

# Docker Assignment-Neha Hulsurkar

1. What is the version of the docker that is running in your system?

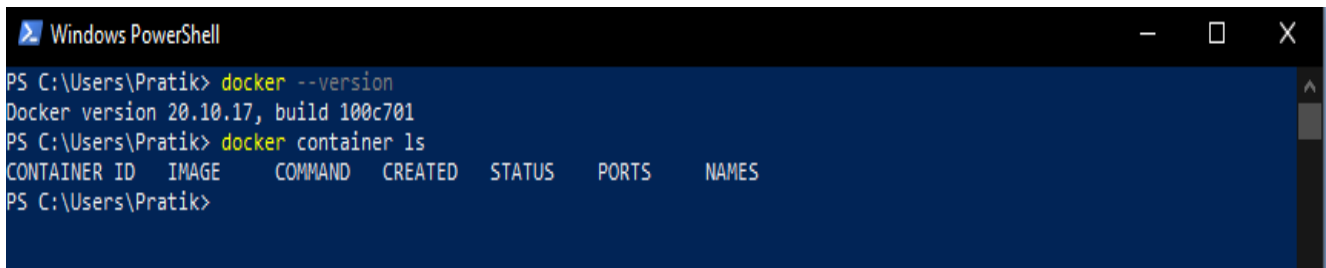
➤ `docker --version`



```
Windows PowerShell
PS C:\Users\Pratik> docker --version
Docker version 20.10.17, build 100c701
PS C:\Users\Pratik>
```

2. Show how many containers are in running state in your system.  
(Copy paste the command and its output)

➤ `docker container ls`



```
Windows PowerShell
PS C:\Users\Pratik> docker --version
Docker version 20.10.17, build 100c701
PS C:\Users\Pratik> docker container ls
CONTAINER ID   IMAGE          COMMAND                  STATUS    PORTS    NAMES
PS C:\Users\Pratik>
```

3. Show how many images are present in your system.

➤ `docker image ls`



```
PS C:\Users\Pratik> docker image ls
REPOSITORY    TAG       IMAGE ID       CREATED        SIZE
jupyter/pyspark-notebook   latest    98342b4823f7   32 hours ago   3.88GB
jupyter/base-notebook      latest    492bda4616a1   32 hours ago   893MB
ashunew28/dogcategoritrends latest    3abedc8203d3   4 days ago     2.48GB
alpine          latest    d7d3d98c851f   2 weeks ago    5.53MB
hello-world     latest    feb5d9fea6a5   10 months ago  13.3kB
PS C:\Users\Pratik>
```

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4. Pull an Nginx image (image name: nginx:1.22-alpine), and show the updated list of all the images on your machine.

- `docker pull nginx:1.22-alpine`
- `docker image ls`

```
PS C:\Users\Pratik> docker pull nginx:1.22-alpine
1.22-alpine: Pulling from library/nginx
530afca65e2e: Already exists
9d68eaa7f9be: Pull complete
9841618ceff9: Pull complete
69fca6011163: Pull complete
44d90e863022: Pull complete
7d6fa4ee325c: Pull complete
Digest: sha256:83dad2b60140eaa7bf94cbddcec48f853863410bfd4557947a76c5ea5bad2bcc4
Status: Downloaded newer image for nginx:1.22-alpine
docker.io/library/nginx:1.22-alpine
PS C:\Users\Pratik> docker image ls
```

REPOSITORY	TAG	IMAGE ID	CREATED	SIZE
jupyter/pyspark-notebook	latest	98342b4823f7	32 hours ago	3.88GB
jupyter/base-notebook	latest	492bda4616a1	32 hours ago	893MB
ashunew28/dogcategorization	latest	3abedc8203d3	4 days ago	2.48GB
nginx	1.22-alpine	ccb911fdd2ca	2 weeks ago	23.5MB
alpine	latest	d7d3d98c851f	2 weeks ago	5.53MB
hello-world	latest	feb5d9fea6a5	10 months ago	13.3kB

```
PS C:\Users\Pratik>
```

5. Run the nginx image and forward port 80 of the container to port 3301 of your machine.

- `docker container run -p 3301:80 nginx:1.22-alpine`
- `docker container ps`
- `docker container kill 9d174332f3ef`
- `docker container run -d -p 3301:80 nginx:1.22-alpine`

