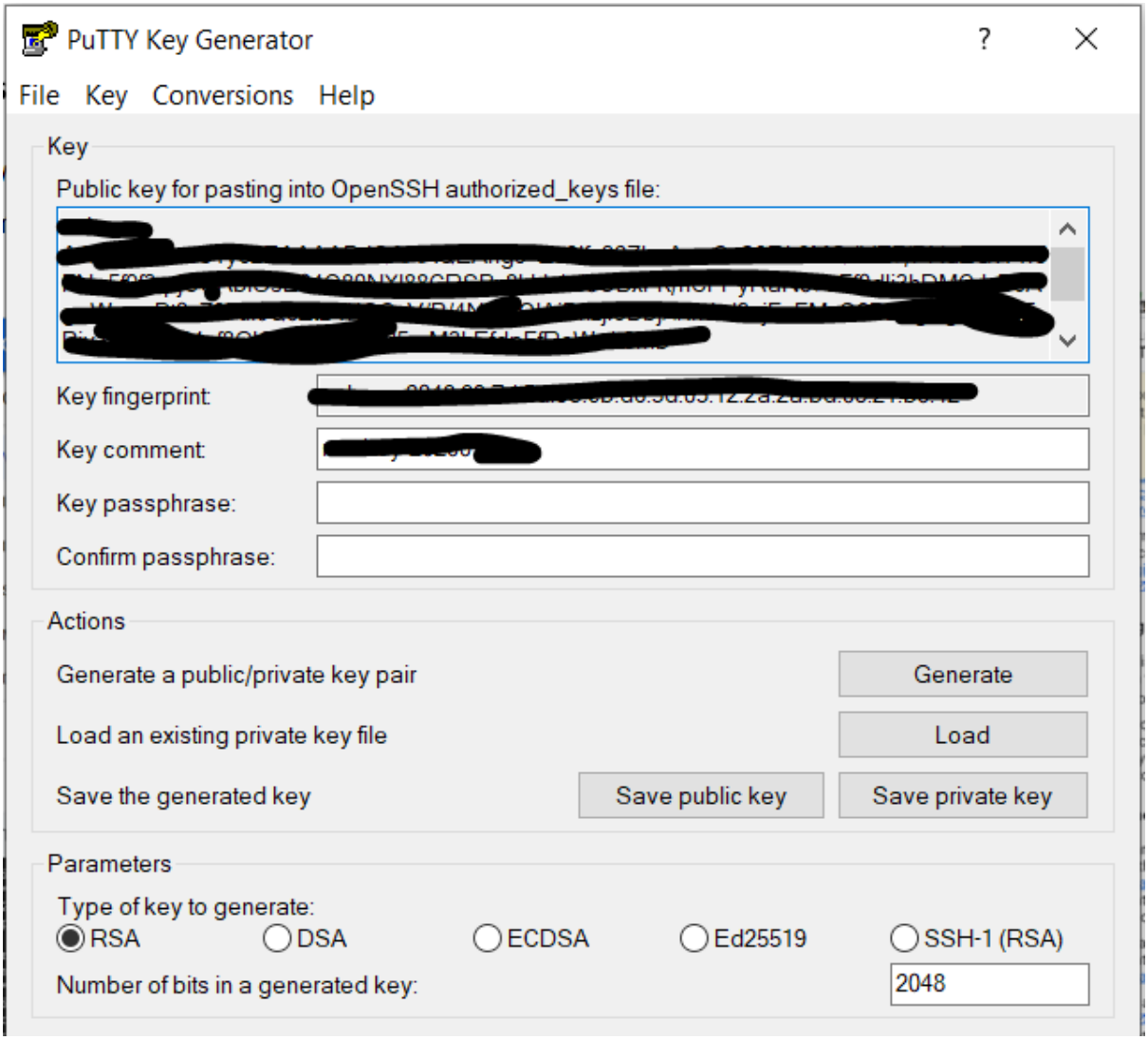
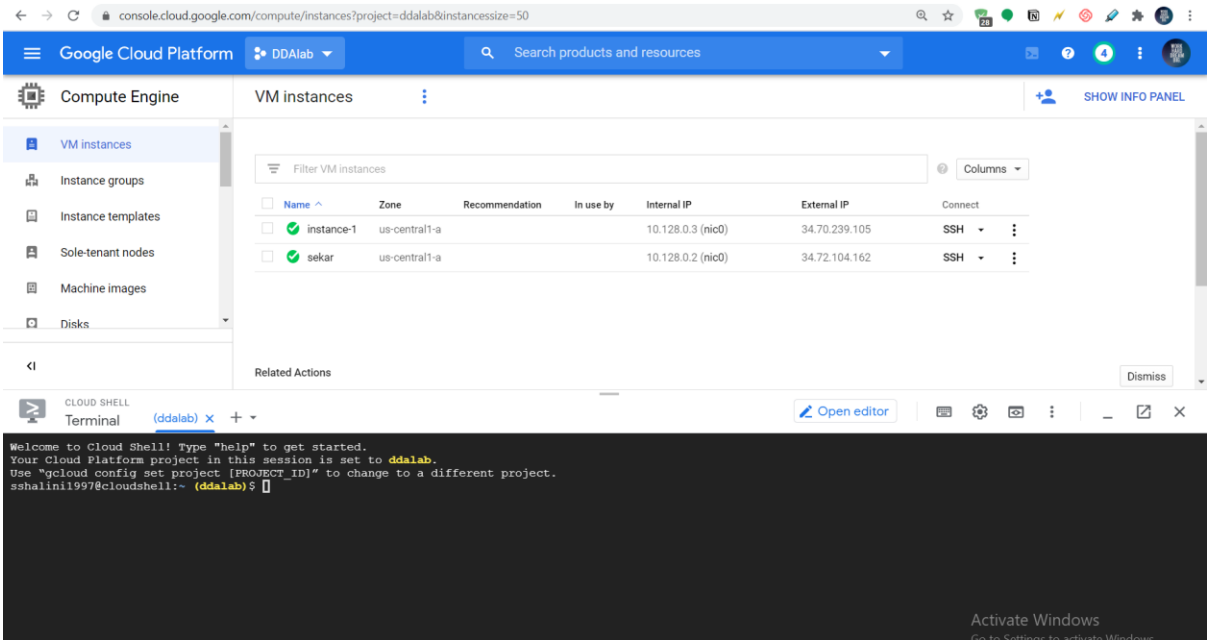
Report – Excercise sheet 10:

