasen-24141097:~$ docker images
REPOSITORY      TAG       IMAGE ID        CREATED          SIZE
mynewimage      latest    9d2545832a36    15 minutes ago   78.1MB
ubuntu          latest    35a88802559d    4 weeks ago      78.1MB
hello-world     latest    d2c94e258dcb    14 months ago    13.3kB
raisa@tahasen-24141097:~$
```

rm-used to remove docker container

```
raisa@tahasen-24141097:~$ docker ps -a
CONTAINER ID    IMAGE          COMMAND        CREATED          STATUS                      PORTS       NAMES
ea4c0d074b7b    ubuntu         "/bin/bash"    17 minutes ago   Exited (0) 17 minutes ago               pricel
ess_diffie
8a30fc31de71    hello-world    "/hello"       2 days ago       Exited (0) 2 days ago                   jovial
_shockley
raisa@tahasen-24141097:~$ docker rm 8a30fc31de71
8a30fc31de71
raisa@tahasen-24141097:~$ docker ps -a
CONTAINER ID    IMAGE     COMMAND        CREATED          STATUS                      PORTS      NAMES
ea4c0d074b7b    ubuntu    "/bin/bash"    19 minutes ago   Exited (0) 18 minutes ago              priceless_
diffie
raisa@tahasen-24141097:~$
```

Inspect - to obtain detailed information about docker objects

```
raisa@tahasen-24141097:~$ docker ps -a
CONTAINER ID    IMAGE     COMMAND        CREATED          STATUS                      PORTS      NAMES
ea4c0d074b7b    ubuntu    "/bin/bash"    19 minutes ago   Exited (0) 18 minutes ago              priceless_d
iffie
raisa@tahasen-24141097:~$ docker inspect ea4c0d074b7b
[
    {
        "Id": "ea4c0d074b7b84cb8ca63cccc46f73f0e433ee5cbe9da6dbf0eccaeb604199fa",
        "Created": "2024-07-09T13:48:22.218126878Z",
        "Path": "/bin/bash",
        "Args": [],
        "State": {
            "Status": "exited",
            "Running": false,
            "Paused": false,
            "Restarting": false,
            "OOMKilled": false,
            "Dead": false,
            "Pid": 0,
            "ExitCode": 0,
            "Error": "",
            "StartedAt": "2024-07-09T13:48:22.658843156Z",
            "FinishedAt": "2024-07-09T13:48:53.807275472Z"
        },
        "Image": "sha256:35a88802559dd2077e584394471ddaa1a2c5bfd16893b829ea57619301eb3908",
        "ResolvConfPath": "/var/lib/docker/containers/ea4c0d074b7b84cb8ca63cccc46f73f0e433ee5cbe9da6dbf0e
ccaeb604199fa/resolv.conf",
        "HostnamePath": "/var/lib/docker/containers/ea4c0d074b7b84cb8ca63cccc46f73f0e433ee5cbe9da6dbf0ecc
aeb604199fa/hostname",
```

commit

```
raisa@tahasen-24141097:~$ docker run -it ubuntu
root@ea4c0d074b7b:/# touch /cse484A3
root@ea4c0d074b7b:/# exit
exit
raisa@tahasen-24141097:~$ docker ps -a
CONTAINER ID    IMAGE          COMMAND        CREATED          STATUS                      PORTS      NAMES
ea4c0d074b7b    ubuntu         "/bin/bash"    38 seconds ago   Exited (0) 6 seconds ago               pricele
ss_diffie
8a30fc31de71    hello-world    "/hello"       2 days ago       Exited (0) 2 days ago                  jovial_
shockley
raisa@tahasen-24141097:~$ docker commit ea4c0d074b7b mynewimage
sha256:9d2545832a36f50f50a2b076b2c53eee9eb266d651f2a9a64b623b00d536a8cc
raisa@tahasen-24141097:~$
```

List docker image IDs

```
raisa@tahasen-24141097:~$ docker images -q
9d2545832a36
35a88802559d
d2c94e258dcb
raisa@tahasen-24141097:~$
```

Task 3

This shows my docker file used to build the image.

