

EXPERIMENT-12

NAME- RAJAT PANWAR

ROLL NO- R171218080

SUBMITTED TO:

MR. HITESH KUMAR SHARMA

1}. First, in order to ensure the downloads are valid, add the GPG key for the official Docker repository to your system:

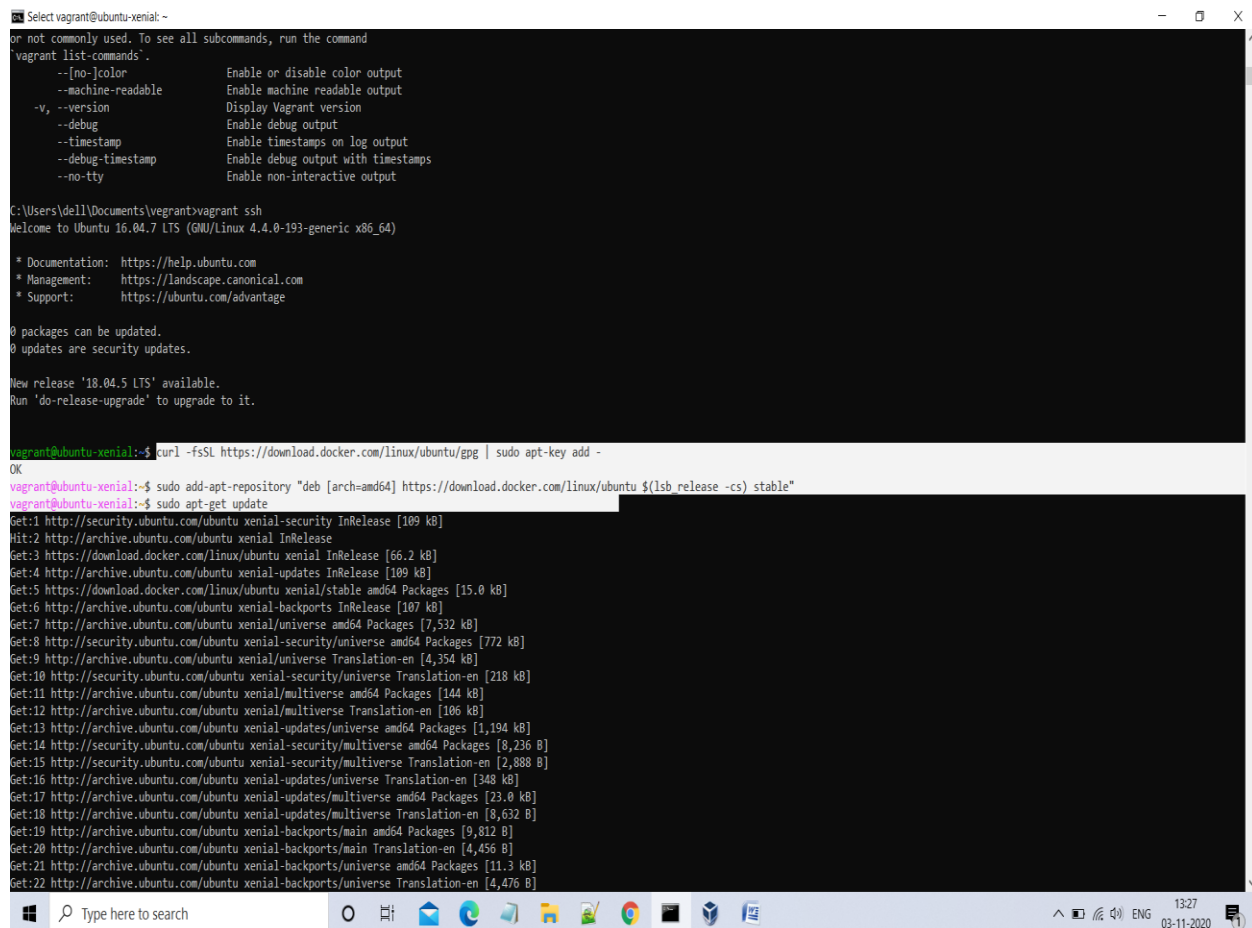
```
$ curl -fsSL https://download.docker.com/linux/ubuntu/gpg | sudo apt-key add -
```

