

# System Development

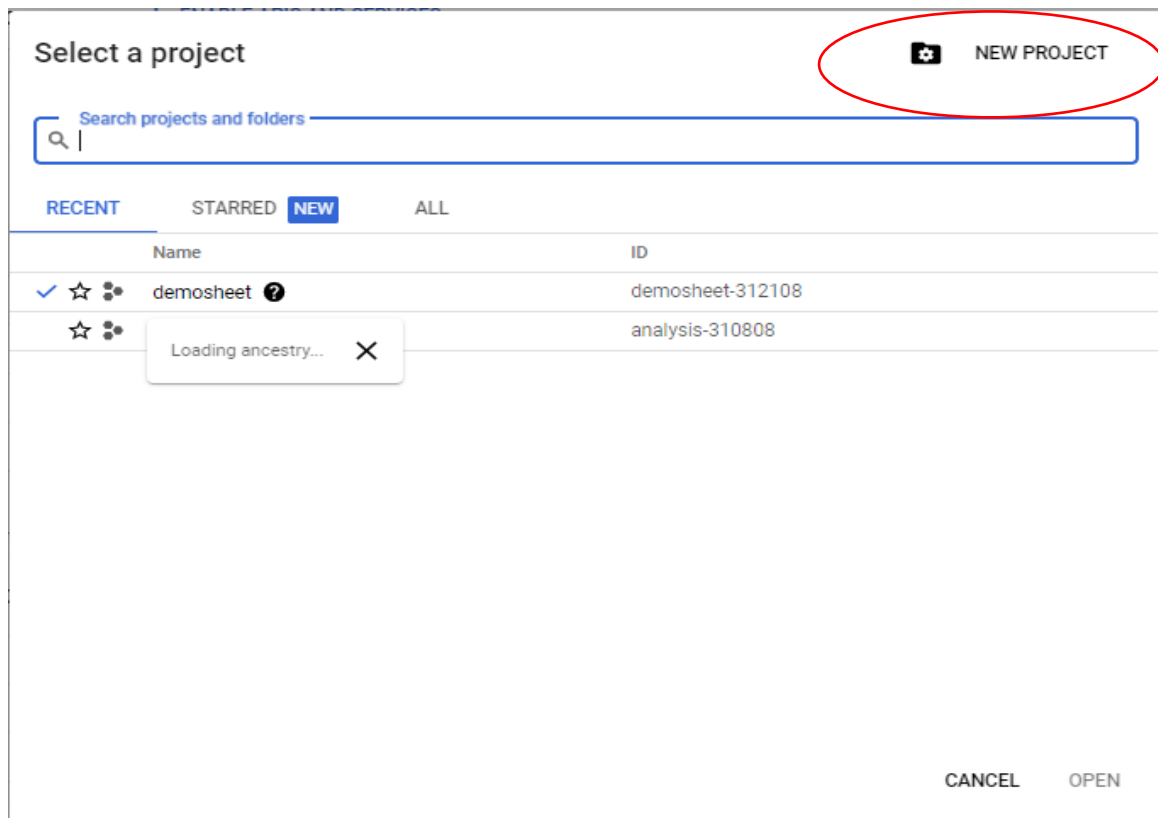
29-Apr-2021

*Submitted by:*

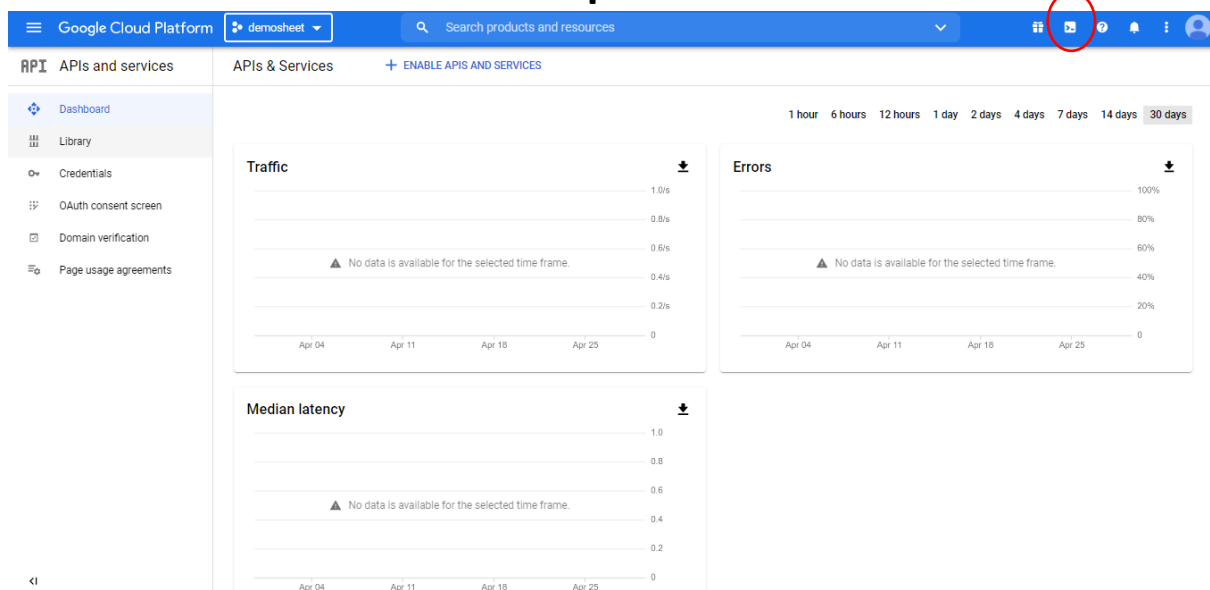
Samundar Singh  
2019272033(SS)