```
1 FROM ubuntu:latest
2 RUN apt-get update && apt-get install -y \
3    vim \
4    curl \
5    wget
6
7 CMD ["echo","A docker image has been built!"]
```

⊞ | raisa_tahasen@tahasen-24141097: ~ | Q ≡ — □ ✕

```
raisa@tahasen-24141097:~$ gedit mydockerfile
raisa@tahasen-24141097:~$ docker build -f mydockerfile -t image1 .
[+] Building 88.1s (6/6) FINISHED                           docker:default
 => [internal] load build definition from mydockerfile               0.1s
 => => transferring dockerfile: 176B                                 0.0s
 => [internal] load metadata for docker.io/library/ubuntu:latest     0.0s
 => [internal] load .dockerignore                                    0.1s
 => => transferring context: 2B                                      0.0s
 => CACHED [1/2] FROM docker.io/library/ubuntu:latest                0.0s
 => [2/2] RUN apt-get update && apt-get install -y   vim   curl   wget  86.5s
 => exporting to image                                               1.1s
 => => exporting layers                                              1.1s
 => => writing image sha256:b74624f47f4ffd03d907340f1e393dea6d390603d5875  0.0s
 => => naming to docker.io/library/image1                            0.0s
raisa@tahasen-24141097:~$ docker run image1
A docker image has been built!
raisa@tahasen-24141097:~$ 
```

TASK 4

Below are the "docker.py" and "Dockerfile" used to create the container.

```
1 print("Hello, a container has been built!")
```

```
1 FROM python:3.10-slim
2 COPY . .
3 CMD ["python","docker.py"]
```

Task 5

Here I ran Ubuntu in iterative mode and accessed its terminal. Then I updated it packages and installed curl. Then I used the 'commit' command to save the changes. When I ran the new-conatiner, it shows curl already installed.

```
root@0215611686e0:/# exit
exit
raisa_tahasen@tahasen-24141097:~$ docker ps -a
CONTAINER ID    IMAGE           COMMAND             CREATED         STATUS                    PORT
S    NAMES
0215611686e0    ubuntu          "/bin/bash"         12 minutes ago  Exited (0) 36 seconds ago
     friendly_hopper
dce34cacfd49    b78a4b235a58    "python docker.py"  2 hours ago     Exited (0) 2 hours ago
     mystifying_dhawan
a4c78cce8550    7449053cc273    "python docker.py"  2 hours ago     Exited (0) 2 hours ago
     xenodochial_hamilton
17c5de349da3    image1          "echo 'A docker imag…"  19 hours ago  Exited (0) 19 hours ago
     exciting_clarke
raisa_tahasen@tahasen-24141097:~$ docker commit 0215611686e0 new-container
sha256:dd10ff93efc84dc769ebf2c3228b8ad8d28af2a7fe3c9c10e283c52c20ba46e4
raisa_tahasen@tahasen-24141097:~$ docker run new-container
raisa_tahasen@tahasen-24141097:~$ docker run -it new-container
root@651631bb524b:/# curl --version
curl 8.5.0 (x86_64-pc-linux-gnu) libcurl/8.5.0 OpenSSL/3.0.13 zlib/1.3 brotli/1.1.0 zstd/1.5.5 libidn2/2
.3.7 libpsl/0.21.2 (+libidn2/2.3.7) libssh/0.10.6/openssl/zlib nghttp2/1.59.0 librtmp/2.3 OpenLDAP/2.6.7
Release-Date: 2023-12-06, security patched: 8.5.0-2ubuntu10.1
Protocols: dict file ftp ftps gopher gophers http https imap imaps ldap ldaps mqtt pop3 pop3s rtmp rtsp
scp sftp smb smbs smtp smtps telnet tftp
Features: alt-svc AsynchDNS brotli GSS-API HSTS HTTP2 HTTPS-proxy IDN IPv6 Kerberos Largefile libz NTLM
PSL SPNEGO SSL threadsafe TLS-SRP UnixSockets zstd
root@651631bb524b:/#
```

```
root@0215611686e0:/# curl --version
curl 8.5.0 (x86_64-pc-linux-gnu) libcurl/8.5.0 OpenSSL/3.0.13 zlib/1.3 brotli/1.1.0 zstd/1.5.5 libid
.3.7 libpsl/0.21.2 (+libidn2/2.3.7) libssh/0.10.6/openssl/zlib nghttp2/1.59.0 librtmp/2.3 OpenLDAP/2
Release-Date: 2023-12-06, security patched: 8.5.0-2ubuntu10.1
Protocols: dict file ftp ftps gopher gophers http https imap imaps ldap ldaps mqtt pop3 pop3s rtmp r
scp sftp smb smbs smtp smtps telnet tftp
Features: alt-svc AsynchDNS brotli GSS-API HSTS HTTP2 HTTPS-proxy IDN IPv6 Kerberos Largefile libz N
PSL SPNEGO SSL threadsafe TLS-SRP UnixSockets zstd
root@0215611686e0:/#
```

Task 6

Below shows the commands to run mysql and the logs of the running container.