2}. Add the Docker repository to APT sources:

```
$ sudo add-apt-repository "deb [arch=amd64] https://download.docker.com/linux/ubuntu $(lsb_release -cs) stable"
```

3}. Next, update the package database with the Docker packages from the newly added repo:

```
$ sudo apt-get update
```



```
Select vagrant@ubuntu-xenial: ~
or not commonly used. To see all subcommands, run the command
'vagrant list-commands'.
--[no]-color          Enable or disable color output
--machine-readable    Enable machine readable output
-v, --version         Display Vagrant version
--debug              Enable debug output
--timestamp           Enable timestamps on log output
--debug-timestamp     Enable debug output with timestamps
--no-tty              Enable non-interactive output

C:\Users\dell\Documents\vagrant>vagrant ssh
Welcome to Ubuntu 16.04.7 LTS (GNU/Linux 4.4.0-193-generic x86_64)

 * Documentation:  https://help.ubuntu.com
 * Management:    https://landscape.canonical.com
 * Support:       https://ubuntu.com/advantage

0 packages can be updated.
0 updates are security updates.

New release '18.04.5 LTS' available.
Run 'do-release-upgrade' to upgrade to it.

vagrant@ubuntu-xenial:~$ curl -fsSL https://download.docker.com/linux/ubuntu/gpg | sudo apt-key add -
OK
vagrant@ubuntu-xenial:~$ sudo add-apt-repository "deb [arch=amd64] https://download.docker.com/linux/ubuntu $(lsb_release -cs) stable"
vagrant@ubuntu-xenial:~$ sudo apt-get update
Get:1 http://security.ubuntu.com/ubuntu xenial-security InRelease [109 kB]
Hit:2 http://archive.ubuntu.com/ubuntu xenial InRelease
Get:3 https://download.docker.com/linux/ubuntu xenial InRelease [66.2 kB]
Get:4 http://archive.ubuntu.com/ubuntu xenial-updates InRelease [109 kB]
Get:5 https://download.docker.com/linux/ubuntu xenial/stable amd64 Packages [15.0 kB]
Get:6 http://archive.ubuntu.com/ubuntu xenial-backports InRelease [107 kB]
Get:7 http://archive.ubuntu.com/ubuntu xenial/universe amd64 Packages [7,532 kB]
Get:8 http://security.ubuntu.com/ubuntu xenial-security/universe amd64 Packages [772 kB]
Get:9 http://archive.ubuntu.com/ubuntu xenial/universe Translation-en [4,354 kB]
Get:10 http://security.ubuntu.com/ubuntu xenial-security/universe Translation-en [218 kB]
Get:11 http://archive.ubuntu.com/ubuntu xenial/multiverse amd64 Packages [144 kB]
Get:12 http://archive.ubuntu.com/ubuntu xenial/multiverse Translation-en [106 kB]
Get:13 http://archive.ubuntu.com/ubuntu xenial-updates/universe amd64 Packages [1,194 kB]
Get:14 http://security.ubuntu.com/ubuntu xenial-security/multiverse amd64 Packages [8,236 B]
Get:15 http://security.ubuntu.com/ubuntu xenial-security/multiverse Translation-en [2,888 B]
Get:16 http://archive.ubuntu.com/ubuntu xenial-updates/universe Translation-en [348 kB]
Get:17 http://archive.ubuntu.com/ubuntu xenial-updates/multiverse amd64 Packages [23.0 kB]
Get:18 http://archive.ubuntu.com/ubuntu xenial-updates/multiverse Translation-en [8,632 B]
Get:19 http://archive.ubuntu.com/ubuntu xenial-backports/main amd64 Packages [9,812 B]
Get:20 http://archive.ubuntu.com/ubuntu xenial-backports/main Translation-en [4,456 B]
Get:21 http://archive.ubuntu.com/ubuntu xenial-backports/universe amd64 Packages [11.3 kB]
Get:22 http://archive.ubuntu.com/ubuntu xenial-backports/universe Translation-en [4,476 B]
```

