**Requirement 1 – Have to have ngnix reverse proxy to login from internet to google cloud docker image**

root@data622assignmentvm01:/home/data622# sudo apt-get install nginx

Reading package lists... Done

Building dependency tree

Reading state information... Done

The following additional packages will be installed:

fontconfig-config fonts-dejavu-core libfontconfig1 libgd3 libjbig0 libjpeg-turbo8 libjpeg8 libtiff5 libvpx3 libxpm4 libxslt1.1 nginx-common nginx-core

Suggested packages:

libgd-tools fcgiwrap nginx-doc ssl-cert

The following NEW packages will be installed:

fontconfig-config fonts-dejavu-core libfontconfig1 libgd3 libjbig0 libjpeg-turbo8 libjpeg8 libtiff5 libvpx3 libxpm4 libxslt1.1 nginx nginx-common nginx-core

0 upgraded, 14 newly installed, 0 to remove and 102 not upgraded.

Need to get 3,003 kB of archives.

After this operation, 9,785 kB of additional disk space will be used.

Do you want to continue? [Y/n] Y

Get:1 http://us-central1.gce.archive.ubuntu.com/ubuntu xenial-updates/main amd64 libjpeg-turbo8 amd64 1.4.2-0ubuntu3.1 [111 kB]

Get:2 http://us-central1.gce.archive.ubuntu.com/ubuntu xenial/main amd64 libjbig0 amd64 2.1-3.1 [26.6 kB]

Get:3 http://us-central1.gce.archive.ubuntu.com/ubuntu xenial/main amd64 fonts-dejavu-core all 2.35-1 [1,039 kB]

Get:4 http://us-central1.gce.archive.ubuntu.com/ubuntu xenial-updates/main amd64 fontconfig-config all 2.11.94-0ubuntu1.1 [49.9 kB]

Get:5 http://us-central1.gce.archive.ubuntu.com/ubuntu xenial-updates/main amd64 libfontconfig1 amd64 2.11.94-0ubuntu1.1 [131 kB]

Get:6 http://us-central1.gce.archive.ubuntu.com/ubuntu xenial/main amd64 libjpeg8 amd64 8c-2ubuntu8 [2,194 B]

Get:7 http://us-central1.gce.archive.ubuntu.com/ubuntu xenial-updates/main amd64 libtiff5 amd64 4.0.6-1ubuntu0.4 [148 kB]

Get:8 http://us-central1.gce.archive.ubuntu.com/ubuntu xenial/main amd64 libvpx3 amd64 1.5.0-2ubuntu1 [732 kB]

Get:9 http://us-central1.gce.archive.ubuntu.com/ubuntu xenial-updates/main amd64 libxpm4 amd64 1:3.5.11-1ubuntu0.16.04.1 [33.8 kB]

Get:10 http://us-central1.gce.archive.ubuntu.com/ubuntu xenial-updates/main amd64 libgd3 amd64 2.1.1-4ubuntu0.16.04.10 [126 kB]

Get:11 http://us-central1.gce.archive.ubuntu.com/ubuntu xenial-updates/main amd64 libxslt1.1 amd64 1.1.28-2.1ubuntu0.1 [145 kB]

Get:12 http://us-central1.gce.archive.ubuntu.com/ubuntu xenial-updates/main amd64 nginx-common all 1.10.3-0ubuntu0.16.04.3 [26.7 kB]

Get:13 http://us-central1.gce.archive.ubuntu.com/ubuntu xenial-updates/main amd64 nginx-core amd64 1.10.3-0ubuntu0.16.04.3 [429 kB]

Get:14 http://us-central1.gce.archive.ubuntu.com/ubuntu xenial-updates/main amd64 nginx all 1.10.3-0ubuntu0.16.04.3 [3,506 B]

Fetched 3,003 kB in 0s (22.7 MB/s)

Preconfiguring packages ...

Selecting previously unselected package libjpeg-turbo8:amd64.

(Reading database ... 94927 files and directories currently installed.)

Preparing to unpack .../libjpeg-turbo8\_1.4.2-0ubuntu3.1\_amd64.deb ...

Unpacking libjpeg-turbo8:amd64 (1.4.2-0ubuntu3.1) ...

Selecting previously unselected package libjbig0:amd64.

Preparing to unpack .../libjbig0\_2.1-3.1\_amd64.deb ...

Unpacking libjbig0:amd64 (2.1-3.1) ...