```
raisa_tahasen@tahasen-24141097:~$ docker run --name mysql6 -e MYSQL_ROOT_PASSWORD=cse484 -d mysql:latest
Unable to find image 'mysql:latest' locally
latest: Pulling from library/mysql
d9a40b27c30f: Pull complete
d948328c7651: Pull complete
c1e267313ede: Pull complete
7478f013875a: Pull complete
9221a2250289: Pull complete
d1f57baa52d5: Pull complete
35c3d30e8624: Pull complete
3d4d1dd0cca6: Pull complete
08bfe3f7d1c5: Pull complete
537e7daeeea3: Pull complete
Digest: sha256:72a37ddc9f839cfd84f1f6815fb31ba26f37f4c200b90e49607797480e3be446
Status: Downloaded newer image for mysql:latest
482a5fae887a7798544046aea635f4e75b58666a186e3381902b55f9857a4bcb
raisa_tahasen@tahasen-24141097:~$ docker logs mysql6
2024-07-10 10:26:52+00:00 [Note] [Entrypoint]: Entrypoint script for MySQL Server 9.0.0-1.el9 started.
2024-07-10 10:26:52+00:00 [Note] [Entrypoint]: Switching to dedicated user 'mysql'
2024-07-10 10:26:52+00:00 [Note] [Entrypoint]: Entrypoint script for MySQL Server 9.0.0-1.el9 started.
2024-07-10 10:26:52+00:00 [Note] [Entrypoint]: Initializing database files
2024-07-10T10:26:52.932575Z 0 [System] [MY-015017] [Server] MySQL Server Initialization - start.
2024-07-10T10:26:52.934959Z 0 [System] [MY-013169] [Server] /usr/sbin/mysqld (mysqld 9.0.0) initializing of s
erver in progress as process 79
2024-07-10T10:26:52.960525Z 1 [System] [MY-013576] [InnoDB] InnoDB initialization has started.
2024-07-10T10:26:53.896915Z 1 [System] [MY-013577] [InnoDB] InnoDB initialization has ended.
2024-07-10T10:26:56.657171Z 6 [Warning] [MY-010453] [Server] root@localhost is created with an empty password
 ! Please consider switching off the --initialize-insecure option.
2024-07-10T10:27:00.058179Z 0 [System] [MY-015018] [Server] MySQL Server Initialization - end.
2024-07-10 10:27:00+00:00 [Note] [Entrypoint]: Database files initialized
2024-07-10 10:27:00+00:00 [Note] [Entrypoint]: Starting temporary server
```

Here I logged into mysql and then created a database named cse484 and within it created a table called 'Topics' and inserted values into it.

```
raisa_tahasen@tahasen-24141097:~$ docker exec -it mysql6 bash
bash-5.1# mysql -u root -p
Enter password:
Welcome to the MySQL monitor.  Commands end with ; or \g.
Your MySQL connection id is 8
Server version: 9.0.0 MySQL Community Server - GPL

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affiliates. Other names may be trademarks of their respective
owners.

Type 'help;' or '\h' for help. Type '\c' to clear the current input statement.

mysql> SHOW DATABASES;
+--------------------+
| Database           |
+--------------------+
| information_schema |
| mysql              |
| performance_schema |
| sys                |
+--------------------+
```

```
mysql> CREATE DATABASE CSE484;
Query OK, 1 row affected (0.03 sec)

mysql> USE CSE484;
Database changed
mysql> CREATE TABLE Topics (
    -> Week INT AUTO_INCREMENT PRIMARY KEY,
    -> Topic VARCHAR(200) );
Query OK, 0 rows affected (0.06 sec)

mysql> INSERT INTO Topics (Topic) VALUES ('Virtualization');
Query OK, 1 row affected (0.04 sec)

mysql> INSERT INTO Topics (Topic) VALUES ('Containerization');
Query OK, 1 row affected (0.02 sec)

mysql> SELECT * FROM Topics;
+------+------------------+
| Week | Topic            |
+------+------------------+
|    1 | Virtualization   |
|    2 | Containerization |
+------+------------------+
2 rows in set (0.00 sec)

mysql> exit
Bye
bash-5.1# exit
exit
raisa_tahasen@tahasen-24141097:~$
```

Task 7

I am using 'image1' created in task 3 to push into the public registry.