4}. Make sure you are about to install from the Docker repo instead of the default Ubuntu 16.04 repo:

```
$ apt-cache policy docker-ce
```

```
Select vagrant@ubuntu-xenial: ~
Reading package lists... Done
vagrant@ubuntu-xenial:~$ apt-cache policy docker-ce
docker-ce:
  Installed: (none)
  Candidate: 5:19.03.13-3-0-ubuntu-xenial
  Version table:
   5:19.03.13-3-0-ubuntu-xenial 500
      500 https://download.docker.com/linux/ubuntu xenial/stable amd64 Packages
   5:19.03.12-3-0-ubuntu-xenial 500
      500 https://download.docker.com/linux/ubuntu xenial/stable amd64 Packages
   5:19.03.11-3-0-ubuntu-xenial 500
      500 https://download.docker.com/linux/ubuntu xenial/stable amd64 Packages
   5:19.03.10-3-0-ubuntu-xenial 500
      500 https://download.docker.com/linux/ubuntu xenial/stable amd64 Packages
   5:19.03.9-3-0-ubuntu-xenial 500
      500 https://download.docker.com/linux/ubuntu xenial/stable amd64 Packages
   5:19.03.8-3-0-ubuntu-xenial 500
      500 https://download.docker.com/linux/ubuntu xenial/stable amd64 Packages
   5:19.03.7-3-0-ubuntu-xenial 500
      500 https://download.docker.com/linux/ubuntu xenial/stable amd64 Packages
   5:19.03.6-3-0-ubuntu-xenial 500
      500 https://download.docker.com/linux/ubuntu xenial/stable amd64 Packages
   5:19.03.5-3-0-ubuntu-xenial 500
      500 https://download.docker.com/linux/ubuntu xenial/stable amd64 Packages
   5:19.03.4-3-0-ubuntu-xenial 500
      500 https://download.docker.com/linux/ubuntu xenial/stable amd64 Packages
   5:19.03.3-3-0-ubuntu-xenial 500
      500 https://download.docker.com/linux/ubuntu xenial/stable amd64 Packages
   5:19.03.2-3-0-ubuntu-xenial 500
      500 https://download.docker.com/linux/ubuntu xenial/stable amd64 Packages
   5:19.03.1-3-0-ubuntu-xenial 500
      500 https://download.docker.com/linux/ubuntu xenial/stable amd64 Packages
   5:19.03.0-3-0-ubuntu-xenial 500
      500 https://download.docker.com/linux/ubuntu xenial/stable amd64 Packages
   5:18.09.9-3-0-ubuntu-xenial 500
      500 https://download.docker.com/linux/ubuntu xenial/stable amd64 Packages
   5:18.09.8-3-0-ubuntu-xenial 500
      500 https://download.docker.com/linux/ubuntu xenial/stable amd64 Packages
   5:18.09.7-3-0-ubuntu-xenial 500
      500 https://download.docker.com/linux/ubuntu xenial/stable amd64 Packages
   5:18.09.6-3-0-ubuntu-xenial 500
      500 https://download.docker.com/linux/ubuntu xenial/stable amd64 Packages
   5:18.09.5-3-0-ubuntu-xenial 500
      500 https://download.docker.com/linux/ubuntu xenial/stable amd64 Packages
   5:18.09.4-3-0-ubuntu-xenial 500
      500 https://download.docker.com/linux/ubuntu xenial/stable amd64 Packages
   5:18.09.3-3-0-ubuntu-xenial 500
      500 https://download.docker.com/linux/ubuntu xenial/stable amd64 Packages
   5:18.09.2-3-0-ubuntu-xenial 500
      500 https://download.docker.com/linux/ubuntu xenial/stable amd64 Packages
```