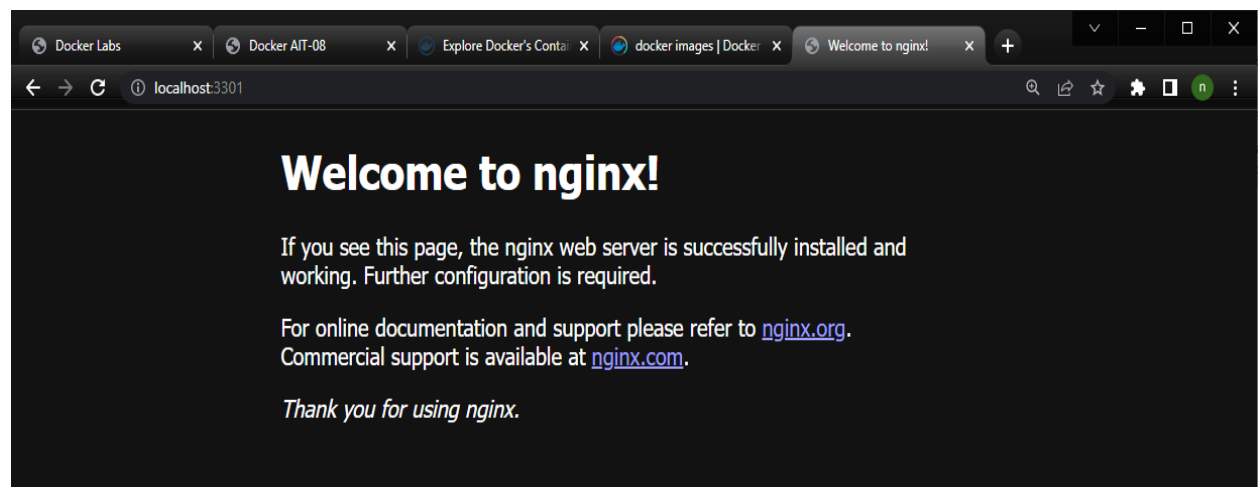
# Docker Assignment-Neha Hulsurkar

```
PS C:\Users\Pratik> docker container run -p 3301:80 nginx:1.22-alpine
/docker-entrypoint.sh: /docker-entrypoint.d/ is not empty, will attempt to perform configuration
/docker-entrypoint.sh: Looking for shell scripts in /docker-entrypoint.d/
/docker-entrypoint.sh: Launching /docker-entrypoint.d/10-listen-on-ipv6-by-default.sh
10-listen-on-ipv6-by-default.sh: info: Getting the checksum of /etc/nginx/conf.d/default.conf
10-listen-on-ipv6-by-default.sh: info: Enabled listen on IPv6 in /etc/nginx/conf.d/default.conf
/docker-entrypoint.sh: Launching /docker-entrypoint.d/20-envsubst-on-templates.sh
/docker-entrypoint.sh: Launching /docker-entrypoint.d/30-tune-worker-processes.sh
/docker-entrypoint.sh: Configuration complete; ready for start up
2022/08/07 10:55:42 [notice] 1#1: using the "epoll" event method
2022/08/07 10:55:42 [notice] 1#1: nginx/1.22.0
2022/08/07 10:55:42 [notice] 1#1: built by gcc 11.2.1 20220219 (Alpine 11.2.1_git20220219)
2022/08/07 10:55:42 [notice] 1#1: OS: Linux 5.10.102.1-microsoft-standard-WSL2
2022/08/07 10:55:42 [notice] 1#1: getrlimit(RLIMIT_NOFILE): 1048576:1048576
2022/08/07 10:55:42 [notice] 1#1: start worker processes
2022/08/07 10:55:42 [notice] 1#1: start worker process 32
2022/08/07 10:55:42 [notice] 1#1: start worker process 33
2022/08/07 10:55:42 [notice] 1#1: start worker process 34
2022/08/07 10:55:42 [notice] 1#1: start worker process 35
2022/08/07 10:55:42 [notice] 1#1: start worker process 36
2022/08/07 10:55:42 [notice] 1#1: start worker process 37
2022/08/07 10:55:42 [notice] 1#1: start worker process 38
2022/08/07 10:55:42 [notice] 1#1: start worker process 39
172.17.0.1 - - [07/Aug/2022:10:56:38 +0000] "GET / HTTP/1.1" 304 0 "-" "Mozilla/5.0 (Windows NT 10.0; Win64; x64) AppleWebKit/537.36 (KHTML, like Gecko) Chrome/103.0.0.0 Safari/537.36" "-"
```

```
Windows PowerShell
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Try the new cross-platform PowerShell https://aka.ms/pscore6

PS C:\Users\Pratik> docker container ps
CONTAINER ID   IMAGE          COMMAND                  CREATED        STATUS        PORTS                    NAMES
9d174332f3ef   nginx:1.22-alpine  "/docker-entrypoint. ..." 11 minutes ago Up 11 minutes   0.0.0.0:3301->80/tcp    quirky_perlman
PS C:\Users\Pratik> docker container kill 9d174332f3ef
9d174332f3ef
PS C:\Users\Pratik> docker container run -d -p 3301:80 nginx:1.22-alpine
db56a5d6dbe2ba28b3fa99f9a5f34694c13fad7cc40c9519a731c57af59e4f0e
PS C:\Users\Pratik>
```



