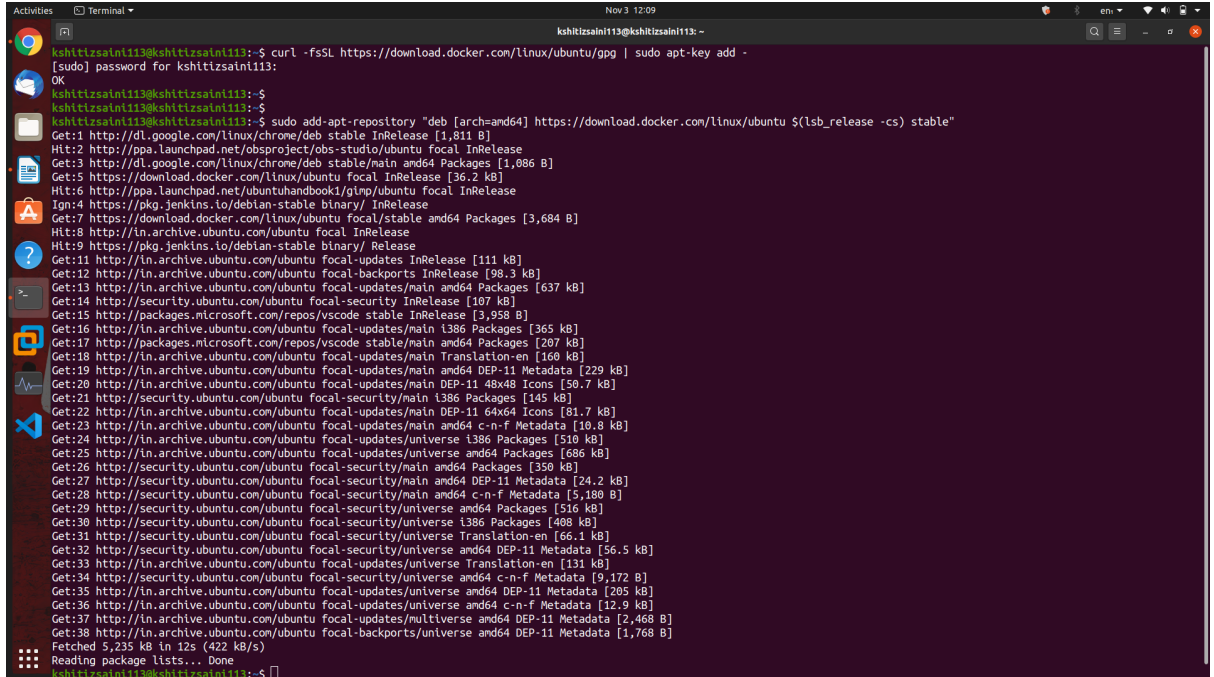


Experiment 12

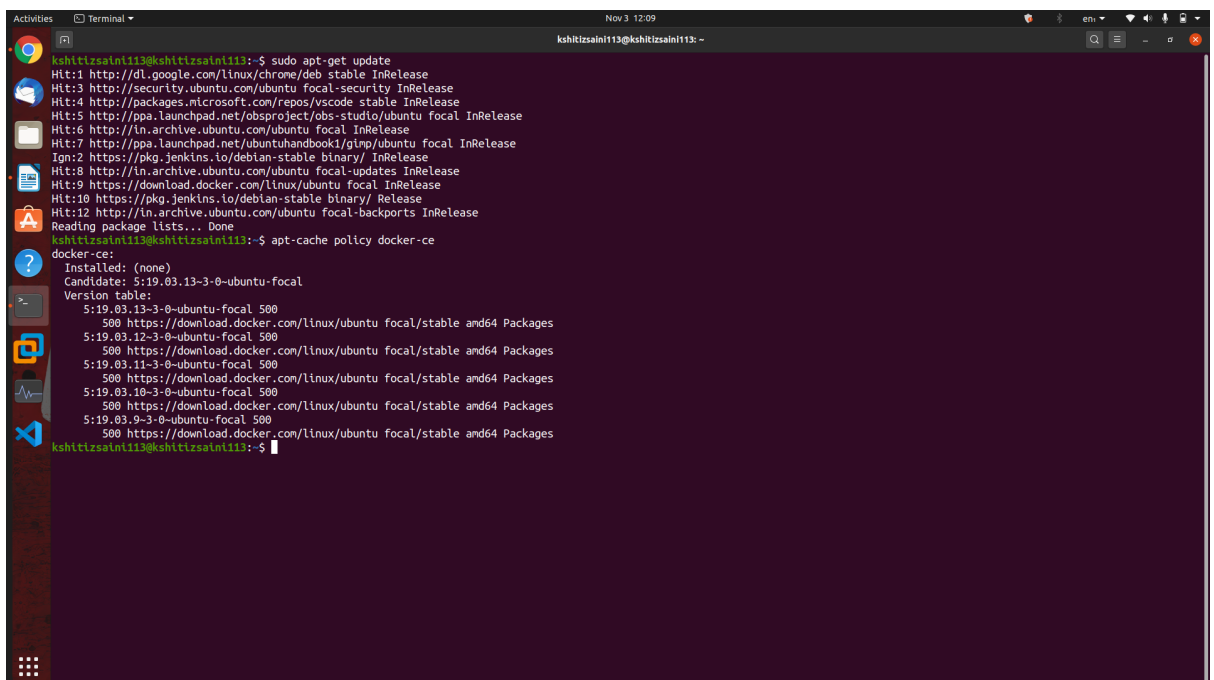
Running Docker Containers

- 1) Add Docker repository in the system.