4 . Finally, install Docker:

```
$ sudo apt-get install -y docker-ce
```

```
Select vagrant@ubuntu-xenial: ~
$ sudo apt-get install -y docker-ce
Reading package lists... Done
Building dependency tree
Reading state information... Done
The following additional packages will be installed:
  aufs-tools cgroupfs-mount containerd.io docker-ce-cli libltdl7 pigz
Suggested packages:
  mountall
The following NEW packages will be installed:
  aufs-tools cgroupfs-mount containerd.io docker-ce docker-ce-cli libltdl7 pigz
0 upgraded, 7 newly installed, 0 to remove and 0 not upgraded.
Need to get 91.2 MB of archives.
After this operation, 410 MB of additional disk space will be used.
Get:1 http://archive.ubuntu.com/ubuntu xenial/universe amd64 pigz amd64 2.3.1-2 [61.1 kB]
Get:2 https://download.docker.com/linux/ubuntu xenial/stable amd64 containerd.io amd64 1.3.7-1 [24.3 MB]
Get:3 http://archive.ubuntu.com/ubuntu xenial/universe amd64 aufs-tools amd64 1:3.2+20130722-1.1ubuntu1 [92.9 kB]
Get:4 http://archive.ubuntu.com/ubuntu xenial/universe amd64 cgroupfs-mount all 1.2 [4,970 B]
Get:5 http://archive.ubuntu.com/ubuntu xenial/main amd64 libltdl7 amd64 2.4.6-0.1 [38.3 kB]
Get:6 https://download.docker.com/linux/ubuntu xenial/stable amd64 docker-ce-cli amd64 5:19.03.13-3-0-ubuntu-xenial [44.2 MB]
Get:7 https://download.docker.com/linux/ubuntu xenial/stable amd64 docker-ce amd64 5:19.03.13-3-0-ubuntu-xenial [22.5 MB]
Fetched 91.2 MB in 1min 32s (990 kB/s)
Selecting previously unselected package pigz.
(Reading database ... 54328 files and directories currently installed.)
Preparing to unpack .../pigz_2.3.1-2_amd64.deb ...
Unpacking pigz (2.3.1-2) ...
Selecting previously unselected package aufs-tools.
Preparing to unpack .../aufs-tools_1x3a3.2+20130722-1.1ubuntu1_amd64.deb ...
Unpacking aufs-tools (1:3.2+20130722-1.1ubuntu1) ...
Selecting previously unselected package cgroupfs-mount.
Preparing to unpack .../cgroupfs-mount_1.2_all.deb ...
Unpacking cgroupfs-mount (1.2) ...
Selecting previously unselected package containerd.io.
Preparing to unpack .../containerd.io_1.3.7-1_amd64.deb ...
Unpacking containerd.io (1.3.7-1) ...
Selecting previously unselected package docker-ce-cli.
Preparing to unpack .../docker-ce-cli_5x3a19.03.13-3-0-ubuntu-xenial_amd64.deb ...
Unpacking docker-ce-cli (5:19.03.13-3-0-ubuntu-xenial) ...
Selecting previously unselected package docker-ce.
Preparing to unpack .../docker-ce_5x3a19.03.13-3-0-ubuntu-xenial_amd64.deb ...
Unpacking docker-ce (5:19.03.13-3-0-ubuntu-xenial) ...
Selecting previously unselected package libltdl7:amd64.
Preparing to unpack .../libltdl7_2.4.6-0.1_amd64.deb ...
Unpacking libltdl7:amd64 (2.4.6-0.1) ...
Processing triggers for man-db (2.7.5-1) ...
Processing triggers for libc-bin (2.23-0ubuntu11.2) ...
Processing triggers for ureadahead (0.100.0-19.1) ...
Processing triggers for systemd (229-4ubuntu21.29) ...
Setting up pigz (2.3.1-2) ...
Setting up aufs-tools (1:3.2+20130722-1.1ubuntu1) ...
```

5}. Executing the Docker Command Without Sudo

If you want to avoid typing sudo whenever you run the docker command, add your username to the docker group:

```
$ sudo usermod -aG docker ${USER}
```