# Docker Assignment-Neha Hulsurkar

6. Stop the container, and then restart the container. and

7. Show how many total (Running and stopped) containers are present on your machine.

- docker container ls
- docker container restart amazing\_clarke
- docker container ps -a

```
PS C:\Users\Pratik> docker container ls
CONTAINER ID   IMAGE          COMMAND                  CREATED        STATUS        PORTS                    NAMES
d77c62f57037   nginx:1.22-alpine "/docker-entrypoint..." 36 seconds ago Up 35 seconds 0.0.0.0:3301->80/tcp    amazing_clarke
PS C:\Users\Pratik> docker container restart inspiring_shannon
Error response from daemon: No such container: inspiring_shannon
PS C:\Users\Pratik> docker container restart amazing_clarke
amazing_clarke
PS C:\Users\Pratik> docker container ps -a
CONTAINER ID   IMAGE          COMMAND                  CREATED        STATUS        PORTS                    NAMES
d77c62f57037   nginx:1.22-alpine "/docker-entrypoint..." 2 minutes ago Up 11 seconds 0.0.0.0:3301->80/tcp    amazing_clarke
7f88dd5e74fd   jupyter/pyspark-notebook "tini -g -- start-no..." 31 hours ago   Exited (0) 31 hours ago          eager_wing
5dc869191fd1   ashunew28/dogcategoritrends "python app.py"         4 days ago    Exited (255) 3 days ago          jolly_shannon
d470ed3d5ebf   ashunew28/dogcategoritrends "python app.py"         4 days ago    Exited (137) 4 days ago          youthful_kare
711c7766ec25   ashunew28/dogcategoritrends "python app.py"         4 days ago    Exited (137) 4 days ago          gracious_clarke
1deb936753cd   ashunew28/dogcategoritrends "python app.py"         4 days ago    Exited (137) 4 days ago          sad_gagarin
c7129265e5fb   alpine         "/bin/sh"               4 days ago    Exited (0) 4 days ago          vibrant_ayabhata
1ea041b90444   hello-world    "/hello"               4 days ago    Exited (0) 4 days ago          practical_shaw
PS C:\Users\Pratik>
```

8. Run an ubuntu container and mount a directory from your machine to the container. Run the shell inside the container, and create 2 files from inside the container on the mounted directory.

