Step 1 :

```
sowmiya@LAPTOP-E2BCEK44: $ sudo apt install -y docker.io
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
The following additional packages will be installed:
  bridge-utils containerd dns-root-data dnsmasq-base iptables libip4tc2 libip6tc2 libnetfilter-conntrack3 libnfnetlink0 libnftables1 libnftnl11 nftables
  pigz runc ubuntu-fan
Suggested packages:
  ifupdown aufs-tools btrfs-progs cgroupfs-mount | cgroup-lite debootstrap docker-buildx docker-compose-v2 docker-doc rinse zfs-fuse | zfsutils firewalld
The following NEW packages will be installed:
  bridge-utils containerd dns-root-data dnsmasq-base docker.io iptables libip4tc2 libip6tc2 libnetfilter-conntrack3 libnfnetlink0 libnftables1 libnftnl11
  nftables pigz runc ubuntu-fan
0 upgraded, 16 newly installed, 0 to remove and 0 not upgraded.
Need to get 79.6 MB of archives.
After this operation, 306 MB of additional disk space will be used.
Get:1 http://mirror.math.princeton.edu/pub/ubuntu noble/universe amd64 pigz amd64 2.8-1 [65.6 kB]
Get:2 http://mirror.math.princeton.edu/pub/ubuntu noble/main amd64 libip4tc2 amd64 1.8.10-3ubuntu2 [23.3 kB]
Get:3 http://mirror.math.princeton.edu/pub/ubuntu noble/main amd64 libip6tc2 amd64 1.8.10-3ubuntu2 [23.7 kB]
Get:4 http://mirror.math.princeton.edu/pub/ubuntu noble/main amd64 libnfnetlink0 amd64 1.0.2-2build1 [14.8 kB]
Get:5 http://mirror.math.princeton.edu/pub/ubuntu noble/main amd64 libnetfilter-conntrack3 amd64 1.0.9-6build1 [45.2 kB]
Get:6 http://mirror.math.princeton.edu/pub/ubuntu noble/main amd64 libnftnl11 amd64 1.2.6-2build1 [66.0 kB]
Get:7 http://mirror.math.princeton.edu/pub/ubuntu noble/main amd64 iptables amd64 1.8.10-3ubuntu2 [381 kB]
Get:8 http://mirror.math.princeton.edu/pub/ubuntu noble/main amd64 libnftables1 amd64 1.0.9-1build1 [358 kB]
Get:9 http://mirror.math.princeton.edu/pub/ubuntu noble/main amd64 nftables amd64 1.0.9-1build1 [69.8 kB]
Get:10 http://mirror.math.princeton.edu/pub/ubuntu noble/main amd64 bridge-utils amd64 1.7.1-1ubuntu2 [33.9 kB]
Get:11 http://mirror.math.princeton.edu/pub/ubuntu noble-updates/main amd64 runc amd64 1.1.12-0ubuntu3.1 [8599 kB]
Get:12 http://mirror.math.princeton.edu/pub/ubuntu noble-updates/main amd64 containerd amd64 1.7.24-0ubuntu1~24.04.1 [37.0 MB]
Get:13 http://mirror.math.princeton.edu/pub/ubuntu noble-updates/main amd64 dns-root-data all 2024071801~ubuntu0.24.04.1 [5918 B]
Get:14 http://mirror.math.princeton.edu/pub/ubuntu noble/main amd64 dnsmasq-base amd64 2.90-2build2 [375 kB]
Get:15 http://mirror.math.princeton.edu/pub/ubuntu noble-updates/universe amd64 docker.io amd64 26.1.3-0ubuntu1~24.04.1 [32.4 MB]
Get:16 http://mirror.math.princeton.edu/pub/ubuntu noble/universe amd64 ubuntu-fan all 0.12.16 [35.2 kB]
Fetched 79.6 MB in 2min 45s (484 kB/s)
Preconfiguring packages ...
Selecting previously unselected package pigz.
(Reading database ... 42971 files and directories currently installed.)
Preparing to unpack .../00-pigz_2.8-1_amd64.deb ...
Unpacking pigz (2.8-1) ...
Selecting previously unselected package libip4tc2:amd64.
Preparing to unpack .../01-libip4tc2_1.8.10-3ubuntu2_amd64.deb ...
Unpacking libip4tc2:amd64 (1.8.10-3ubuntu2) ...
Selecting previously unselected package libip6tc2:amd64.
```