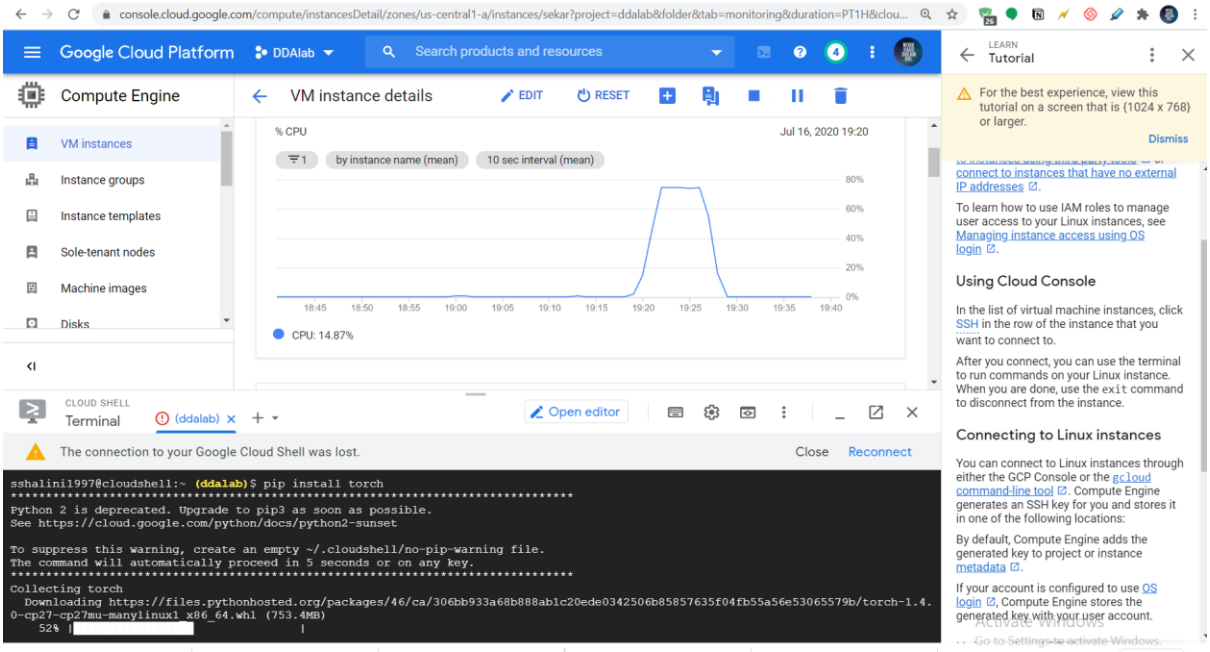
Key Generation:



Accessing VM:

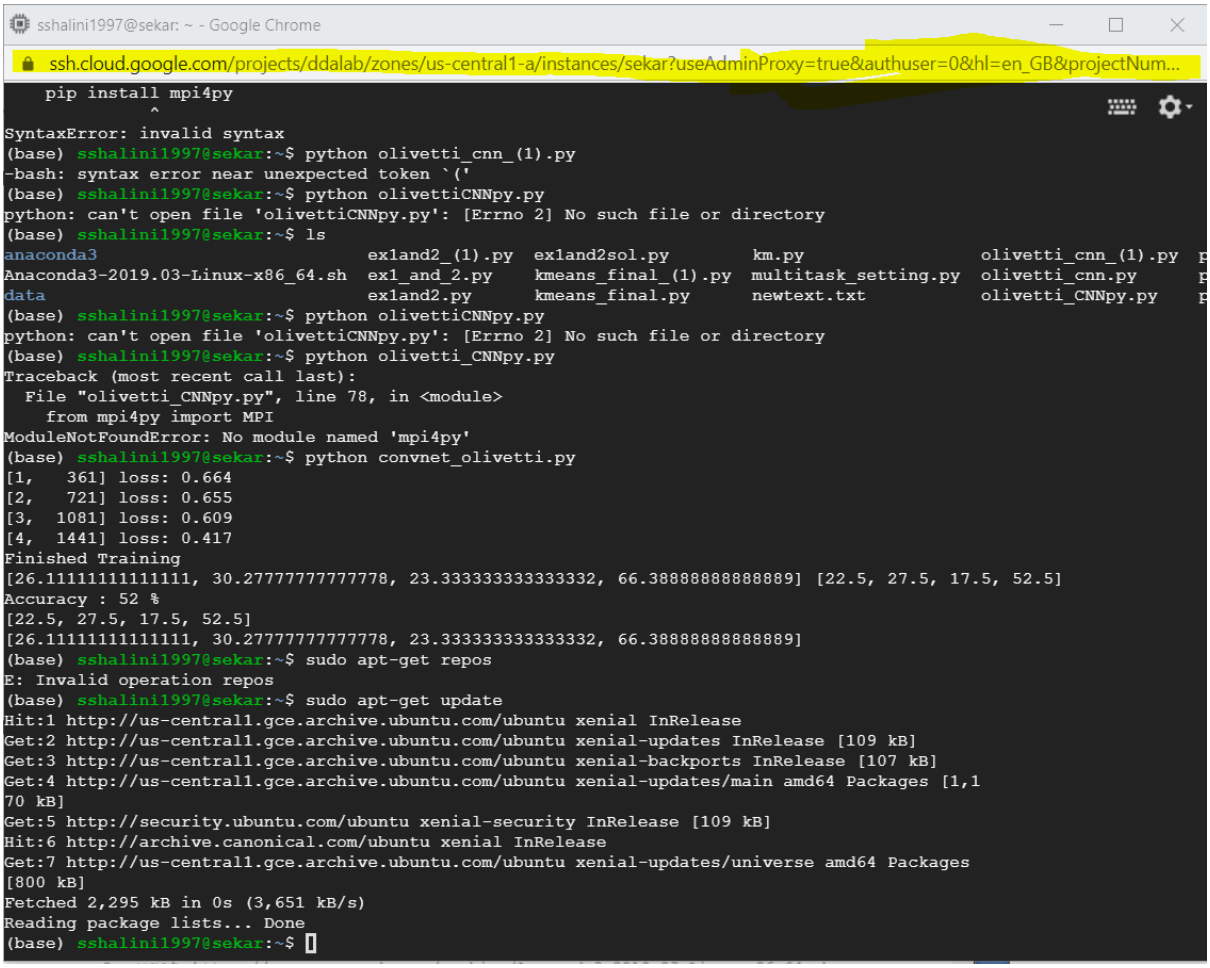
VM was accessed and programs were run through SSH option in the UI, rather than the terminal command.