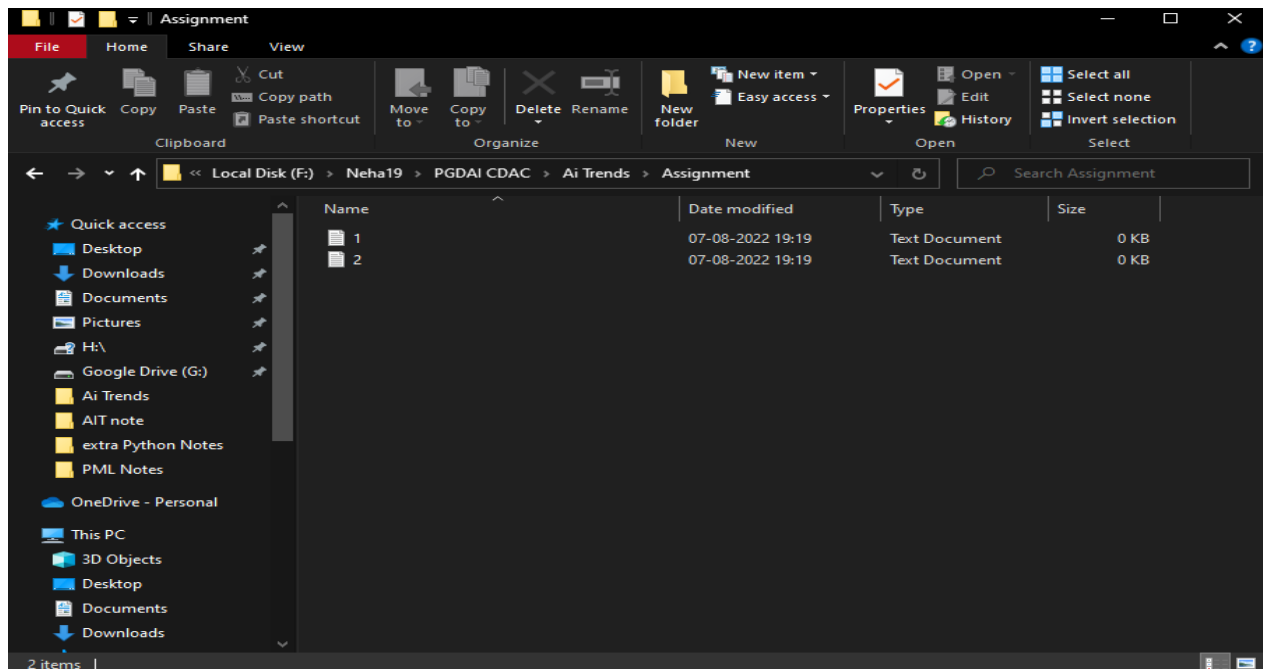
- docker pull ubuntu:20.04
- \$current\_path = \$(Resolve-Path .).ToString()
- docker run -it -v \${current\_path}:/home ubuntu bash

# Docker Assignment-Neha Hulsurkar

```
PS C:\Users\Pratik> cd F:\Neha19
PS F:\Neha19> cd PGDAI CDAC\Ai Trends\Assignment
Set-Location : A positional parameter cannot be found that accepts argument 'CDAC\Ai'.
At line:1 char:1
+ cd PGDAI CDAC\Ai Trends\Assignment
+ ~~~~~
+ CategoryInfo          : InvalidArgument: (:) [Set-Location], ParameterBindingException
+ FullyQualifiedErrorId : PositionalParameterNotFound,Microsoft.PowerShell.Commands.SetLocationCo
mmand

PS F:\Neha19> cd PGDAI CDAC
Set-Location : A positional parameter cannot be found that accepts argument 'CDAC'.
At line:1 char:1
+ cd PGDAI CDAC
+ ~~~~~
+ CategoryInfo          : InvalidArgument: (:) [Set-Location], ParameterBindingException
+ FullyQualifiedErrorId : PositionalParameterNotFound,Microsoft.PowerShell.Commands.SetLocationCo
mmand

PS F:\Neha19> cd '.\PGDAI CDAC\'
PS F:\Neha19\PGDAI CDAC> cd '.\Ai Trends\'
PS F:\Neha19\PGDAI CDAC\Ai Trends> cd .\Assignment\
PS F:\Neha19\PGDAI CDAC\Ai Trends\Assignment> $current_path = $(Resolve-Path .).ToString()
PS F:\Neha19\PGDAI CDAC\Ai Trends\Assignment> docker run -it -v ${current_path}:/home ubuntu bash
root@303aceeed06f:/# ls
bin    dev    home  lib32  libx32  mnt    proc  run    srv    tmp    var
root   etc    lib   lib64  media   opt    root  sbin   sys    usr
root@303aceeed06f:/# cd home
root@303aceeed06f:/home# ls
root@303aceeed06f:/home# touch 1.txt 2.txt
root@303aceeed06f:/home# lx
bash: lx: command not found
root@303aceeed06f:/home# ls
1.txt  2.txt
root@303aceeed06f:/home# exit
exit
```