# Setup Docker in Cloud:

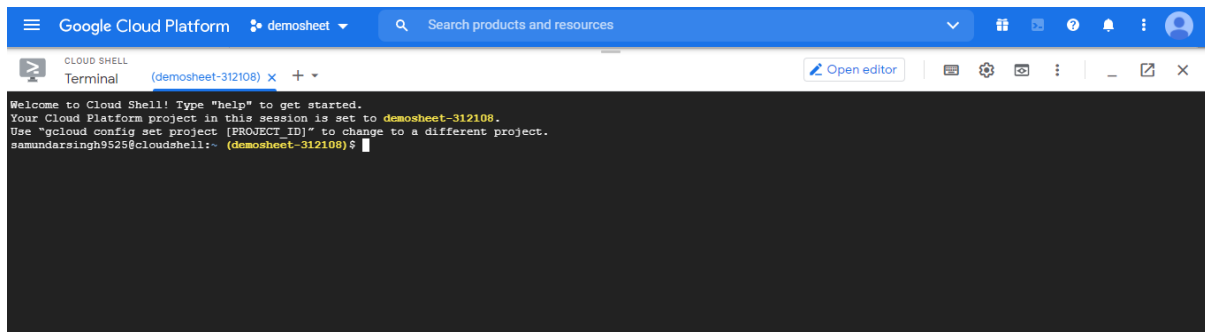
**Step 1: open google developer console and create a new project.**



**Step 2: once you select the project it will open this window Here u choose the terminal option.**



## Step 3: we get a terminal like this.



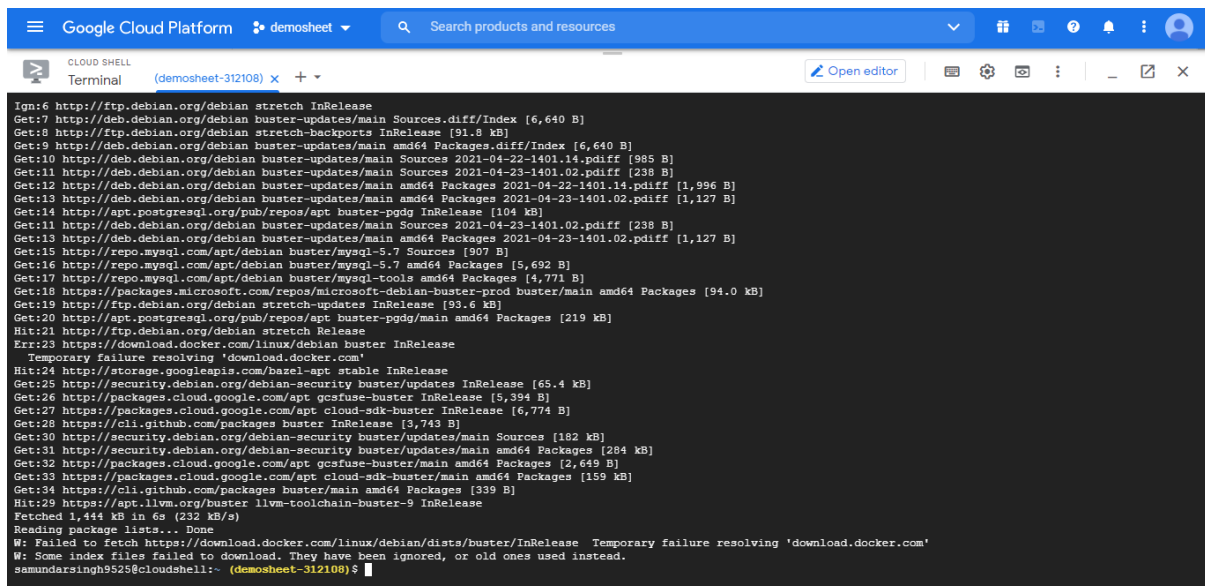
```
Google Cloud Platform  demosheet  Search products and resources

CLOUD SHELL
Terminal (demosheet-312108) x +
Open editor

Welcome to Cloud Shell! Type "help" to get started.
Your Cloud Platform project in this session is set to demosheet-312108.
Use "gcloud config set project [PROJECT_ID]" to change to a different project.
samundarsingh9525@cloudshell:~ (demosheet-312108) $
```