```
raisa_tahasen@tahasen-24141097:~$ docker images
REPOSITORY           TAG        IMAGE ID        CREATED         SIZE
new-container        latest     dd10ff93efc8    4 hours ago     125MB
docker-container     latest     a7cf76e09691    6 hours ago     231MB
<none>               <none>     b78a4b235a58    6 hours ago     231MB
<none>               <none>     7449053cc273    6 hours ago     231MB
<none>               <none>     87e12b97bf9d    19 hours ago    870MB
image1               latest     b74624f47f4f    23 hours ago    195MB
mynewimage           latest     9d2545832a36    24 hours ago    78.1MB
mysql                latest     5cde95de907d    8 days ago      586MB
<none>               <none>     c6eaf97e5519    13 days ago     127MB
<none>               <none>     c55be063d963    13 days ago     127MB
ubuntu               latest     35a88802559d    4 weeks ago     78.1MB
hello-world          latest     d2c94e258dcb    14 months ago   13.3kB
raisa_tahasen@tahasen-24141097:~$
```

After logging in, I tagged the image and pushed it into the hub.

```
raisa_tahasen@tahasen-24141097: ~
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: raisatahasen
Password:
WARNING! Your password will be stored unencrypted in /home/raisa_tahasen/.docker/config.json.
Configure a credential helper to remove this warning. See
https://docs.docker.com/engine/reference/commandline/login/#credential-stores

Login Succeeded
raisa_tahasen@tahasen-24141097:~$ docker push raisatahasen/image1
Using default tag: latest
The push refers to repository [docker.io/raisatahasen/image1]
An image does not exist locally with the tag: raisatahasen/image1
raisa_tahasen@tahasen-24141097:~$ docker tag image1 raisatahasen/image1
raisa_tahasen@tahasen-24141097:~$ docker push raisatahasen/image1
Using default tag: latest
The push refers to repository [docker.io/raisatahasen/image1]
fdaa8fee1f55: Pushed
a30a5965a4f7: Mounted from library/ubuntu
latest: digest: sha256:1b277ff60bb6dbde2f39113513e9c7182be7707425278734f0fdd92ad0f1f33a size: 741
raisa_tahasen@tahasen-24141097:~$
```
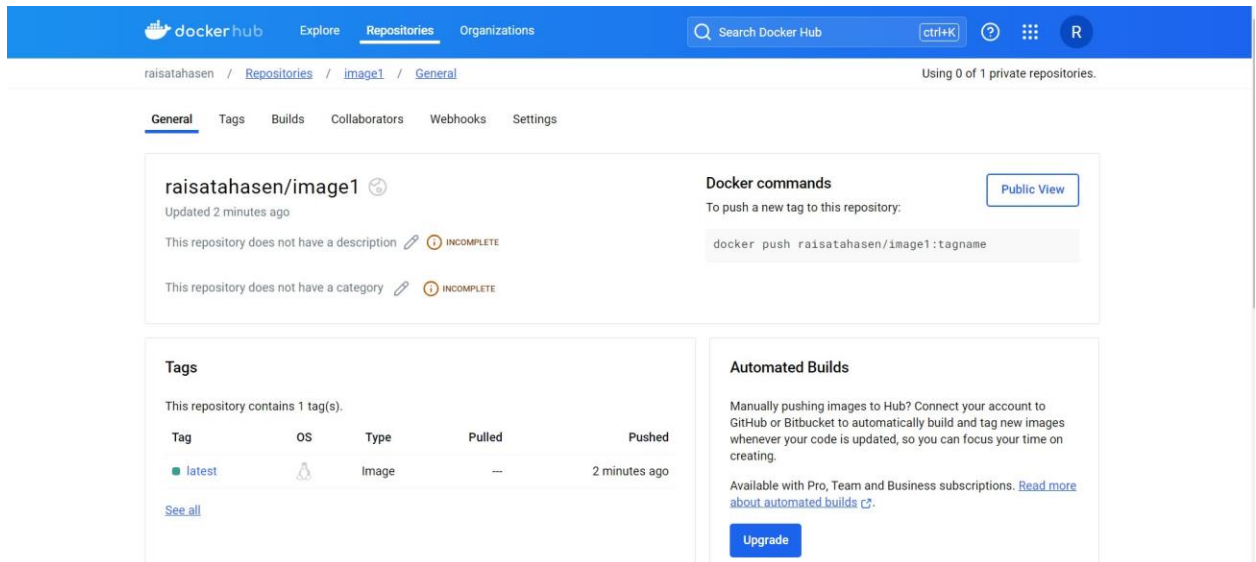
Task 8

The commands below show the making of a private registry in the localhost.