Selecting previously unselected package fonts-dejavu-core.

Preparing to unpack .../fonts-dejavu-core\_2.35-1\_all.deb ...

Unpacking fonts-dejavu-core (2.35-1) ...

Selecting previously unselected package fontconfig-config.

Preparing to unpack .../fontconfig-config\_2.11.94-0ubuntu1.1\_all.deb ...

Unpacking fontconfig-config (2.11.94-0ubuntu1.1) ...

Selecting previously unselected package libfontconfig1:amd64.

Preparing to unpack .../libfontconfig1\_2.11.94-0ubuntu1.1\_amd64.deb ...

Unpacking libfontconfig1:amd64 (2.11.94-0ubuntu1.1) ...

Selecting previously unselected package libjpeg8:amd64.

Preparing to unpack .../libjpeg8\_8c-2ubuntu8\_amd64.deb ...

Unpacking libjpeg8:amd64 (8c-2ubuntu8) ...

Selecting previously unselected package libtiff5:amd64.

Preparing to unpack .../libtiff5\_4.0.6-1ubuntu0.4\_amd64.deb ...

Unpacking libtiff5:amd64 (4.0.6-1ubuntu0.4) ...

Selecting previously unselected package libvpx3:amd64.

Preparing to unpack .../libvpx3\_1.5.0-2ubuntu1\_amd64.deb ...

Unpacking libvpx3:amd64 (1.5.0-2ubuntu1) ...

Selecting previously unselected package libxpm4:amd64.

Preparing to unpack .../libxpm4\_1%3a3.5.11-1ubuntu0.16.04.1\_amd64.deb ...

Unpacking libxpm4:amd64 (1:3.5.11-1ubuntu0.16.04.1) ...

Selecting previously unselected package libgd3:amd64.

Preparing to unpack .../libgd3\_2.1.1-4ubuntu0.16.04.10\_amd64.deb ...

Unpacking libgd3:amd64 (2.1.1-4ubuntu0.16.04.10) ...

Selecting previously unselected package libxslt1.1:amd64.

Preparing to unpack .../libxslt1.1\_1.1.28-2.1ubuntu0.1\_amd64.deb ...

Unpacking libxslt1.1:amd64 (1.1.28-2.1ubuntu0.1) ...

Selecting previously unselected package nginx-common.

Preparing to unpack .../nginx-common\_1.10.3-0ubuntu0.16.04.3\_all.deb ...

Unpacking nginx-common (1.10.3-0ubuntu0.16.04.3) ...

Selecting previously unselected package nginx-core.

Preparing to unpack .../nginx-core\_1.10.3-0ubuntu0.16.04.3\_amd64.deb ...

Unpacking nginx-core (1.10.3-0ubuntu0.16.04.3) ...

Selecting previously unselected package nginx.

Preparing to unpack .../nginx\_1.10.3-0ubuntu0.16.04.3\_all.deb ...

Unpacking nginx (1.10.3-0ubuntu0.16.04.3) ...

Processing triggers for libc-bin (2.23-0ubuntu10) ...

Processing triggers for man-db (2.7.5-1) ...

Processing triggers for systemd (229-4ubuntu21.10) ...

Processing triggers for ureadahead (0.100.0-19) ...

Processing triggers for ufw (0.35-0ubuntu2) ...

Setting up libjpeg-turbo8:amd64 (1.4.2-0ubuntu3.1) ...

Setting up libjbig0:amd64 (2.1-3.1) ...

Setting up fonts-dejavu-core (2.35-1) ...

Setting up fontconfig-config (2.11.94-0ubuntu1.1) ...

Setting up libfontconfig1:amd64 (2.11.94-0ubuntu1.1) ...

Setting up libjpeg8:amd64 (8c-2ubuntu8) ...

Setting up libtiff5:amd64 (4.0.6-1ubuntu0.4) ...

Setting up libvpx3:amd64 (1.5.0-2ubuntu1) ...

Setting up libxpm4:amd64 (1:3.5.11-1ubuntu0.16.04.1) ...

Setting up libgd3:amd64 (2.1.1-4ubuntu0.16.04.10) ...

Setting up libxslt1.1:amd64 (1.1.28-2.1ubuntu0.1) ...

Setting up nginx-common (1.10.3-0ubuntu0.16.04.3) ...

Setting up nginx-core (1.10.3-0ubuntu0.16.04.3) ...