## Step 4: install the docker for installation type these commands

\$ **sudo** apt-get update

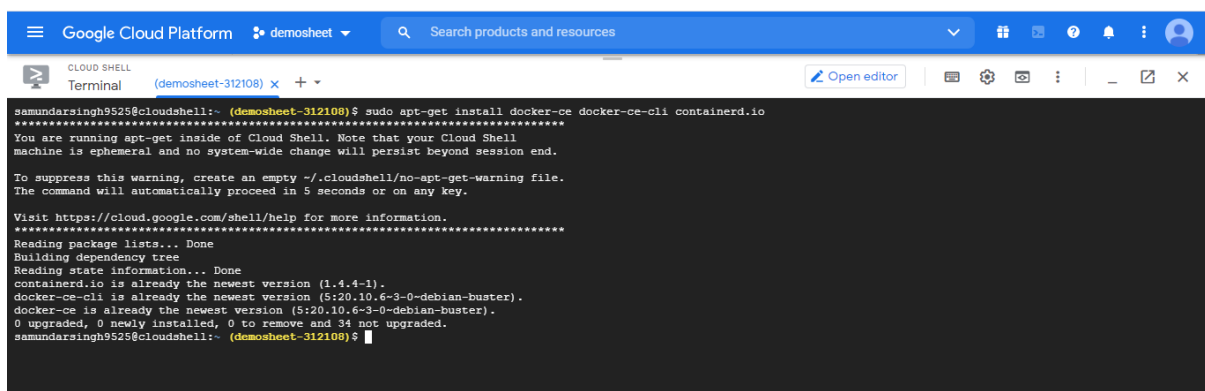


```
Google Cloud Platform  demosheet  Search products and resources

CLOUD SHELL
Terminal (demosheet-312108) x +
Open editor

Ign:6 http://ftp.debian.org/debian stretch InRelease
Get:7 http://deb.debian.org/debian buster-updates/main Sources.diff/Index [6,640 B]
Get:8 http://ftp.debian.org/debian stretch-backports InRelease [91.6 kB]
Get:9 http://deb.debian.org/debian buster-updates/main amd64 Packages.diff/Index [6,640 B]
Get:10 http://deb.debian.org/debian buster-updates/main Sources 2021-04-22-1401.14.pdiff [985 B]
Get:11 http://deb.debian.org/debian buster-updates/main Sources 2021-04-23-1401.02.pdiff [238 B]
Get:12 http://deb.debian.org/debian buster-updates/main amd64 Packages 2021-04-22-1401.14.pdiff [1,996 B]
Get:13 http://deb.debian.org/debian buster-updates/main amd64 Packages 2021-04-23-1401.02.pdiff [1,127 B]
Get:14 http://apt.postgresql.org/pub/repos/apt buster-pgdg InRelease [104 kB]
Get:11 http://deb.debian.org/debian buster-updates/main Sources 2021-04-23-1401.02.pdiff [238 B]
Get:13 http://deb.debian.org/debian buster-updates/main amd64 Packages 2021-04-23-1401.02.pdiff [1,127 B]
Get:15 http://repo.mysql.com/apt/debian buster/mysql-5.7 Sources [907 B]
Get:16 http://repo.mysql.com/apt/debian buster/mysql-5.7 amd64 Packages [5,692 B]
Get:17 http://repo.mysql.com/apt/debian buster/mysql-tools amd64 Packages [4,771 B]
Get:18 https://packages.microsoft.com/repos/microsoft-debian-buster-prod buster/main amd64 Packages [94.0 kB]
Get:19 http://ftp.debian.org/debian stretch-updates InRelease [89.6 kB]
Get:20 http://apt.postgresql.org/pub/repos/apt buster-pgdg/main amd64 Packages [219 kB]
Hit:21 http://ftp.debian.org/debian stretch Release
Err:23 https://download.docker.com/linux/debian buster InRelease
Temporary failure resolving 'download.docker.com'
Hit:24 http://storage.googleapis.com/cloud-apt stable InRelease
Get:25 http://security.debian.org/debian-security buster/updates InRelease [65.4 kB]
Get:26 http://packages.cloud.google.com/apt gcsfuse-buster InRelease [5,394 B]
Get:27 https://packages.cloud.google.com/apt cloud-sdk-buster InRelease [6,774 B]
Get:28 https://cli.github.com/packages buster InRelease [3,743 B]
Get:30 http://security.debian.org/debian-security buster/updates/main Sources [182 kB]
Get:31 http://security.debian.org/debian-security buster/updates/main amd64 Packages [284 kB]
Get:32 http://packages.cloud.google.com/apt gcsfuse-buster/main amd64 Packages [2,649 B]
Get:33 https://packages.cloud.google.com/apt cloud-sdk-buster/main amd64 Packages [159 kB]
Get:34 https://cli.github.com/packages buster/main amd64 Packages [339 B]
Hit:29 https://apt.llvm.org/buster llvm-toolchain-buster-9 InRelease
Fetched 1,444 kB in 6s (232 kB/s)
Reading package lists... Done
W: Failed to fetch https://download.docker.com/linux/debian/dists/buster/InRelease Temporary failure resolving 'download.docker.com'
W: Some index files failed to download. They have been ignored, or old ones used instead.
samundarsingh9525@cloudshell:~ (demosheet-312108) $
```