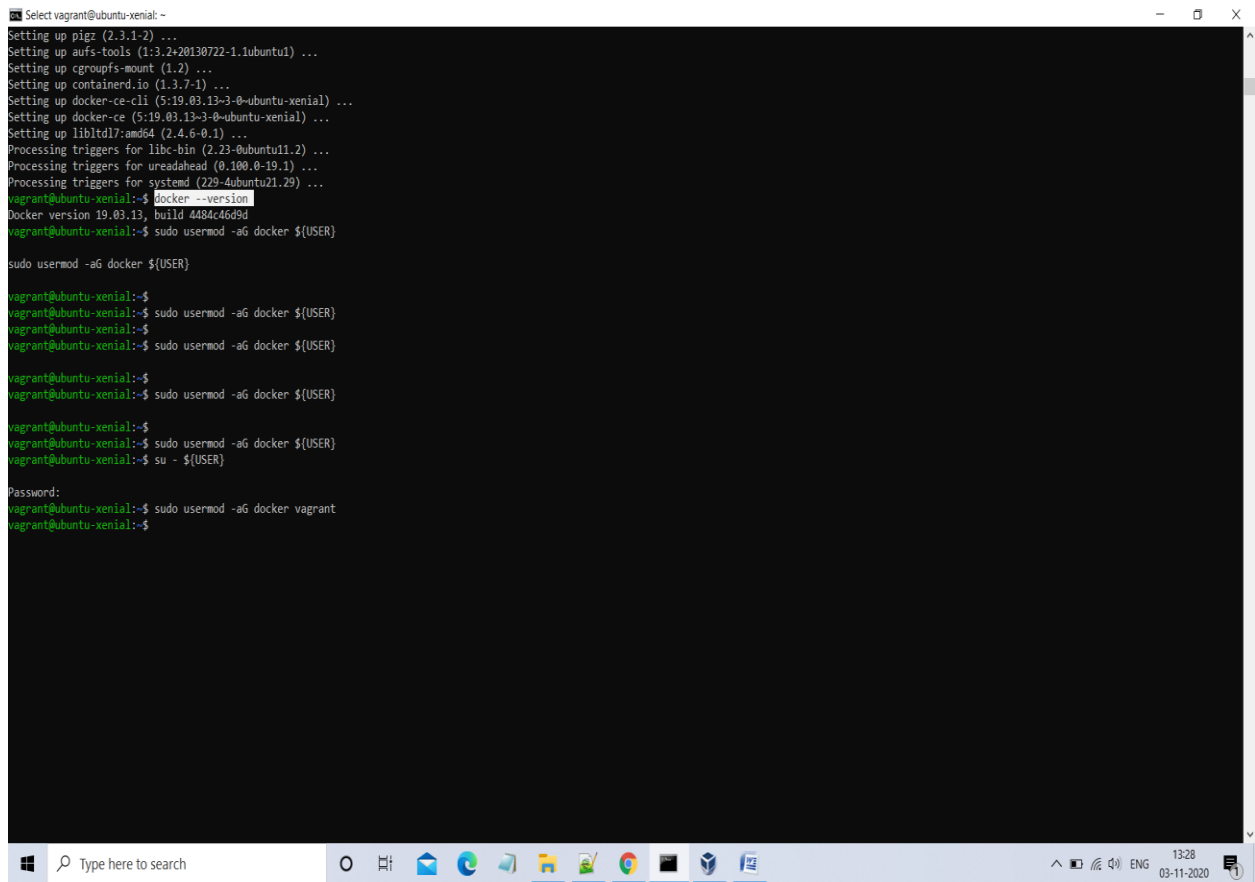
6}. To apply the new group membership, you can log out of the server and back in, or you can type the following:

```
$ su - ${USER}
```

You will be prompted to enter your user's password to continue. Afterwards, you can confirm that your user is now added to the docker group by typing:

7. If you need to add a user to the docker group that you're not logged in as, declare that username explicitly using:

```
$ sudo usermod -aG docker username
```



```
Select vagrant@ubuntu-xenial: ~
Setting up pigz (2.3.1-2) ...
Setting up aufs-tools (1:3.2+20130722-1.1ubuntu1) ...
Setting up cgroupfs-mount (1.2) ...
Setting up containerd.io (1.3.7-1) ...
Setting up docker-ce-cli (5:19.03.13~3-0-ubuntu-xenial) ...
Setting up docker-ce (5:19.03.13~3-0-ubuntu-xenial) ...
Setting up libltdl7:amd64 (2.4.6-0.1) ...
Processing triggers for libc-bin (2.23-0ubuntu11.2) ...
Processing triggers for ureadahead (0.100.0-19.1) ...
Processing triggers for systemd (229-4ubuntu21.29) ...
vagrant@ubuntu-xenial:~$ docker --version
Docker version 19.03.13, build 4484c46d9d
vagrant@ubuntu-xenial:~$ sudo usermod -aG docker ${USER}

sudo usermod -aG docker ${USER}

vagrant@ubuntu-xenial:~$
vagrant@ubuntu-xenial:~$ sudo usermod -aG docker ${USER}
vagrant@ubuntu-xenial:~$
vagrant@ubuntu-xenial:~$ sudo usermod -aG docker ${USER}
vagrant@ubuntu-xenial:~$
vagrant@ubuntu-xenial:~$ sudo usermod -aG docker ${USER}
vagrant@ubuntu-xenial:~$
vagrant@ubuntu-xenial:~$ sudo usermod -aG docker ${USER}
vagrant@ubuntu-xenial:~$ su - ${USER}

Password:
vagrant@ubuntu-xenial:~$ sudo usermod -aG docker vagrant
vagrant@ubuntu-xenial:~$
```

```
$ docker run ubuntu
$ docker ps
$ docker ps -a
$docker run -it ubuntu
```

```
Select root@927002adbabe:/
Setting up pigz (2.3.1-2) ...
Setting up aufs-tools (1:3.2-20130722-1.ubuntu1) ...
Setting up cgroupfs-mount (1.2) ...
Setting up containerd.io (1.3.7-1) ...
Setting up docker-ce-cli (5:19.03.13-3-0-ubuntu-xenial) ...
Setting up docker-ce (5:19.03.13-3-0-ubuntu-xenial) ...
Setting up libltdl7:amd64 (2.4.6-0.1) ...
Processing triggers for libc-bin (2.23-0ubuntu1.2) ...
Processing triggers for ureadahead (0.100.0-19.1) ...
Processing triggers for systemd (229-4ubuntu21.29) ...
vagrant@ubuntu-xenial:~$ docker --version
Docker version 19.03.13, build 4484c46d9d
vagrant@ubuntu-xenial:~$ sudo usermod -aG docker $(USER)
sudo usermod -aG docker $(USER)

vagrant@ubuntu-xenial:~$
vagrant@ubuntu-xenial:~$ sudo usermod -aG docker $(USER)
vagrant@ubuntu-xenial:~$
vagrant@ubuntu-xenial:~$ sudo usermod -aG docker $(USER)
vagrant@ubuntu-xenial:~$
vagrant@ubuntu-xenial:~$ sudo usermod -aG docker $(USER)
vagrant@ubuntu-xenial:~$ su - $(USER)

Password:
vagrant@ubuntu-xenial:~$ sudo usermod -aG docker vagrant
vagrant@ubuntu-xenial:~$ docker run ubuntu
Unable to find image 'ubuntu:latest' locally
latest: Pulling from library/ubuntu
6a5697faee43: Pull complete
ba13d3bc422b: Pull complete
a254829d9e55: Pull complete
Digest: sha256:ffff16ee1a8ae92867721d90c59a75652ea66d29c85294e6e2f898704bdb8cf1
Status: Downloaded newer image for ubuntu:latest
vagrant@ubuntu-xenial:~$ docker ps
CONTAINER ID        IMAGE               COMMAND             CREATED             STATUS              PORTS              NAMES
7b316aa95ad3        ubuntu             "/bin/bash"        About a minute ago   Exited (0)          About a minute ago   interesting_fermi