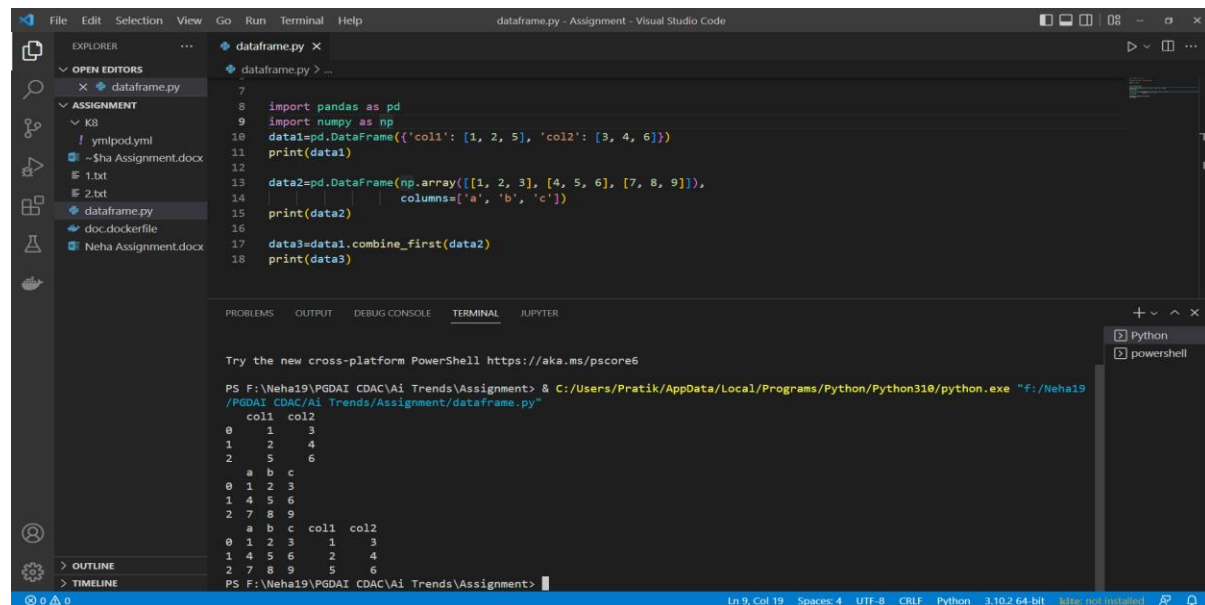
# Docker Assignment-Neha Hulsurkar

9. Stop and remove all containers, and show before and after of the list of containers running on your system'

```
PS F:\Neha19\PGDAI CDAC\Ai Trends\Assignment> docker container stop 808a4a570188
808a4a570188
PS F:\Neha19\PGDAI CDAC\Ai Trends\Assignment> docker container stop d77c62f57037
d77c62f57037
PS F:\Neha19\PGDAI CDAC\Ai Trends\Assignment> docker container ls
CONTAINER ID   IMAGE      COMMAND                  CREATED        STATUS        PORTS        NAMES
PS F:\Neha19\PGDAI CDAC\Ai Trends\Assignment> docker container ls -all
CONTAINER ID   IMAGE      COMMAND                  CREATED        STATUS        PORTS        NAMES
a77e70d28d85   ubuntu    "bash"                  7 minutes ago   Exited (0)    6 minutes ago   peaceful_pare
PS F:\Neha19\PGDAI CDAC\Ai Trends\Assignment> docker container prune
WARNING! This will remove all stopped containers.
Are you sure you want to continue? [y/N] y
Deleted Containers:
a77e70d28d85a4486ec1d5298c983be8a7832762251c27016d8fd3a2ff8b4640
808a4a570188596b44e83c02ab5bbb9ef5dd93f7c4540b7e43490d1666d6eeb3
d984aece8437fd1e05ee30e13b2b940f8f3a8b5239763b72dc0ead818172f237
d4d44d36bc5fd16cfb0bf12e9ce9b92330d432751f51e3cbafe9333a6e8ef32
d38ea73195b33eb1dfdc0135b161a9b15d34461b53e8da3595296640465a5a26
d77c62f57037b933e37899836043eaae20b7c73aa1493013b37e21efa161d338
7f88dd5e74fdc17c2a5f2b2fac7260259c8021b6b7860efba65709394058b32b
5dc869191fd15d776af172527d9d068da9d516757ef8cf4df7d053c24bef183
d470ed3d5ebfd61152d6bb8f277ffe44023b653958e605bce7174a8194c9499e1
711c7766ec25f43531bfea23db5cfbe952ede621c757da2f1ab8bac1e35e602f
1deb936753cdb538a4e7268bb1b2c807fbb96b2ce42d24c40c6716d7b3515145
c7129265e5fb4d5abe3bde8b72edd4826b23724ebe357042374b880787585e9
1ea041b90444eb023c8d13bc4b2f895a6ffc472b32b8bba74fd79d272a63205

Total reclaimed space: 10.91MB
PS F:\Neha19\PGDAI CDAC\Ai Trends\Assignment> docker container ls -a
CONTAINER ID   IMAGE      COMMAND                  CREATED        STATUS        PORTS        NAMES
PS F:\Neha19\PGDAI CDAC\Ai Trends\Assignment> docker container ls -all
CONTAINER ID   IMAGE      COMMAND                  CREATED        STATUS        PORTS        NAMES
PS F:\Neha19\PGDAI CDAC\Ai Trends\Assignment> docker ps
CONTAINER ID   IMAGE      COMMAND                  CREATED        STATUS        PORTS        NAMES
PS F:\Neha19\PGDAI CDAC\Ai Trends\Assignment>
```