\$ **sudo** apt-get install docker-ce docker-ce-cli containerd.io



```
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CLOUD SHELL
Terminal (demosheet-312108) x +
Open editor

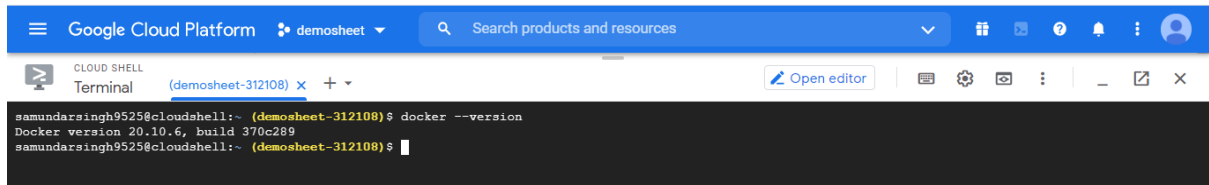
samundarsingh9525@cloudshell:~ (demosheet-312108) $ sudo apt-get install docker-ce docker-ce-cli containerd.io
*****
You are running apt-get inside of Cloud Shell. Note that your Cloud Shell
machine is ephemeral and no system-wide change will persist beyond session end.

To suppress this warning, create an empty ~/.cloudshell/no-apt-get-warning file.
The command will automatically proceed in 5 seconds or on any key.

Visit https://cloud.google.com/shell/help for more information.
*****
Reading package lists... Done
Building dependency tree
Reading state information... Done
containerd.io is already the newest version (1.4.4-1).
docker-ce-cli is already the newest version (5:20.10.6-3-0-debian-buster).
docker-ce is already the newest version (5:20.10.6-3-0-debian-buster).
0 upgraded, 0 newly installed, 0 to remove and 34 not upgraded.
samundarsingh9525@cloudshell:~ (demosheet-312108) $
```

Since I have already installed it will show like this but if you start it from scratch it will download the Docker.

**Step 5: After in installation of docker we check the version of docker only to insure that the installation is successful or not.**