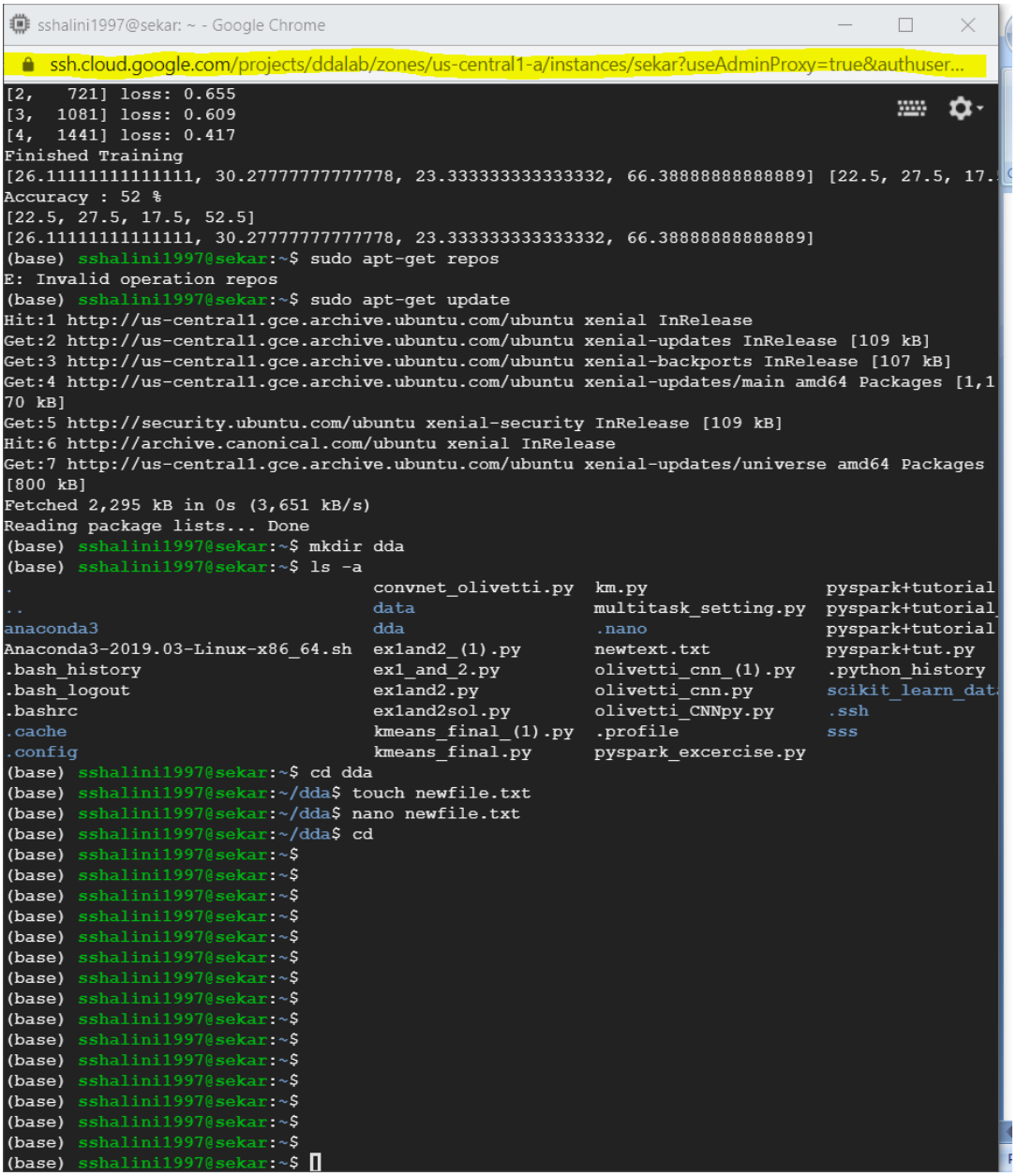

console.cloud.google.com/compute/instances?project=ddalab&instancessize=50
Google Cloud Platform
DDAlab
Search products and resources
Compute Engine
VM instances
SHOW INFO PANEL
VM instances
Instance groups
Instance templates
Sole-tenant nodes
Machine images
Disks
Filter VM instances
Columns
Name
Zone
Recommendation
In use by
Internal IP
External IP
Connect
instance-1
us-central1-a
10.128.0.3 (nic0)
34.70.239.105
SSH
sekar
us-central1-a
10.128.0.2 (nic0)
34.72.104.162
SSH
Related Actions
Dismiss
CLOUD SHELL
Terminal
(ddalab)
Open editor
Welcome to Cloud Shell! Type "help" to get started.
Your Cloud Platform project in this session is set to ddalab.
Use "gcloud config set project [PROJECT_ID]" to change to a different project.
sshalini1997@cloudshell:~ (ddalab)$
Activate Windows


console.cloud.google.com/compute/instancesDetail/zones/us-central1-a/instances/sekar?project=ddalab&folder&tab=monitoring&duration=PT1H&clou...