Step 2:

```
Ubuntu
sowmiya@LAPTOP-E2BCEK44: $ sudo apt update
Ign:1 https://pkg.jenkins.io/debian-stable binary/ InRelease
Hit:2 https://pkg.jenkins.io/debian-stable binary/ Release
Hit:4 http://archive.ubuntu.com/ubuntu noble InRelease
Get:5 http://archive.ubuntu.com/ubuntu noble-updates InRelease [126 kB]
Hit:6 http://security.ubuntu.com/ubuntu noble-security InRelease
Hit:7 http://mirror.math.princeton.edu/pub/ubuntu noble InRelease
Hit:8 http://archive.ubuntu.com/ubuntu noble-backports InRelease
Get:9 http://mirror.math.princeton.edu/pub/ubuntu noble-updates InRelease [126 kB]
Hit:10 http://mirror.math.princeton.edu/pub/ubuntu noble-backports InRelease
Fetched 252 kB in 3s (81.0 kB/s)
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
All packages are up to date.
W: Target Packages (main/binary-amd64/Packages) is configured multiple times in /etc/apt/sources.list:8 and /etc/apt/sources.list.d/ubuntu.sources:2
W: Target Packages (main/binary-all/Packages) is configured multiple times in /etc/apt/sources.list:8 and /etc/apt/sources.list.d/ubuntu.sources:2
W: Target Translations (main/i18n/Translation-en) is configured multiple times in /etc/apt/sources.list:8 and /etc/apt/sources.list.d/ubuntu.sources:2
W: Target DEP-11 (main/dep11/Components-amd64.yml) is configured multiple times in /etc/apt/sources.list:8 and /etc/apt/sources.list.d/ubuntu.sources:2
W: Target DEP-11 (main/dep11/Components-all.yml) is configured multiple times in /etc/apt/sources.list:8 and /etc/apt/sources.list.d/ubuntu.sources:2
W: Target CNF (main/cnf/Commands-amd64) is configured multiple times in /etc/apt/sources.list:8 and /etc/apt/sources.list.d/ubuntu.sources:2
W: Target CNF (main/cnf/Commands-all) is configured multiple times in /etc/apt/sources.list:8 and /etc/apt/sources.list.d/ubuntu.sources:2
W: Target Packages (universe/binary-amd64/Packages) is configured multiple times in /etc/apt/sources.list:8 and /etc/apt/sources.list.d/ubuntu.sources:2
W: Target Packages (universe/binary-all/Packages) is configured multiple times in /etc/apt/sources.list:8 and /etc/apt/sources.list.d/ubuntu.sources:2
W: Target Translations (universe/i18n/Translation-en) is configured multiple times in /etc/apt/sources.list:8 and /etc/apt/sources.list.d/ubuntu.sources:2
W: Target DEP-11 (universe/dep11/Components-amd64.yml) is configured multiple times in /etc/apt/sources.list:8 and /etc/apt/sources.list.d/ubuntu.sources:2
W: Target DEP-11 (universe/dep11/Components-all.yml) is configured multiple times in /etc/apt/sources.list:8 and /etc/apt/sources.list.d/ubuntu.sources:2
W: Target CNF (universe/cnf/Commands-amd64) is configured multiple times in /etc/apt/sources.list:8 and /etc/apt/sources.list.d/ubuntu.sources:2
W: Target CNF (universe/cnf/Commands-all) is configured multiple times in /etc/apt/sources.list:8 and /etc/apt/sources.list.d/ubuntu.sources:2
W: Target Packages (restricted/binary-amd64/Packages) is configured multiple times in /etc/apt/sources.list:8 and /etc/apt/sources.list.d/ubuntu.sources:2
W: Target Packages (restricted/binary-all/Packages) is configured multiple times in /etc/apt/sources.list:8 and /etc/apt/sources.list.d/ubuntu.sources:2
W: Target Translations (restricted/i18n/Translation-en) is configured multiple times in /etc/apt/sources.list:8 and /etc/apt/sources.list.d/ubuntu.sources:2
W: Target DEP-11 (restricted/dep11/Components-amd64.yml) is configured multiple times in /etc/apt/sources.list:8 and /etc/apt/sources.list.d/ubuntu.sources:
2
W: Target DEP-11 (restricted/dep11/Components-all.yml) is configured multiple times in /etc/apt/sources.list:8 and /etc/apt/sources.list.d/ubuntu.sources:2
W: Target CNF (restricted/cnf/Commands-amd64) is configured multiple times in /etc/apt/sources.list:8 and /etc/apt/sources.list.d/ubuntu.sources:2
W: Target CNF (restricted/cnf/Commands-all) is configured multiple times in /etc/apt/sources.list:8 and /etc/apt/sources.list.d/ubuntu.sources:2
W: Target Packages (multiverse/binary-amd64/Packages) is configured multiple times in /etc/apt/sources.list:8 and /etc/apt/sources.list.d/ubuntu.sources:2
W: Target Packages (multiverse/binary-all/Packages) is configured multiple times in /etc/apt/sources.list:8 and /etc/apt/sources.list.d/ubuntu.sources:2
W: Target Translations (multiverse/i18n/Translation-en) is configured multiple times in /etc/apt/sources.list:8 and /etc/apt/sources.list.d/ubuntu.sources:2
W: Target DEP-11 (multiverse/dep11/Components-amd64.yml) is configured multiple times in /etc/apt/sources.list:8 and /etc/apt/sources.list.d/ubuntu.sources:
2
```