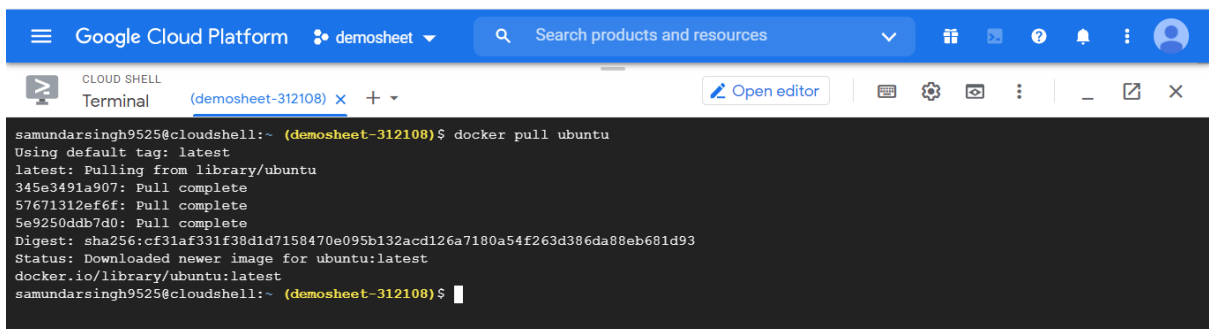
```
Google Cloud Platform | demosheet | Search products and resources
CLOUD SHELL
Terminal (demosheet-312108) x +
Open editor
samundarsingh9525@cloudshell:~ (demosheet-312108) $ docker --version
Docker version 20.10.6, build 370c289
samundarsingh9525@cloudshell:~ (demosheet-312108) $
```

**Step 6: Now we install some images like(ubuntu os ,nginx server etc.)**

**a.) Creating ubuntu container:**

**Cmd:** `$ docker pull ubuntu`

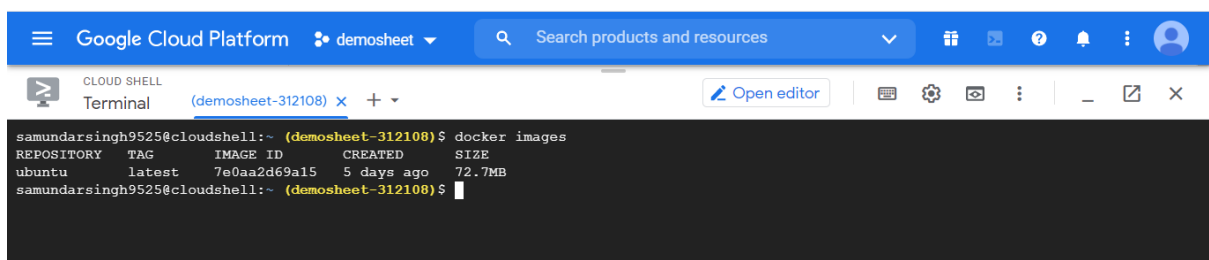
To install the ubuntu image



```
Google Cloud Platform | demosheet | Search products and resources
CLOUD SHELL
Terminal (demosheet-312108) x +
Open editor
samundarsingh9525@cloudshell:~ (demosheet-312108) $ docker pull ubuntu
Using default tag: latest
latest: Pulling from library/ubuntu
345e3491a907: Pull complete
57671312ef6f: Pull complete
5e9250ddb7d0: Pull complete
Digest: sha256:cf31af331f38d1d7158470e095b132acd126a7180a54f263d386da88eb681d93
Status: Downloaded newer image for ubuntu:latest
docker.io/library/ubuntu:latest
samundarsingh9525@cloudshell:~ (demosheet-312108) $
```

To check the Id of Ubuntu:

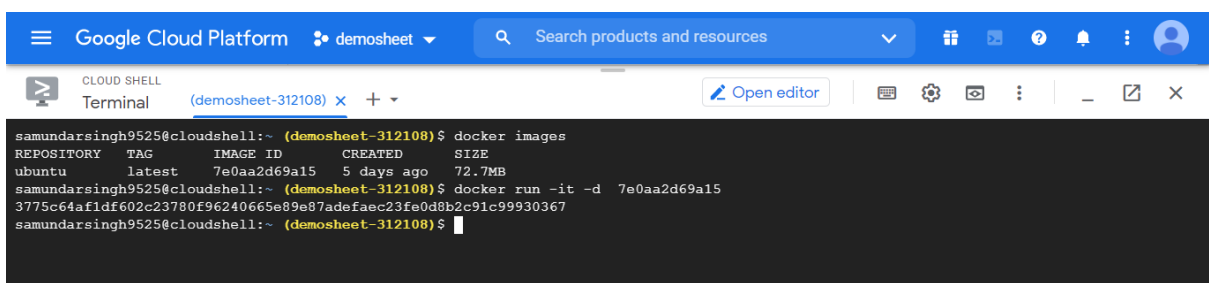
**Cmd:** `$ docker images`



```
Google Cloud Platform | demosheet | Search products and resources
CLOUD SHELL
Terminal (demosheet-312108) x +
Open editor
samundarsingh9525@cloudshell:~ (demosheet-312108) $ docker images
REPOSITORY TAG IMAGE ID CREATED SIZE
ubuntu latest 7e0aa2d69a15 5 days ago 72.7MB
samundarsingh9525@cloudshell:~ (demosheet-312108) $
```