Google Cloud Platform
DDAlab
Search products and resources
Compute Engine
VM instance details
EDIT
RESET
VM instances
Instance groups
Instance templates
Sole-tenant nodes
Machine images
Disks
% CPU
Jul 16, 2020 19:20
by instance name (mean)
10 sec interval (mean)
80%
60%
40%
20%
0%
18:45
18:50
18:55
19:00
19:05
19:10
19:15
19:20
19:25
19:30
19:35
19:40
CPU: 14.87%
CLOUD SHELL
Terminal
(ddalab)
Open editor
The connection to your Google Cloud Shell was lost.
Close
Reconnect
sshalini1997@cloudshell:~ (ddalab)$ pip install torch
Python 2 is deprecated. Upgrade to pip3 as soon as possible.
See https://cloud.google.com/python/docs/python2-sunset
To suppress this warning, create an empty ~/.cloudshell/no-pip-warning file.
The command will automatically proceed in 5 seconds or on any key.
Collecting torch
Downloading https://files.pythonhosted.org/packages/46/ca/306bb933a68b888ab1c20ede0342506b85857635f04fb55a56e53065579b/torch-1.4.0-cp27-cp27mu-manylinux1_x86_64.whl (753.4MB)
52%
LEARN
Tutorial
For the best experience, view this tutorial on a screen that is {1024 x 768} or larger.
Dismiss
connect to instances that have no external IP addresses