Step 3 :

```
sowmiya@LAPTOP-E2BCEK44:~$ sudo systemctl enable docker
sowmiya@LAPTOP-E2BCEK44:~$ sudo systemctl start docker
sowmiya@LAPTOP-E2BCEK44:~$
```

Step 4 :

```
sowmiya@LAPTOP-E2BCEK44:~$ docker --version
Docker version 26.1.3, build 26.1.3-0ubuntu1~24.04.1
sowmiya@LAPTOP-E2BCEK44:~$
```

Step 5 :

```
sowmiya@LAPTOP-E2BCEK44: $ sudo curl -L "https://github.com/docker/compose/releases/latest/download/docker-compose-$(uname -s)-$(uname -m)" -o /usr/local/bi
n/docker-compose
  % Total    % Received % Xferd  Average Speed   Time    Time     Time  Current
                                 Dload  Upload   Total   Spent    Left  Speed
  0     0    0     0    0     0      0      0 --:--:-- --:--:-- --:--:--     0
  0     0    0     0    0     0      0      0 --:--:-- --:--:-- --:--:--     0
 16 71.4M   16 11.8M    0     0   451k      0  0:02:42  0:00:26  0:02:16  706k
```

Step 6 :

Chmod is used to change the mode and +x is for the readability and check the version of the docker compose