```
raisa_tahasen@tahasen-24141097:~$ docker pull registry:2
2: Pulling from library/registry
73baa7ef167e: Pull complete
d49090716641: Pull complete
bc8f2b8a18ff: Pull complete
9d41963883ad: Pull complete
ad02dd2076d6: Pull complete
Digest: sha256:79b29591e1601a73f03fcd413e655b72b9abfae5a23f1ad2e883d4942fbb4351
Status: Downloaded newer image for registry:2
docker.io/library/registry:2
raisa_tahasen@tahasen-24141097:~$ sudo docker run -d -p 5000:5000 --restart=alwa
ys --name private registry:2
[sudo] password for raisa_tahasen:
4ca7dac8d946167d11914b1f67eb5b0d3e500acb99c81efb5a8ebbbe63293d79
raisa_tahasen@tahasen-24141097:~$ sudo docker tag image1 localhost:5000/image1
raisa_tahasen@tahasen-24141097:~$ sudo docker push  localhost:5000/image1
Using default tag: latest
The push refers to repository [localhost:5000/image1]
fdaa8fee1f55: Pushed
a30a5965a4f7: Pushed
latest: digest: sha256:07a1b87afd6a082b865fb0ae1302dc1efa69e44a6384ab8792bb8e2d3
2958e71 size: 741
raisa_tahasen@tahasen-24141097:~$
```

Shows the creation of the registry.


```
raisa_tahasen@tahasen-24141097:~$ docker ps
CONTAINER ID   IMAGE        COMMAND            CREATED        STATUS         PORTS                                            NAME
S
4ca7dac8d946   registry:2   "/entrypoint.sh /etc…"   7 minutes ago  Up 7 minutes   0.0.0.0:5000->5000/tcp, :::5000->5000/tcp   priv
ate
raisa_tahasen@tahasen-24141097:~$
```

TASK 9

This is the HTML file for the website.

Open ∨   [+]

```html
1 <!DOCTYPE html>
2 <html lang="en">
3 <head>
4 <meta charset="UTF-8">
5 <meta name="viewport" content="width=device-width, initial-scale=1.0">
6 <title>Simple Dockerized Website</title>
7 <style>
8 body {
9 display: flex;
10 flex-direction: column;
11 align-items: center;
12 justify-content: center;
13 height: 100vh;
14 }
15 #image {
16 display: none;
17 margin-top: 20px;
18 }
19 </style>
20 </head>
21 <body>
22 <h1>Welcome to my simple website</h1>
23 <button onclick="showImage()">Click to see the image</button>
24 <img id="image" src="image.jpg" alt="Static Image">
25 <script>
26 function showImage() {
27 document.getElementById('image').style.display = 'block';
28 }
29 </script>
30 </body>
31 </html>
```

Open ∨   [+]   **Dockerfile**   Save
~/