```
kshittizsaini113@kshittizsaini113:~$ curl -fsSL https://download.docker.com/linux/ubuntu/gpg | sudo apt-key add -
[sudo] password for kshittizsaini113:
OK
kshittizsaini113@kshittizsaini113:~$ sudo add-apt-repository "deb [arch=amd64] https://download.docker.com/linux/ubuntu $(lsb_release -cs) stable"
Get:1 http://dl.google.com/linux/chrome/deb stable InRelease [1,811 B]
Hit:2 http://ppa.launchpad.net/obsproject/obs-studio/ubuntu focal InRelease
Get:3 http://dl.google.com/linux/chrome/deb stable/main amd64 Packages [1,086 B]
Get:5 https://download.docker.com/linux/ubuntu focal InRelease [36.2 kB]
Hit:6 http://ppa.launchpad.net/ubuntuhandbook1/gimp/ubuntu focal InRelease
Ign:4 https://pkg.jenkins.io/debian-stable binary/ InRelease
Get:7 https://download.docker.com/linux/ubuntu focal stable amd64 Packages [3,684 B]
Hit:8 http://in.archive.ubuntu.com/ubuntu focal InRelease
Hit:9 https://pkg.jenkins.io/debian-stable binary/ Release
Get:11 http://in.archive.ubuntu.com/ubuntu focal-updates InRelease [111 kB]
Get:12 http://in.archive.ubuntu.com/ubuntu focal-backports InRelease [98.3 kB]
Get:13 http://in.archive.ubuntu.com/ubuntu focal-updates/main amd64 Packages [637 kB]
Get:14 http://security.ubuntu.com/ubuntu focal-security InRelease [107 kB]
Get:15 http://packages.microsoft.com/repos/vscode stable InRelease [3,958 B]
Get:16 http://in.archive.ubuntu.com/ubuntu focal-updates/main i386 Packages [365 kB]
Get:17 http://packages.microsoft.com/repos/vscode stable/main amd64 Packages [207 kB]
Get:18 http://in.archive.ubuntu.com/ubuntu focal-updates/main Translation-en [169 kB]
Get:19 http://in.archive.ubuntu.com/ubuntu focal-updates/main amd64 DEP-11 Metadata [229 kB]
Get:20 http://in.archive.ubuntu.com/ubuntu focal-updates/main DEP-11 48x48 Icons [50.7 kB]
Get:21 http://security.ubuntu.com/ubuntu focal-security/main i386 Packages [145 kB]
Get:22 http://in.archive.ubuntu.com/ubuntu focal-updates/main DEP-11 64x64 Icons [81.7 kB]
Get:23 http://in.archive.ubuntu.com/ubuntu focal-updates/main amd64 c-n-f Metadata [10.8 kB]
Get:24 http://in.archive.ubuntu.com/ubuntu focal-updates/universe i386 Packages [510 kB]
Get:25 http://in.archive.ubuntu.com/ubuntu focal-updates/universe amd64 Packages [686 kB]
Get:26 http://security.ubuntu.com/ubuntu focal-security/main amd64 Packages [350 kB]
Get:27 http://security.ubuntu.com/ubuntu focal-security/main amd64 DEP-11 Metadata [24.2 kB]
Get:28 http://security.ubuntu.com/ubuntu focal-security/main amd64 c-n-f Metadata [5,180 B]