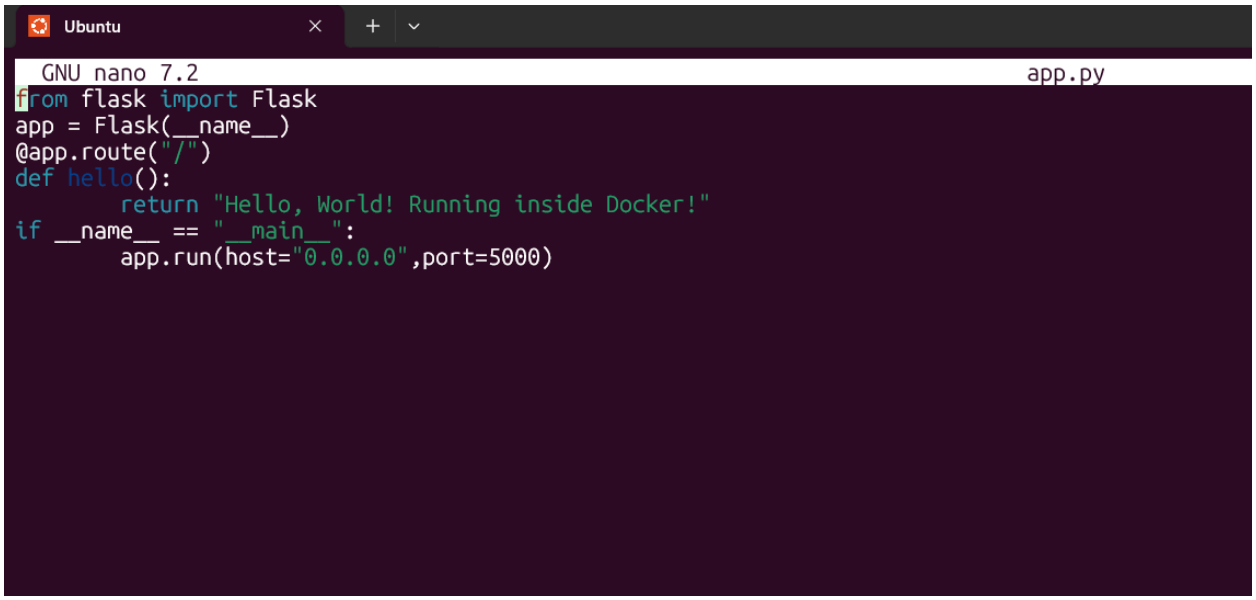
```
sowmiya@LAPTOP-E2BCEK44:~$ sudo chmod +x /usr/local/bin/docker-compose
sowmiya@LAPTOP-E2BCEK44:~$ docker-compose --version
Docker Compose version v2.34.0
```

Step 7 :

```
sowmiya@LAPTOP-E2BCEK44: $ sudo chmod +x /usr/local/bin/docker-compose
sowmiya@LAPTOP-E2BCEK44: $ docker-compose --version
Docker Compose version v2.34.0
sowmiya@LAPTOP-E2BCEK44: $ mkdir ~/docker-python-app
sowmiya@LAPTOP-E2BCEK44: $ cd ~/docker-python-app
sowmiya@LAPTOP-E2BCEK44:~/docker-python-app$ nano app.py
sowmiya@LAPTOP-E2BCEK44:~/docker-python-app$ nano app.py
sowmiya@LAPTOP-E2BCEK44:~/docker-python-app$
```

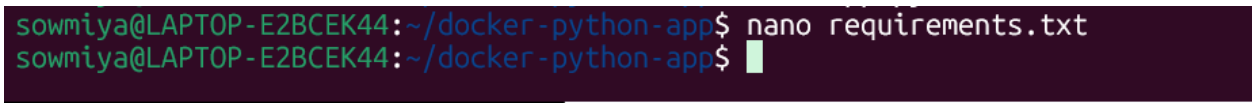
Step 8 :