To learn how to use IAM roles to manage user access to your Linux instances, see Managing instance access using OS login
Using Cloud Console
In the list of virtual machine instances, click SSH in the row of the instance that you want to connect to.
After you connect, you can use the terminal to run commands on your Linux instance. When you are done, use the exit command to disconnect from the instance.
Connecting to Linux instances
You can connect to Linux instances through either the GCP Console or the gcloud command-line tool. Compute Engine generates an SSH key for you and stores it in one of the following locations:
By default, Compute Engine adds the generated key to project or instance metadata.
If your account is configured to use OS login, Compute Engine stores the generated key with your user account.
Activate Windows

NOTE: I have highlighted parts of the screenshots to denote that the programs were run in the VM instance.

Basic Linux operations:




sshalini1997@sekar: ~ - Google Chrome
ssh.cloud.google.com/projects/ddalab/zones/us-central1-a/instances/sekar?useAdminProxy=true&authuser...
[2, 721] loss: 0.655
[3, 1081] loss: 0.609
[4, 1441] loss: 0.417
Finished Training
[26.11111111111111, 30.27777777777778, 23.333333333333332, 66.38888888888889] [22.5, 27.5, 17.
Accuracy : 52 %
[22.5, 27.5, 17.5, 52.5]
[26.11111111111111, 30.27777777777778, 23.333333333333332, 66.38888888888889]
(base) sshalini1997@sekar:~$ sudo apt-get repos
E: Invalid operation repos
(base) sshalini1997@sekar:~$ sudo apt-get update
Hit:1 http://us-central1.gce.archive.ubuntu.com/ubuntu xenial InRelease
Get:2 http://us-central1.gce.archive.ubuntu.com/ubuntu xenial-updates InRelease [109 kB]
Get:3 http://us-central1.gce.archive.ubuntu.com/ubuntu xenial-backports InRelease [107 kB]
Get:4 http://us-central1.gce.archive.ubuntu.com/ubuntu xenial-updates/main amd64 Packages [1,1
70 kB]
Get:5 http://security.ubuntu.com/ubuntu xenial-security InRelease [109 kB]
Hit:6 http://archive.canonical.com/ubuntu xenial InRelease
Get:7 http://us-central1.gce.archive.ubuntu.com/ubuntu xenial-updates/universe amd64 Packages
[800 kB]
Fetched 2,295 kB in 0s (3,651 kB/s)
Reading package lists... Done
(base) sshalini1997@sekar:~$ mkdir dda
(base) sshalini1997@sekar:~$ ls -a
. convnet_olivetti.py km.py pyspark+tutorial
.. data multitask_setting.py pyspark+tutorial
anaconda3 dda .nano pyspark+tutorial
Anaconda3-2019.03-Linux-x86_64.sh ex1and2_(1).py newtext.txt pyspark+tut.py