Get:29 http://security.ubuntu.com/ubuntu focal-security/universe amd64 Packages [516 kB]
Get:30 http://security.ubuntu.com/ubuntu focal-security/universe i386 Packages [408 kB]
Get:31 http://security.ubuntu.com/ubuntu focal-security/universe Translation-en [66.1 kB]
Get:32 http://security.ubuntu.com/ubuntu focal-security/universe amd64 DEP-11 Metadata [56.5 kB]
Get:33 http://in.archive.ubuntu.com/ubuntu focal-updates/universe Translation-en [131 kB]
Get:34 http://security.ubuntu.com/ubuntu focal-security/universe amd64 c-n-f Metadata [9,172 B]
Get:35 http://in.archive.ubuntu.com/ubuntu focal-updates/universe amd64 DEP-11 Metadata [205 kB]
Get:36 http://in.archive.ubuntu.com/ubuntu focal-updates/universe amd64 c-n-f Metadata [12.9 kB]
Get:37 http://in.archive.ubuntu.com/ubuntu focal-updates/multiverse amd64 DEP-11 Metadata [2,468 B]
Get:38 http://in.archive.ubuntu.com/ubuntu focal-backports/universe amd64 DEP-11 Metadata [1,768 B]
Fetched 5,235 kB in 12s (422 kB/s)
Reading package lists... Done
kshittizsaini113@kshittizsaini113:~$
```

- 2) Update the repositories to get the Docker packages.



```
kshittizsaini113@kshittizsaini113:~$ sudo apt-get update
Hit:1 http://dl.google.com/linux/chrome/deb stable InRelease
Hit:3 http://security.ubuntu.com/ubuntu focal-security InRelease
Hit:4 http://packages.microsoft.com/repos/vscode stable InRelease
Hit:5 http://ppa.launchpad.net/obsproject/obs-studio/ubuntu focal InRelease
Hit:6 http://in.archive.ubuntu.com/ubuntu focal InRelease
Hit:7 http://ppa.launchpad.net/ubuntuhandbook1/gimp/ubuntu focal InRelease
Ign:2 https://pkg.jenkins.io/debian-stable binary/ InRelease
Hit:8 http://in.archive.ubuntu.com/ubuntu focal-updates InRelease
Hit:9 https://download.docker.com/linux/ubuntu focal InRelease
Hit:10 https://pkg.jenkins.io/debian-stable binary/ Release
Hit:12 http://in.archive.ubuntu.com/ubuntu focal-backports InRelease
Reading package lists... Done
kshittizsaini113@kshittizsaini113:~$ apt-cache policy docker-ce
docker-ce:
Installed: (none)
Candidate: 5:19.03.13-3-0-ubuntu-focal
Version table:
5:19.03.13-3-0-ubuntu-focal 500
500 https://download.docker.com/linux/ubuntu focal/stable amd64 Packages
5:19.03.12-3-0-ubuntu-focal 500
500 https://download.docker.com/linux/ubuntu focal/stable amd64 Packages
5:19.03.11-3-0-ubuntu-focal 500
500 https://download.docker.com/linux/ubuntu focal/stable amd64 Packages
5:19.03.10-3-0-ubuntu-focal 500
500 https://download.docker.com/linux/ubuntu focal/stable amd64 Packages
5:19.03.9-3-0-ubuntu-focal 500