To launch the container of Ubuntu:

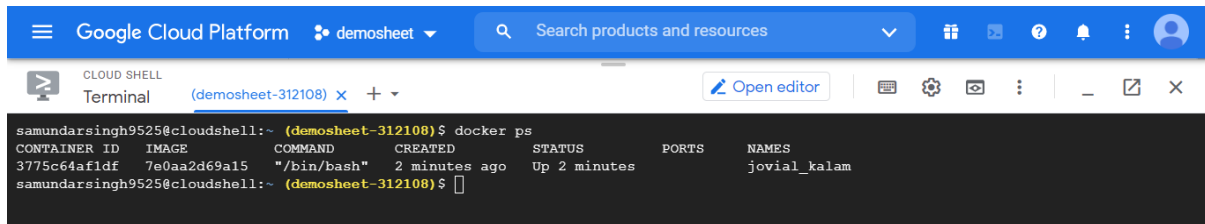
**Cmd:** `$ docker run -it -d 7e0aa2d69a15`



```
Google Cloud Platform | demosheet | Search products and resources
CLOUD SHELL
Terminal (demosheet-312108) x +
Open editor
samundarsingh9525@cloudshell:~ (demosheet-312108) $ docker images
REPOSITORY TAG IMAGE ID CREATED SIZE
ubuntu latest 7e0aa2d69a15 5 days ago 72.7MB
samundarsingh9525@cloudshell:~ (demosheet-312108) $ docker run -it -d 7e0aa2d69a15
3775c64f1df602c23780f96240665e89e87adefaec23fe0d8b2c91c99930367
samundarsingh9525@cloudshell:~ (demosheet-312108) $
```

To login in container of Ubuntu:

Cmd: `$ docker ps`



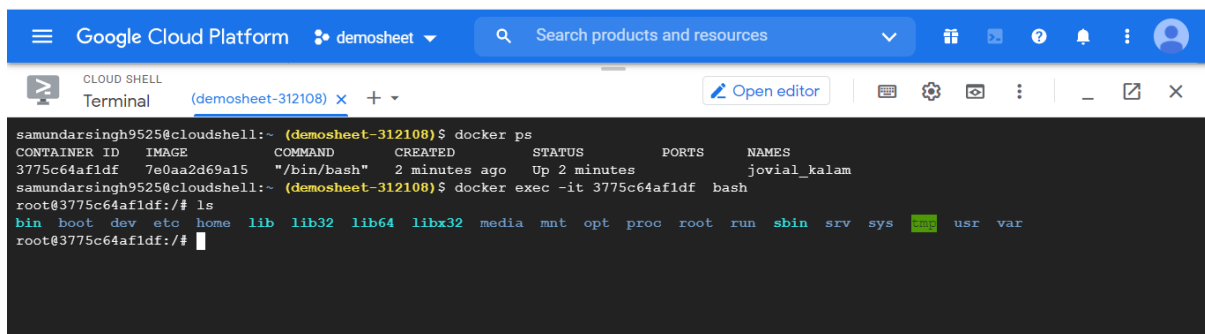
```
Google Cloud Platform demosheet
Search products and resources

CLOUD SHELL
Terminal (demosheet-312108) +
Open editor

samundarsingh9525@cloudshell:~ (demosheet-312108)$ docker ps
CONTAINER ID   IMAGE          COMMAND          CREATED        STATUS        PORTS        NAMES
3775c64af1df   7e0aa2d69a15   "/bin/bash"      2 minutes ago   Up 2 minutes   -            jovial_kalam
samundarsingh9525@cloudshell:~ (demosheet-312108)$
```