Setting up nginx (1.10.3-0ubuntu0.16.04.3) ...

Processing triggers for libc-bin (2.23-0ubuntu10) ...

Processing triggers for systemd (229-4ubuntu21.10) ...

Processing triggers for ureadahead (0.100.0-19) ...

Processing triggers for ufw (0.35-0ubuntu2) ...

**Requirement 2 :**

Docker should run with Nginx so that Jupyter notebook can be accessed from Internet

root@data622assignmentvm01:/home/data622# docker ps

CONTAINER ID IMAGE COMMAND CREATED STATUS PORTS NAMES

d9a3bf238188 dataquestio/python3-starter "/home/ds/run\_ipytho…" About a minute ago Up About a minute 0.0.0.0:8888->8888/tcp data622python

root@data622assignmentvm01:/home/data622# ps -ef | grep ngnix

root 7764 6357 0 19:35 pts/0 00:00:00 grep --color=auto ngnix

root@data622assignmentvm01:/home/data622# ps -ef | grep nginx

root 7692 1 0 19:32 ? 00:00:00 nginx: master process /usr/sbin/nginx -g daemon on; master\_process on;

www-data 7694 7692 0 19:32 ? 00:00:00 nginx: worker process

root 7766 6357 0 19:35 pts/0 00:00:00 grep --color=auto nginx

root@data622assignmentvm01:/home/data622# cd /etc

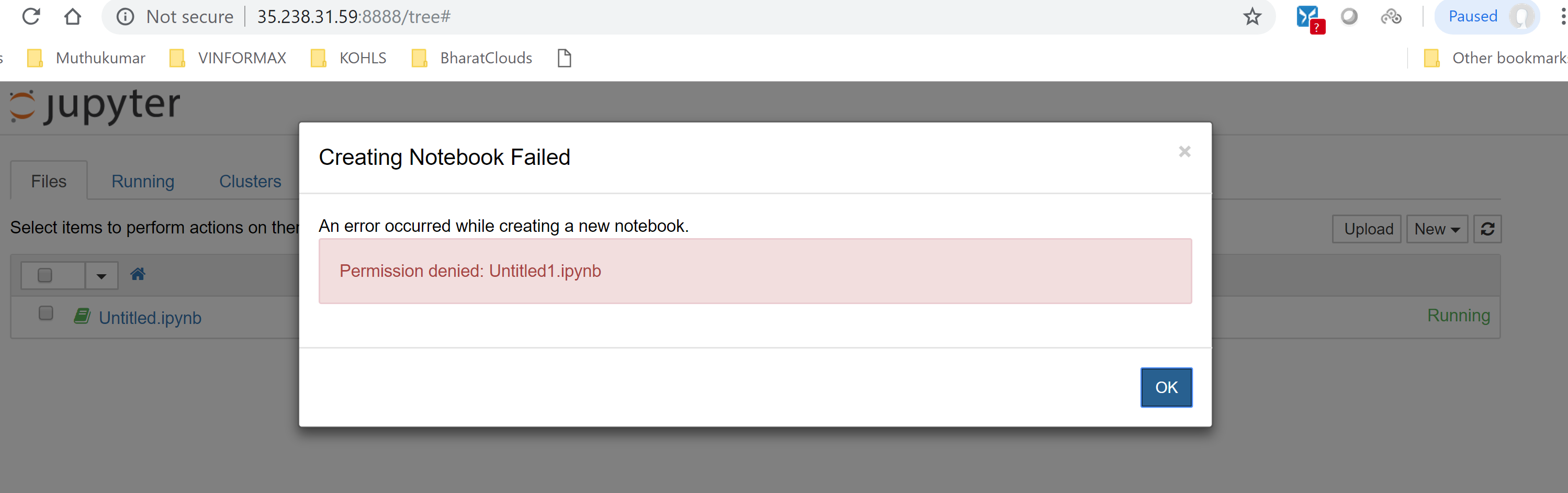
2) Proper Permission to notebooks directory was given. It was as below which shows the public does not have write permission and I faced error as below

root@data622assignmentvm01:/home/ds# ls -l

total 4

drwxr-xr-x 3 root root 4096 Dec 8 20:05 notebooks

root@data622assignmentvm01:/home/ds#



root@data622assignmentvm01:/home/ds# ls -l

total 4

drwxr-xrwx 3 root root 4096 Dec 8 20:05 notebooks

root@data622assignmentvm01:/home/ds#