500 https://download.docker.com/linux/ubuntu focal/stable amd64 Packages
kshittizsaini113@kshittizsaini113:~$
```

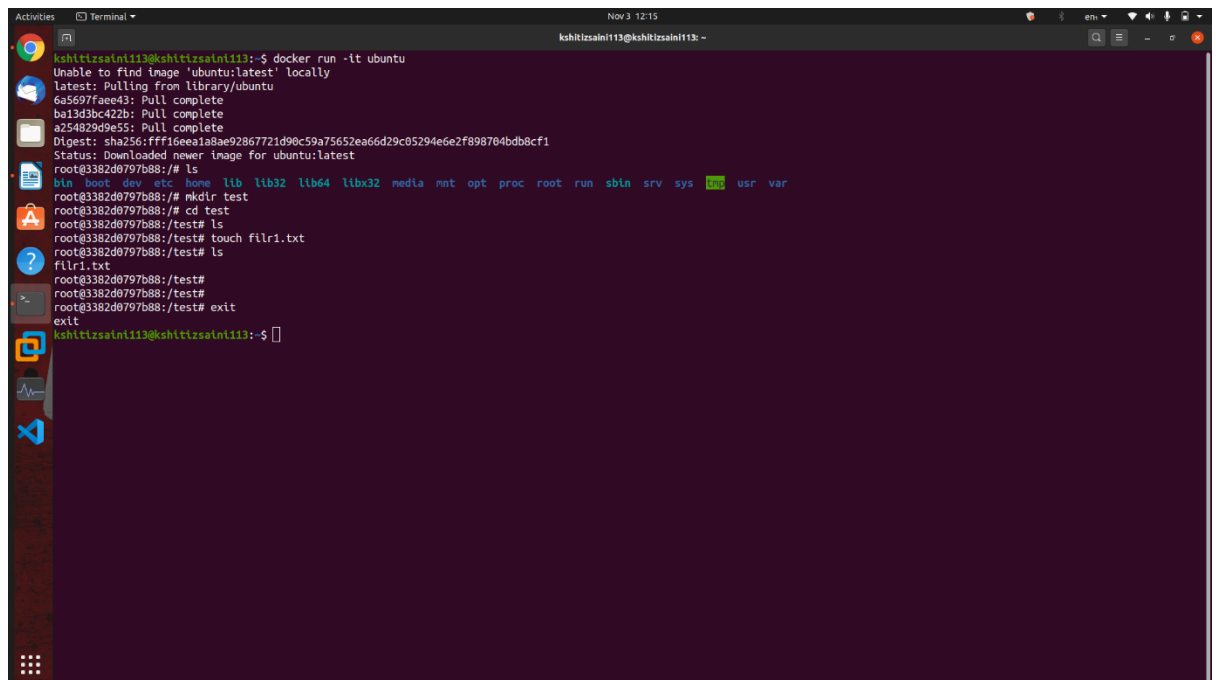
3) Install docker-ce into the system.

```
Activities Terminal Nov 3 12:13 kshittizsaini113@kshittizsaini113: ~  
kshittizsaini113@kshittizsaini113:~$ sudo apt-get install -y docker-ce  
Reading package lists... Done  
Building dependency tree  
Reading state information... Done  
The following packages were automatically installed and are no longer required:  
  bridge-utils ubuntu-fan  
Use 'sudo apt autoremove' to remove them.  
The following additional packages will be installed:  
  aufs-tools containerd.io docker-ce-cli  
The following packages will be REMOVED:  
  containerd docker.io runc  
The following NEW packages will be installed:  
  aufs-tools containerd.io docker-ce docker-ce-cli  
0 upgraded, 4 newly installed, 3 to remove and 11 not upgraded.  
Need to get 91.2 MB of archives.  
After this operation, 77.0 MB of additional disk space will be used.  
Get:1 https://download.docker.com/linux/ubuntu focal/stable amd64 containerd.io amd64 1.3.7-1 [24.3 MB]  
Get:2 http://in.archive.ubuntu.com/ubuntu focal/universe amd64 aufs-tools amd64 1:4.14+20190211-1ubuntu1 [104 kB]  
Get:3 https://download.docker.com/linux/ubuntu focal/stable amd64 docker-ce-cli amd64 5:19.03.13-3-0-ubuntu-focal [44.2 MB]  
Get:4 https://download.docker.com/linux/ubuntu focal/stable amd64 docker-ce amd64 5:19.03.13-3-0-ubuntu-focal [22.6 MB]  
Fetched 91.2 MB in 42s (2.157 kB/s)  
(Reading database ... 236809 files and directories currently installed.)  
Removing docker.io (19.03.8-0ubuntu1.20.04.1) ...  
/usr/share/docker.io/contrib/nuke-graph-directory.sh -> '/var/lib/docker/nuke-graph-directory.sh'  
Removing containerd (1.3.3-0ubuntu2) ...  
Removing runc (1.0.0-rc10-0ubuntu1) ...  
Selecting previously unselected package aufs-tools.  
(Reading database ... 236551 files and directories currently installed.)  
Preparing to unpack .../aufs-tools_1:4.14+20190211-1ubuntu1_amd64.deb ...  
Unpacking aufs-tools (1:4.14+20190211-1ubuntu1) ...  
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_5:19.03.13-3-0-ubuntu-focal_amd64.deb ...  
Unpacking docker-ce-cli (5:19.03.13-3-0-ubuntu-focal) ...  
Selecting previously unselected package docker-ce.  
Preparing to unpack .../docker-ce_5:19.03.13-3-0-ubuntu-focal_amd64.deb ...  
Unpacking docker-ce (5:19.03.13-3-0-ubuntu-focal) ...  
Setting up aufs-tools (1:4.14+20190211-1ubuntu1) ...  