Then

Cmd: `$ docker exec -it <container id>bash`



```
Google Cloud Platform demosheet
Search products and resources

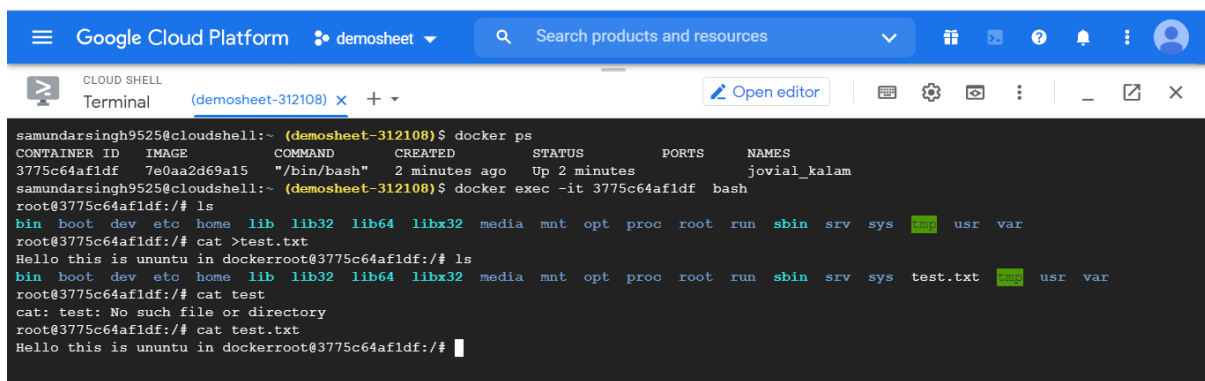
CLOUD SHELL
Terminal (demosheet-312108) +
Open editor

samundarsingh9525@cloudshell:~ (demosheet-312108)$ docker ps
CONTAINER ID   IMAGE          COMMAND          CREATED        STATUS        PORTS        NAMES
3775c64af1df   7e0aa2d69a15   "/bin/bash"      2 minutes ago   Up 2 minutes   -            jovial_kalam
samundarsingh9525@cloudshell:~ (demosheet-312108)$ docker exec -it 3775c64af1df bash
root@3775c64af1df:/# ls
bin boot dev etc home lib lib32 lib64 libx32 media mnt opt proc root run sbin srv sys usr var
root@3775c64af1df:/#
```

As we can see that a linux is running in docker we can see that the terminal name is changed

Testing :

I simply create a text file using Cat command and store some sentence on it ang again fetched the data.



```
Google Cloud Platform demosheet
Search products and resources

CLOUD SHELL
Terminal (demosheet-312108) +
Open editor

samundarsingh9525@cloudshell:~ (demosheet-312108)$ docker ps
CONTAINER ID   IMAGE          COMMAND          CREATED        STATUS        PORTS        NAMES
3775c64af1df   7e0aa2d69a15   "/bin/bash"      2 minutes ago   Up 2 minutes   -            jovial_kalam
samundarsingh9525@cloudshell:~ (demosheet-312108)$ docker exec -it 3775c64af1df bash
root@3775c64af1df:/# ls
bin boot dev etc home lib lib32 lib64 libx32 media mnt opt proc root run sbin srv sys usr var
root@3775c64af1df:/# cat >test.txt
Hello this is ununtu in dockerroot@3775c64af1df:/# ls
bin boot dev etc home lib lib32 lib64 libx32 media mnt opt proc root run sbin srv sys test.txt usr var
root@3775c64af1df:/# cat test
cat: test: No such file or directory
root@3775c64af1df:/# cat test.txt
Hello this is ununtu in dockerroot@3775c64af1df:/#
```

## b.) Creating nginx container:

To install the nginx image

Cmd: `$ docker pull nginx`

```
Google Cloud Platform demosheet Search products and resources
CLOUD SHELL Terminal (demosheet-312108) Open editor
samundarsingh9525@cloudshell:~ (demosheet-312108) $ docker pull nginx
Using default tag: latest
latest: Pulling from library/nginx
f7ec5a41d630: Pull complete
aa1efaf14b3bf: Pull complete
b78b95af9b17: Pull complete
c7d6bca2b8dc: Pull complete
cf16cd8e71e0: Pull complete
0241c68333ef: Pull complete
Digest: sha256:75a55d33ecc73c2a242450a9f1cc858499d468f077ea942867e662c247b5e412
Status: Downloaded newer image for nginx:latest
docker.io/library/nginx:latest
samundarsingh9525@cloudshell:~ (demosheet-312108) $
```

```
samundarsingh9525@cloudshell:~ (demosheet-312108) $ docker images
REPOSITORY TAG IMAGE ID CREATED SIZE
nginx latest 62d49f9bab67 2 weeks ago 133MB
samundarsingh9525@cloudshell:~ (demosheet-312108) $
```