```dockerfile
1 FROM nginx:alpine
2
3 COPY index.html /usr/share/nginx/html/
4 COPY image.jpg /usr/share/nginx/html/
5
6 EXPOSE 80
```

This is the Dockerfile.
The HTML file and the jpg file are kept in the same directory.

The screenshot shows the commands I ran to create the website
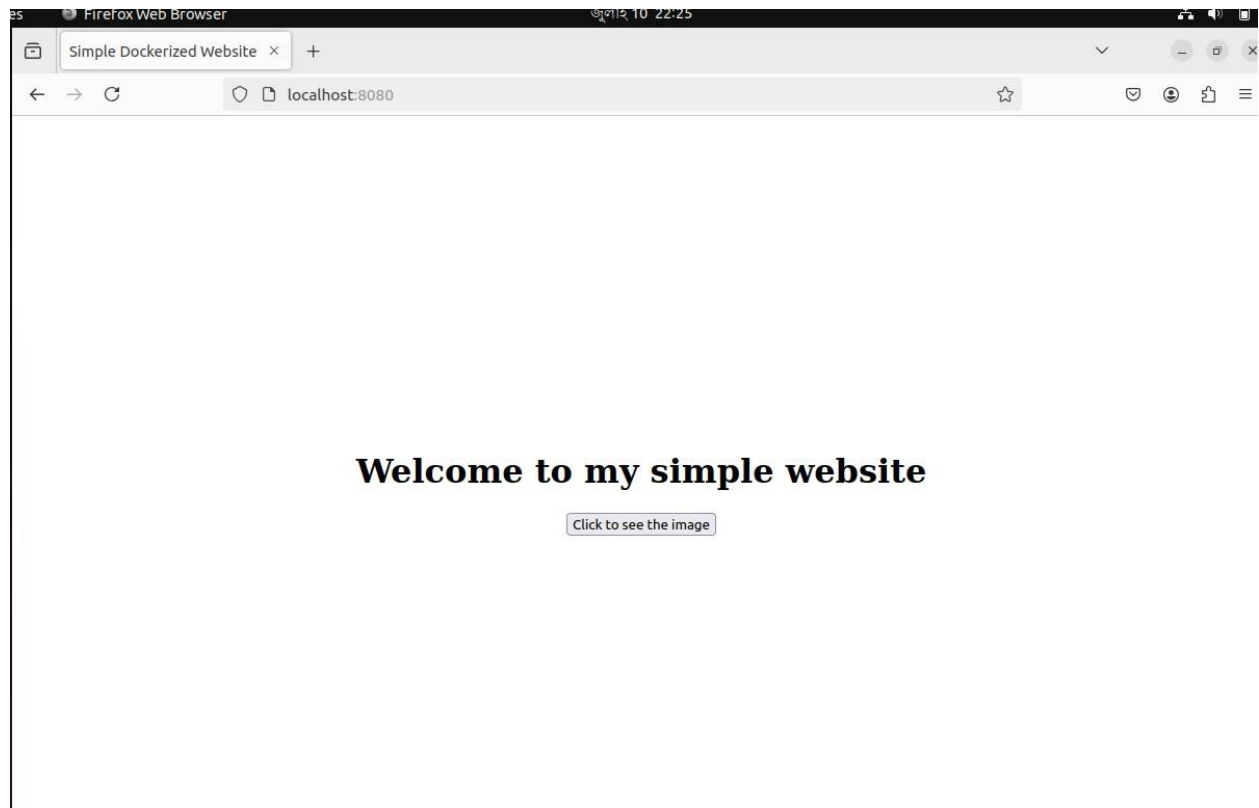


```
[1]+  Killed                    gedit Dockerfile
raisa_tahasen@tahasen-24141097:~$ gedit index.html
raisa_tahasen@tahasen-24141097:~$ gedit Dockerfile
raisa_tahasen@tahasen-24141097:~$ docker build -t simple-website
ERROR: "docker buildx build" requires exactly 1 argument.
See 'docker buildx build --help'.

Usage:  docker buildx build [OPTIONS] PATH | URL | -

Start a build
raisa_tahasen@tahasen-24141097:~$ docker build -t simple-website .
[+] Building 29.0s (9/9) FINISHED                              docker:default
 => [internal] load build definition from Dockerfile               0.0s
 => => transferring dockerfile: 144B                               0.0s
 => [internal] load metadata for docker.io/library/nginx:alpine    3.5s
 => [auth] library/nginx:pull token for registry-1.docker.io       0.0s
 => [internal] load .dockerignore                                  0.0s
 => => transferring context: 2B                                    0.0s
 => [1/3] FROM docker.io/library/nginx:alpine@sha256:a45ee5d042aaa9e81e0  24.5s
 => => resolve docker.io/library/nginx:alpine@sha256:a45ee5d042aaa9e81e01  0.1s
 => => sha256:099a2d701db1f36dcc012419be04b7da299f48b4d 11.03kB / 11.03kB  0.0s
 => => sha256:a45ee5d042aaa9e81e013f97ae40c3dda26fbe98f22 9.07kB / 9.07kB  0.0s
 => => sha256:d0540253e168c1c4a6ec65d259aadc293efa9b35ad9 2.50kB / 2.50kB  0.0s
```