Setting up containerd.io (1.3.7-1) ...  
Setting up docker-ce-cli (5:19.03.13-3-0-ubuntu-focal) ...  
Setting up docker-ce (5:19.03.13-3-0-ubuntu-focal) ...  
Created symlink /etc/systemd/system/multi-user.target.wants/docker.service -> /lib/systemd/system/docker.service.  
Processing triggers for systemd (245.4-4ubuntu3.2) ...  
Processing triggers for man-db (2.9.1-1) ...
```

4) Check the status of docker to check if it is running or not.

```
Activities Terminal Nov 3 12:13 kshittizsaini113@kshittizsaini113: ~  
kshittizsaini113@kshittizsaini113:~$ sudo systemctl status docker  
● docker.service - Docker Application Container Engine  
   Loaded: loaded (/lib/systemd/system/docker.service; enabled; vendor preset: enabled)  
   Active: active (running) since Tue 2020-11-03 12:10:37 IST; 2min 37s ago  
     TriggeredBy: ● docker.socket  
       Docs: https://docs.docker.com  
      Main PID: 7366 (dockerd)  
        Tasks: 14  
       Memory: 41.7M  
      CGroup: /system.slice/docker.service  
              └─7366 /usr/bin/dockerd -H fd:// --containerd=/run/containerd/containerd.sock  
  
Nov 03 12:10:37 kshittizsaini113 dockerd[7366]: time="2020-11-03T12:10:37.110236199+05:30" level=warning msg="Your kernel does not support cgroup rt runtime"  
Nov 03 12:10:37 kshittizsaini113 dockerd[7366]: time="2020-11-03T12:10:37.110241745+05:30" level=warning msg="Your kernel does not support cgroup blkio weight"  
Nov 03 12:10:37 kshittizsaini113 dockerd[7366]: time="2020-11-03T12:10:37.110246957+05:30" level=warning msg="Your kernel does not support cgroup blkio weight_device"  
Nov 03 12:10:37 kshittizsaini113 dockerd[7366]: time="2020-11-03T12:10:37.110429310+05:30" level=info msg="Loading containers: start."  
Nov 03 12:10:37 kshittizsaini113 dockerd[7366]: time="2020-11-03T12:10:37.423475031+05:30" level=info msg="Default bridge (docker0) is assigned with an IP address 172.17.0.0/16. Daemo  
Nov 03 12:10:37 kshittizsaini113 dockerd[7366]: time="2020-11-03T12:10:37.486718243+05:30" level=info msg="Loading containers: done."  
Nov 03 12:10:37 kshittizsaini113 dockerd[7366]: time="2020-11-03T12:10:37.562249251+05:30" level=info msg="Docker daemon" commit=4484c46d9d graphdriver(s)=overlay2 version=19.03.13  
Nov 03 12:10:37 kshittizsaini113 dockerd[7366]: time="2020-11-03T12:10:37.562472784+05:30" level=info msg="Daemon has completed initialization"  
Nov 03 12:10:37 kshittizsaini113 dockerd[7366]: time="2020-11-03T12:10:37.592801273+05:30" level=info msg="API listen on /run/docker.sock"  
Nov 03 12:10:37 kshittizsaini113 systemd[1]: Started Docker Application Container Engine.  
kshittizsaini113@kshittizsaini113:~$  
kshittizsaini113@kshittizsaini113:~$  
kshittizsaini113@kshittizsaini113:~$  
kshittizsaini113@kshittizsaini113:~$
```

5) Run the container and do the process.



```
kshittizsaini113@kshittizsaini113:~$ docker run -it ubuntu
Unable to find image 'ubuntu:latest' locally
latest: Pulling from library/ubuntu
6a5697faee43: Pull complete
ba13d3bc422b: Pull complete
a254829d9e55: Pull complete
Digest: sha256:ffff6eeaa1a8ae92867721d90c59a75652ea66d29c05294e6e2f898704bdb8cf1
Status: Downloaded newer image for ubuntu:latest
root@3382d0797b88:/# ls
bin boot dev etc home lib lib32 lib64 libx32 media mnt opt proc root run sbin srv sys usr var
root@3382d0797b88:/# mkdir test
root@3382d0797b88:/test# ls
root@3382d0797b88:/test# touch filr1.txt
root@3382d0797b88:/test# ls
filr1.txt
root@3382d0797b88:/test#
root@3382d0797b88:/test#
root@3382d0797b88:/test# exit
exit
kshittizsaini113@kshittizsaini113:~$
```