10. Create a python program where you create two pandas data frames and then create a 3rd data frame with the above 2 combined.



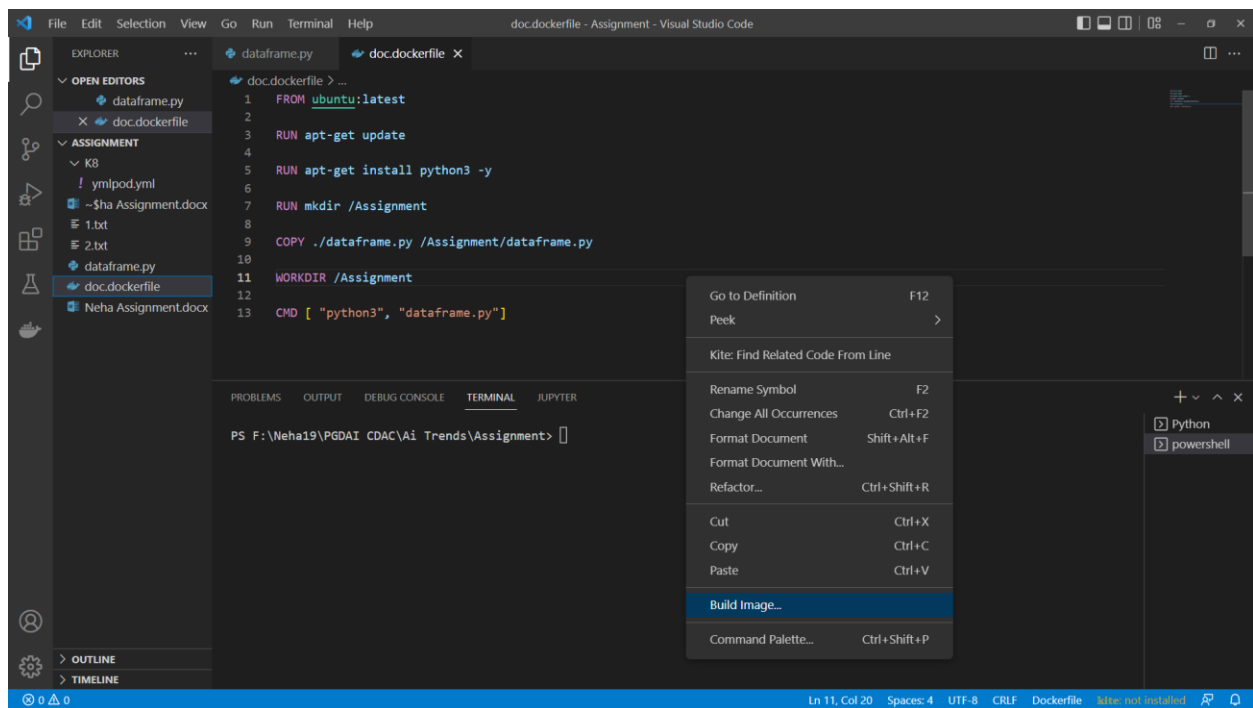
```
dataframe.py
7
8 import pandas as pd
9 import numpy as np
10 data1=pd.DataFrame({'col1': [1, 2, 5], 'col2': [3, 4, 6]})
11 print(data1)
12
13 data2=pd.DataFrame(np.array([[1, 2, 3], [4, 5, 6], [7, 8, 9]]),
14                    columns=['a', 'b', 'c'])
15 print(data2)
16
17 data3=data1.combine_first(data2)
18 print(data3)
```

```
PS F:\Neha19\PGDAI CDAC\Ai Trends\Assignment> & C:/Users/Pratik/AppData/Local/Programs/Python/Python310/python.exe "F:/Neha19/PGDAI CDAC/Ai Trends/Assignment/dataframe.py"
col1 col2
0 1 3
1 2 4
2 5 6
a b c
0 1 2 3
1 4 5 6
2 7 8 9
a b c col1 col2
0 1 2 3 1 3
1 4 5 6 2 4
2 7 8 9 5 6
PS F:\Neha19\PGDAI CDAC\Ai Trends\Assignment>
```