```
 => => sha256:86c35ade2ef3fc036c4d252dc91d9bbcb7a182cccde 1.40kB / 1.40kB   3.0s
 => => sha256:0102bea57027dc7aee55edbe80b59dec0853bf7f 13.04MB / 13.04MB   23.4s
 => => extracting sha256:b84a74cde5af5c5199bfc2ce2a8c8951a29a7716d17327e9   0.2s
 => => extracting sha256:ec939b2456d7dd88a36bb7b620b10caed3301f2c440d3385   0.2s
 => => extracting sha256:4838760d22df5943d9a3eadd764e3dfc8477e8e28651724e   0.0s
 => => extracting sha256:6b549263cbbd6a62fbe0fc206b12bfdaf0f8be68ce223813   0.0s
 => => extracting sha256:8311a42582b3be423b36b2d2b20dc028c69b089c941ed07c   0.0s
 => => extracting sha256:56051d5ceced327050d3affcbe858aabf524aacc3bd3a8fb   0.0s
 => => extracting sha256:86c35ade2ef3fc036c4d252dc91d9bbcb7a182cccde80ed8   0.0s
 => => extracting sha256:0102bea57027dc7aee55edbe80b59dec0853bf7fbdfa6b92   0.5s
 => [internal] load build context                                  0.5s
 => => transferring context: 10.66kB                               0.4s
 => [2/3] COPY index.html /usr/share/nginx/html/                   0.3s
 => [3/3] COPY image.jpg /usr/share/nginx/html/                    0.2s
 => exporting to image                                             0.1s
 => => exporting layers                                            0.1s
 => => writing image sha256:4f320b84484d10a6791176ee8a914376d4063aaa8df5f  0.0s
raisa_tahasen@tahasen-24141097:~$ docker run -d -p 8080:80 --name simple-website-container simple website
Unable to find image 'simple:latest' locally
docker: Error response from daemon: pull access denied for simple, repository does not exist or may require 'docker
 login': denied: requested access to the resource is denied.
See 'docker run --help'.
raisa_tahasen@tahasen-24141097:~$ docker run -d -p 8080:80 --name simple-website-container simple-website
d58df25b6d42728b2fdacd400edce8f0c1fba217127fba9b2d2daf0ed8e10014
raisa_tahasen@tahasen-24141097:~$
```

When I browsed localhost:8080 from Firefox in my Ubuntu, it took me to the html page.

After clicking the image, I could see the jpg file.
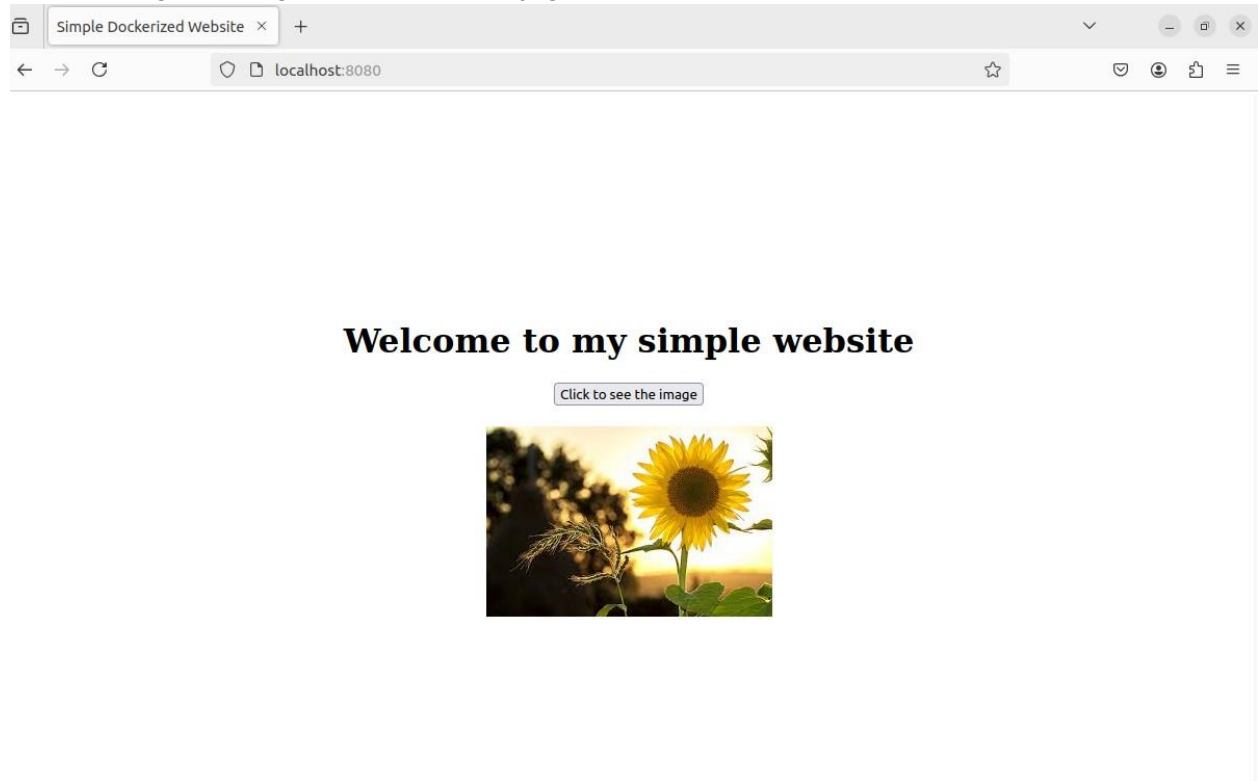
Task10
[Migrate the container run it on windows 11 instead of Ubuntu to demonstrate functionality]

In the screenshot below, I tagged the website I made and uploaded it on my docker hub repository from my Ubuntu 22.04 VM.