Inside that python file write a simple code



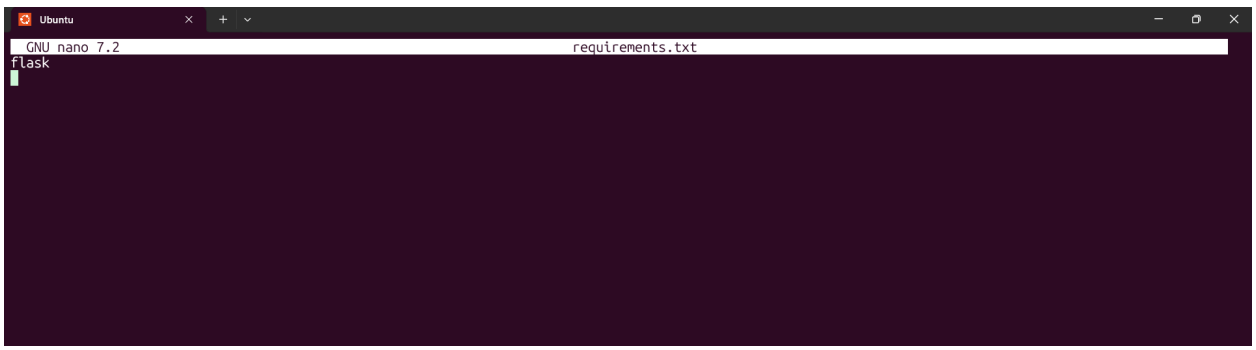
Step 9 :

Then create a file called requirements.txt



Step 10 :

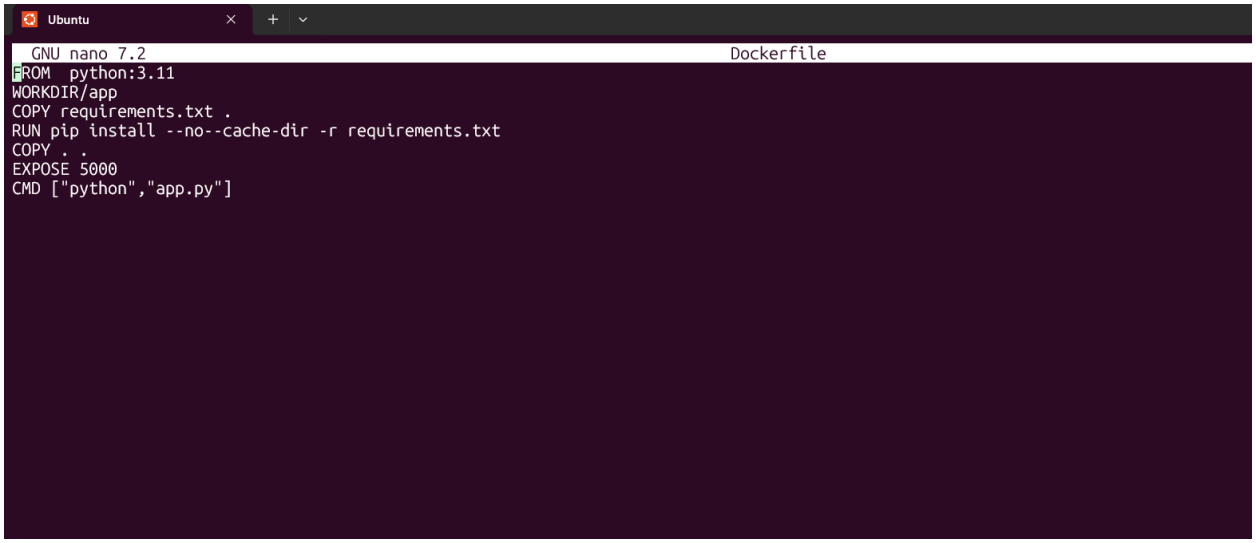
Inside that text file mention the package name called flask



Step 10 :

```
sowmiya@LAPTOP-E2BCEK44:~/docker-python-app$ nano Dockerfile
```

Step 11 :



Step 12 :

```
sowmiya@LAPTOP-E2BCEK44:~/docker-python-app$ nano docker-compose.yml
```

Step 13 :

Step 14 :

```
sowmiya@LAPTOP-E2BCEK44:~$ sudo docker images
REPOSITORY              TAG       IMAGE ID       CREATED         SIZE
docker-python-app-web   latest    d075e7935dae   17 hours ago    1.03GB
```

Step 15 :

```
sowmiya@LAPTOP-E2BCEK44:~$ sudo docker-compose up --build
[sudo] password for sowmiya:
no configuration file provided: not found
```

Step 16 :