# Docker Assignment-Neha Hulsurkar

## 11. Create a Docker file with the following configurations

- Base image ubuntu
- Update all packages and install python
- Copy the python program from step 10 onto the container
- Install all the dependencies needed to run the python program
- Run the python program



The screenshot shows the Visual Studio Code interface with a Dockerfile open in the editor. The Dockerfile contains the following commands:

```
1 FROM ubuntu:latest
2
3 RUN apt-get update
4
5 RUN apt-get install python3 -y
6
7 RUN mkdir /Assignment
8
9 COPY ./dataframe.py /Assignment/dataframe.py
10
11 WORKDIR /Assignment
12
13 CMD ["python3", "dataframe.py"]
```

A context menu is open over the Dockerfile, showing various actions. The 'Build Image...' option is highlighted. The terminal at the bottom shows the command prompt: PS F:\Neha19\PGDAI CDAC\Ai Trends\Assignment>.



# Docker Assignment-Neha Hulsurkar

## 12. Build an image from the above docker file with the tage

➤ `docker image tag assignment:latest neha2020/assignment`

## 13. Push the image to your docker hub repo.

➤ `docker push neha2020/assignment`

```
PS F:\Neha19\PGDAI CDAC\Ai Trends> docker image tag assignment:latest neha2020/assignment
PS F:\Neha19\PGDAI CDAC\Ai Trends> docker images
REPOSITORY          TAG                 IMAGE ID            CREATED             SIZE
assignment           latest             282d854f3637       30 minutes ago     144MB
assignment           nanoimage         282d854f3637       30 minutes ago     144MB
neha2020/assignment  latest             282d854f3637       30 minutes ago     144MB
<none>               <none>            b99aac634b30       7 days ago         277MB
<none>               <none>            97cd9e5808eb       7 days ago         276MB
<none>               <none>            f5849b60a695       7 days ago         277MB
jupyter/pyspark-notebook latest            98342b4823f7       9 days ago         3.88GB
jupyter/base-notebook latest            492bda4616a1       9 days ago         893MB
python               3.8-slim-buster  c8fb45d269c5       12 days ago        117MB
ashunew28/dogcategaitrends latest           3abedc8203d3       12 days ago        2.48GB
ubuntu               latest           df5de72bdb3b       13 days ago        77.8MB
ubuntu               20.04           3bc6e9f30f51       13 days ago        72.8MB
gcr.io/k8s-minikube/kicbase v0.0.33         b7ab23e98277       2 weeks ago        1.14GB
nginx                1.22-alpine     ccb911fdd2ca       3 weeks ago        23.5MB
alpine               latest           d7d3d98c851f       3 weeks ago        5.53MB
hello-world          latest           feb5d9fea6a5       10 months ago      13.3kB
PS F:\Neha19\PGDAI CDAC\Ai Trends> docker push neha2020/assignment
Using default tag: latest
The push refers to repository [docker.io/neha2020/assignment]
5f70bf18a086: Mounted from jupyter/base-notebook
f98b45b00742: Pushed
786bf9894c3a: Pushed
b146b63cc8d6: Pushed
d4a29e2dbfb1: Pushed
629d9dbab5ed: Mounted from library/ubuntu
latest: digest: sha256:b11587e816c6210374c816ae378ffc5c14e762ccaf1908d15ec34ea7161b3dc7 size: 1573
PS F:\Neha19\PGDAI CDAC\Ai Trends>
```