To launch the container of nginx

Cmd: `$ docker run -it -d image id of nginx`

```
samundarsingh9525@cloudshell:~ (demosheet-312108) $ docker images
REPOSITORY TAG IMAGE ID CREATED SIZE
nginx latest 62d49f9bab67 2 weeks ago 133MB
samundarsingh9525@cloudshell:~ (demosheet-312108) $ docker run -it -d 62d49f9bab67
69ccc519f1db53bcdab4441214e86652ce0de8e352da5cc69f3ae0a1e89aafbe
samundarsingh9525@cloudshell:~ (demosheet-312108) $ docker ps
CONTAINER ID IMAGE COMMAND CREATED STATUS PORTS NAMES
69ccc519f1db 62d49f9bab67 "/docker-entrypoint..." 8 seconds ago Up 7 seconds 80/tcp sleepy_antonelli
```

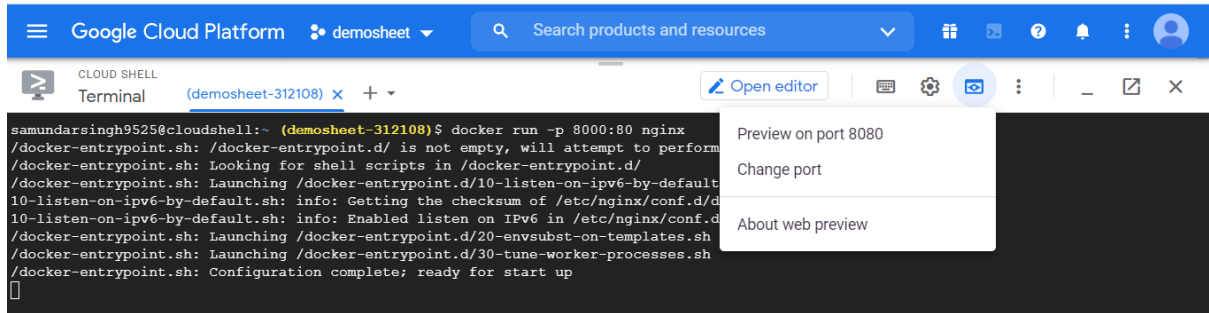
To deploy the server of nginx:

Cmd: `$ docker run -p 8000:80 nginx`

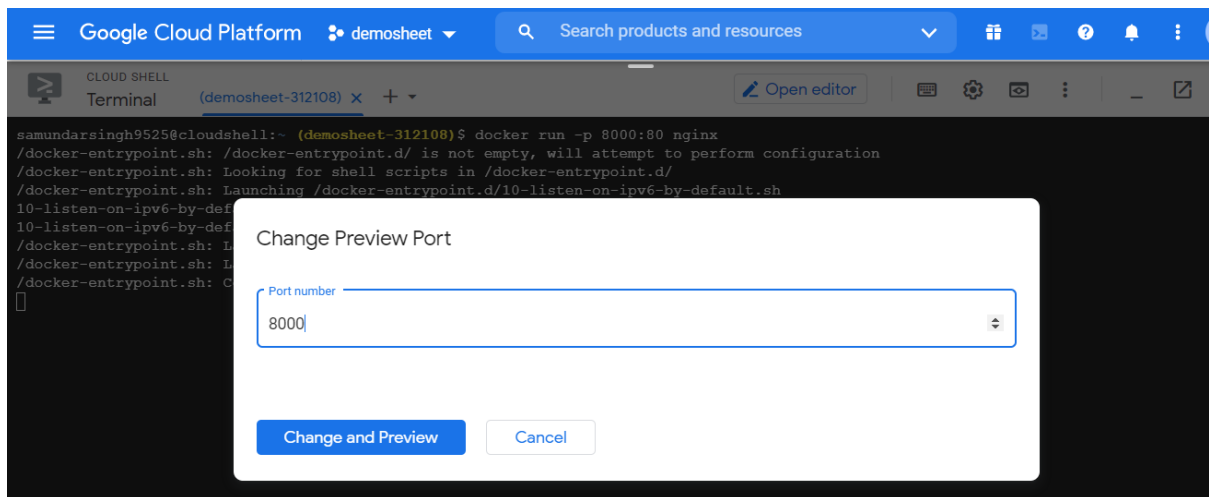
```
Google Cloud Platform demosheet Search products and resources
CLOUD SHELL Terminal (demosheet-312108) Open editor
samundarsingh9525@cloudshell:~ (demosheet-312108) $ docker run -p 8000:80 nginx
/docker-entrypoint.sh: /docker-entrypoint.d/ is not empty, will attempt to perform configuration
/docker-entrypoint.sh: 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
```

As we can see the server is listening on port 8000

## Choose the Change port option



## Select port 8000



## Click on change and Preview