```
raisa_tahasen@tahasen-24141097:~$ docker login
Authenticating with existing credentials...
WARNING! Your password will be stored unencrypted in /home/raisa_tahasen/.docker/config.json.
Configure a credential helper to remove this warning. See
https://docs.docker.com/engine/reference/commandline/login/#credential-stores

Login Succeeded
raisa_tahasen@tahasen-24141097:~$ docker tag simple-website raisatahasen/simple-website
raisa_tahasen@tahasen-24141097:~$ docker push aisatahasen/simple-website
Using default tag: latest
The push refers to repository [docker.io/aisatahasen/simple-website]
An image does not exist locally with the tag: aisatahasen/simple-website
raisa_tahasen@tahasen-24141097:~$ docker push raisatahasen/simple-website
Using default tag: latest
The push refers to repository [docker.io/raisatahasen/simple-website]
e7ced7f5d26b: Pushed
877d5260e340: Pushed
a51b172d7184: Mounted from library/nginx
b7486fe26981: Mounted from library/nginx
320c8baef084: Mounted from library/nginx
d2cef4a1b224: Mounted from library/nginx
4275164ce225: Mounted from library/nginx
6e92270dbfe6: Mounted from library/nginx
b5d2e1fcf1ad: Mounted from library/nginx
af9a70194aa4: Mounted from library/nginx
latest: digest: sha256:75a34b158112acd791b4e2fddab657254384d2c028c168b44c62e28556d15d8d size: 2405
raisa_tahasen@tahasen-24141097:~$
```

raisatahasen / **simple-website**
Contains: Image • Last pushed: about 15 hours ago   ☆ 0   ↓ 1   ⊕ Public   ✕ Scout inactive
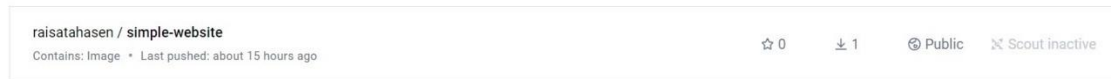
After installing docker desktop on my Windows 11, I ran the following commands on the command prompt to pull and run the website.

On my google, I browsed localhost:80, and it took me to the website I made.
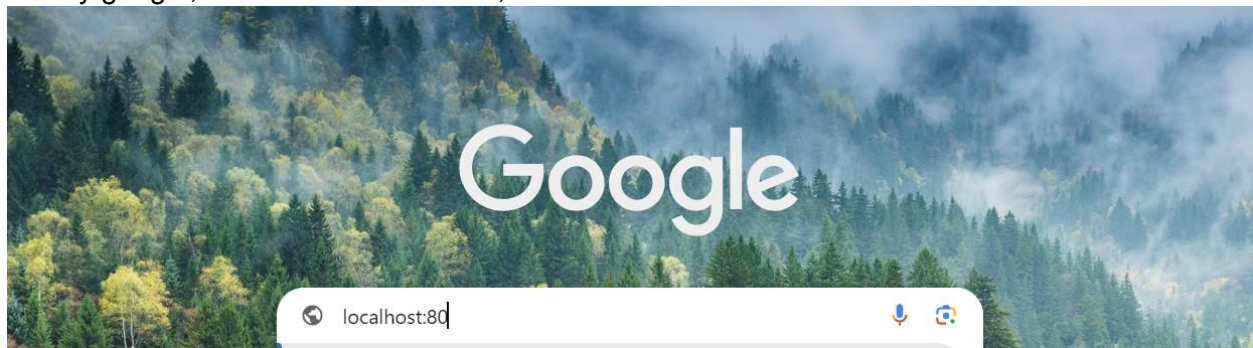
Welcome to my simple website

Click to see the image

Welcome to my simple website

Click to see the image

When I used localhost:8080 which I used for Ubuntu in task

This site can't be reached

localhost refused to connect.

Try:
- Checking the connection
- Checking the proxy and the firewall

ERR_CONNECTION_REFUSED

Reload   Details