vagrant@ubuntu-xenial:~$ docker ps -a
CONTAINER ID        IMAGE               COMMAND             CREATED             STATUS              PORTS              NAMES
7b316aa95ad3        ubuntu             "/bin/bash"        About a minute ago   Exited (0)          About a minute ago   interesting_fermi

vagrant@ubuntu-xenial:~$ docker run -it ubuntu
root@927002adbabe:/# ls
bin boot dev etc home lib lib32 lib64 libx32 media mnt opt proc root run sbin srv sys usr var
root@927002adbabe:/# mkdir Rajat
root@927002adbabe:/# ls
Rajat bin boot dev etc home lib lib32 lib64 libx32 media mnt opt proc root run sbin srv sys usr var
root@927002adbabe:/#
```

```
Select root@927002adbabe:/
Setting up libltdl7:amd64 (2.4.6-0.1) ...
Processing triggers for libc-bin (2.23-0ubuntu1.2) ...
Processing triggers for ureadahead (0.100.0-19.1) ...
Processing triggers for systemd (229-4ubuntu21.29) ...
vagrant@ubuntu-xenial:~$ docker --version
Docker version 19.03.13, build 4484c46d9d
vagrant@ubuntu-xenial:~$ sudo usermod -aG docker $(USER)
sudo usermod -aG docker $(USER)

vagrant@ubuntu-xenial:~$
vagrant@ubuntu-xenial:~$ sudo usermod -aG docker $(USER)
vagrant@ubuntu-xenial:~$
vagrant@ubuntu-xenial:~$ sudo usermod -aG docker $(USER)
vagrant@ubuntu-xenial:~$
vagrant@ubuntu-xenial:~$ sudo usermod -aG docker $(USER)
vagrant@ubuntu-xenial:~$ su - $(USER)

Password:
vagrant@ubuntu-xenial:~$ sudo usermod -aG docker vagrant
vagrant@ubuntu-xenial:~$ docker run ubuntu
Unable to find image 'ubuntu:latest' locally
latest: Pulling from library/ubuntu
6a5697faee43: Pull complete
ba13d3bc422b: Pull complete
a254829d9e55: Pull complete
Digest: sha256:ffff16ee1a8ae92867721d90c59a75652ea66d29c85294e6e2f898704bdb8cf1
Status: Downloaded newer image for ubuntu:latest
vagrant@ubuntu-xenial:~$ docker ps
CONTAINER ID        IMAGE               COMMAND             CREATED             STATUS              PORTS              NAMES
7b316aa95ad3        ubuntu             "/bin/bash"        About a minute ago   Exited (0)          About a minute ago   interesting_fermi

vagrant@ubuntu-xenial:~$ docker run -it ubuntu
root@927002adbabe:/# ls
bin boot dev etc home lib lib32 lib64 libx32 media mnt opt proc root run sbin srv sys usr var
root@927002adbabe:/# mkdir Rajat
root@927002adbabe:/# ls
Rajat bin boot dev etc home lib lib32 lib64 libx32 media mnt opt proc root run sbin srv sys usr var
root@927002adbabe:/#
```

CREATE A DIRECTORY:-

```
CONTAINER ID        IMAGE               COMMAND             CREATED             STATUS              PORTS               NAMES
7b316aa95ad3      ubuntu             "/bin/bash"        About a minute ago   Exited (0) About a minute ago               interesting_fermi

vagrant@ubuntu-xenial:~$ docker run -it ubuntu
root@927002adbabe:/# ls
bin  boot  dev  etc  home  lib  lib32  lib64  libx32  media  mnt  opt  proc  root  run  sbin  srv  sys  usr  var
root@927002adbabe:/# mkdir Rajat
root@927002adbabe:/# ls
Rajat  bin  boot  dev  etc  home  lib  lib32  lib64  libx32  media  mnt  opt  proc  root  run  sbin  srv  sys  usr  var
root@927002adbabe:/#
```