.bash_history ex1_and_2.py olivetti_cnn_(1).py .python_history
.bash_logout ex1and2.py olivetti_cnn.py scikit_learn_dat
.bashrc ex1and2sol.py olivetti_CNNpy.py .ssh
.cache kmeans_final_(1).py .profile sss
.config kmeans_final.py pyspark_excercise.py
(base) sshalini1997@sekar:~$ cd dda
(base) sshalini1997@sekar:~/dda$ touch newfile.txt
(base) sshalini1997@sekar:~/dda$ nano newfile.txt
(base) sshalini1997@sekar:~/dda$ cd
(base) sshalini1997@sekar:~$
(base) sshalini1997@sekar:~$
(base) sshalini1997@sekar:~$
(base) sshalini1997@sekar:~$
(base) sshalini1997@sekar:~$
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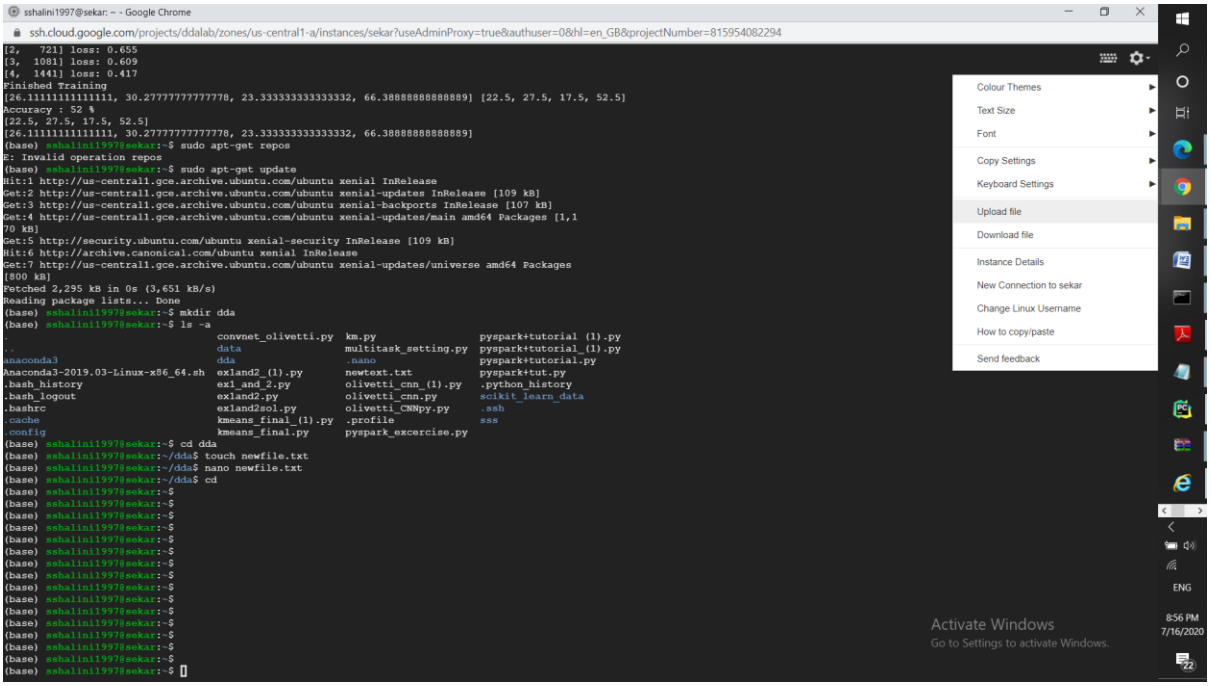
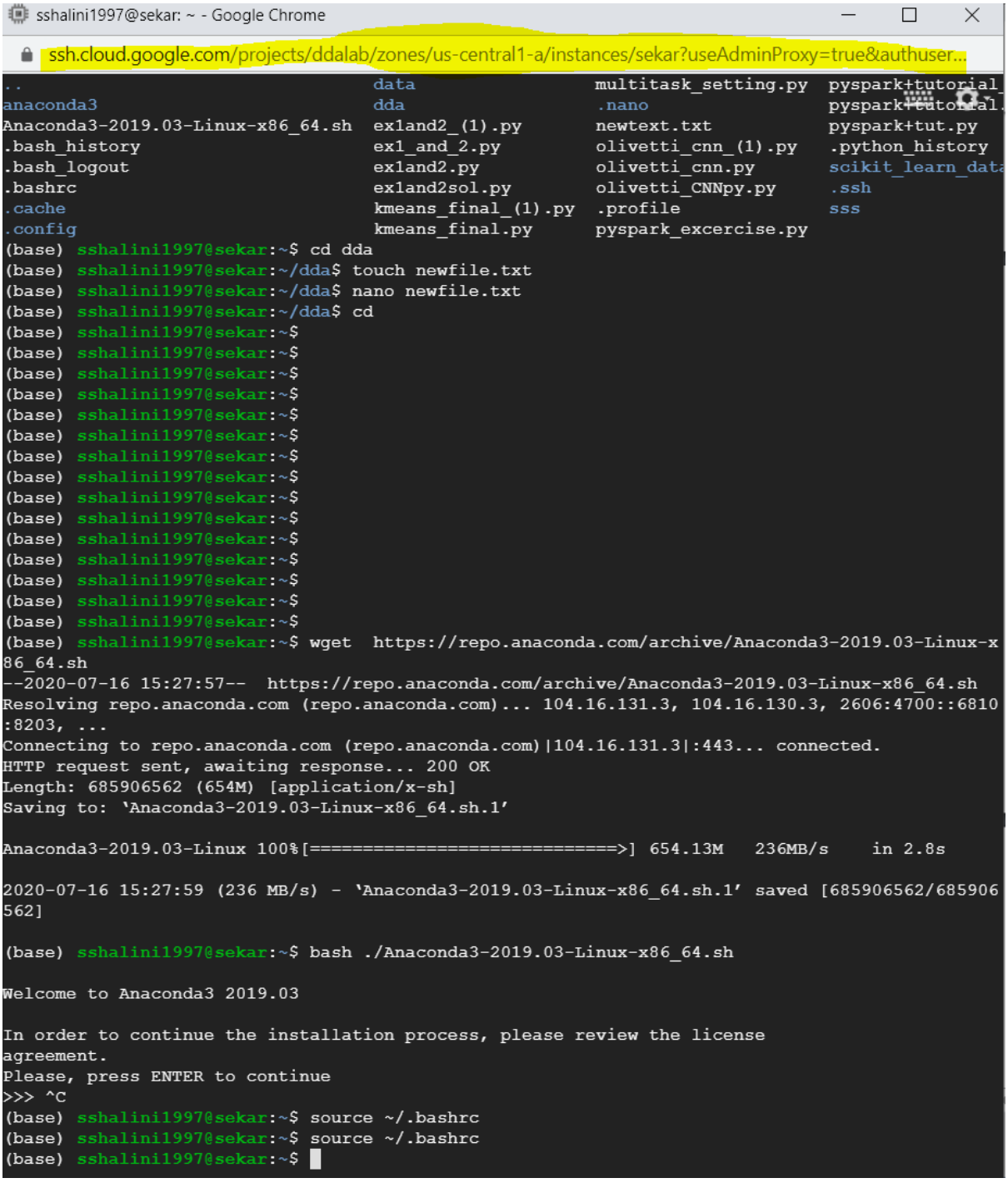
(base) sshalini1997@sekar:~$
(base) sshalini1997@sekar:~$
(base) sshalini1997@sekar:~$
(base) sshalini1997@sekar:~$
(base) sshalini1997@sekar:~$
(base) sshalini1997@sekar:~$

Moving files to VM:

I moved files to VM manually because I was not able to access the VM via terminal. So, I used the upload option in the terminal.



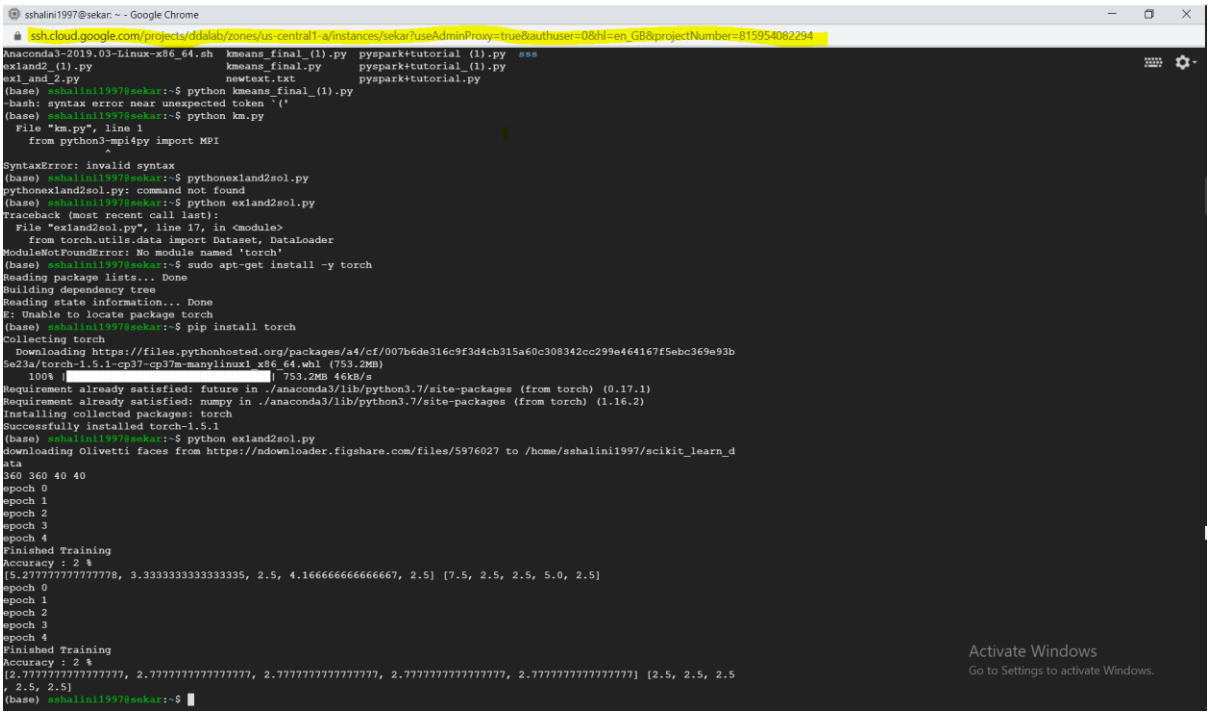
Installing anaconda:



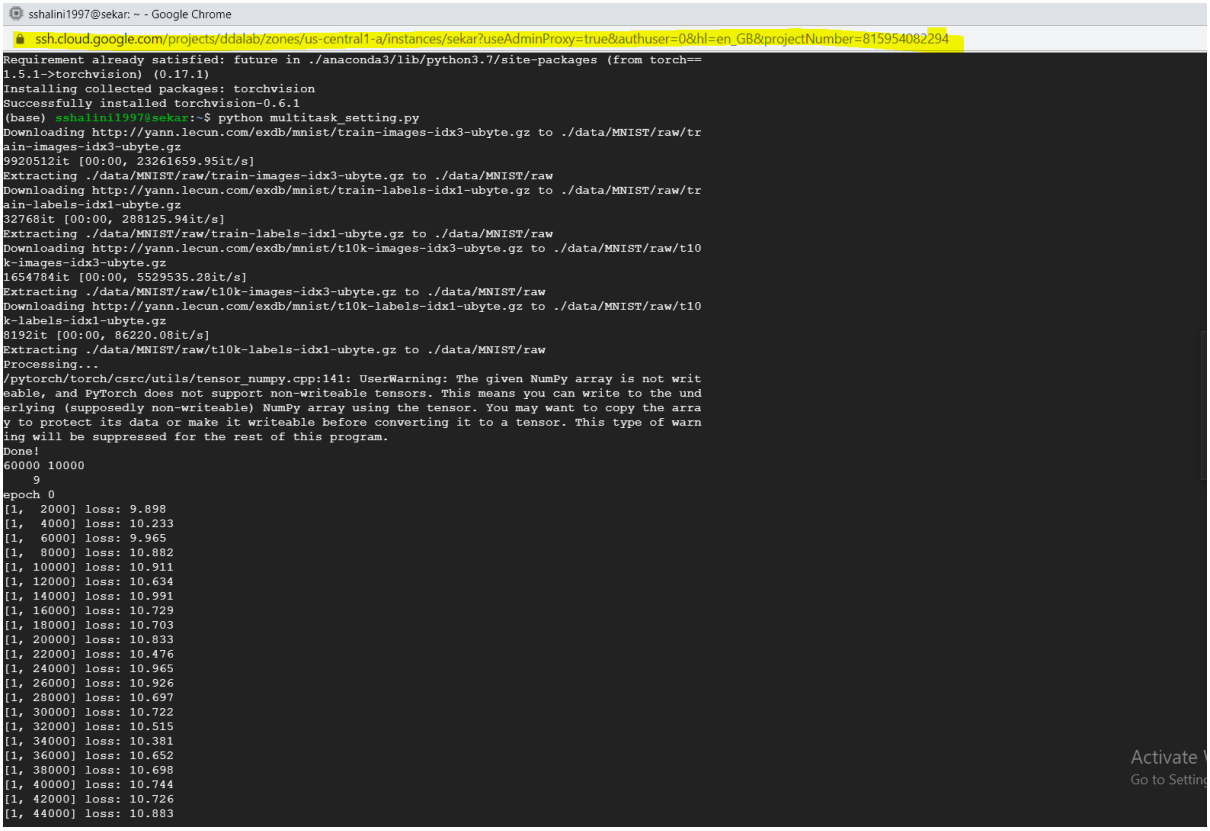
Running program in the VM instance:

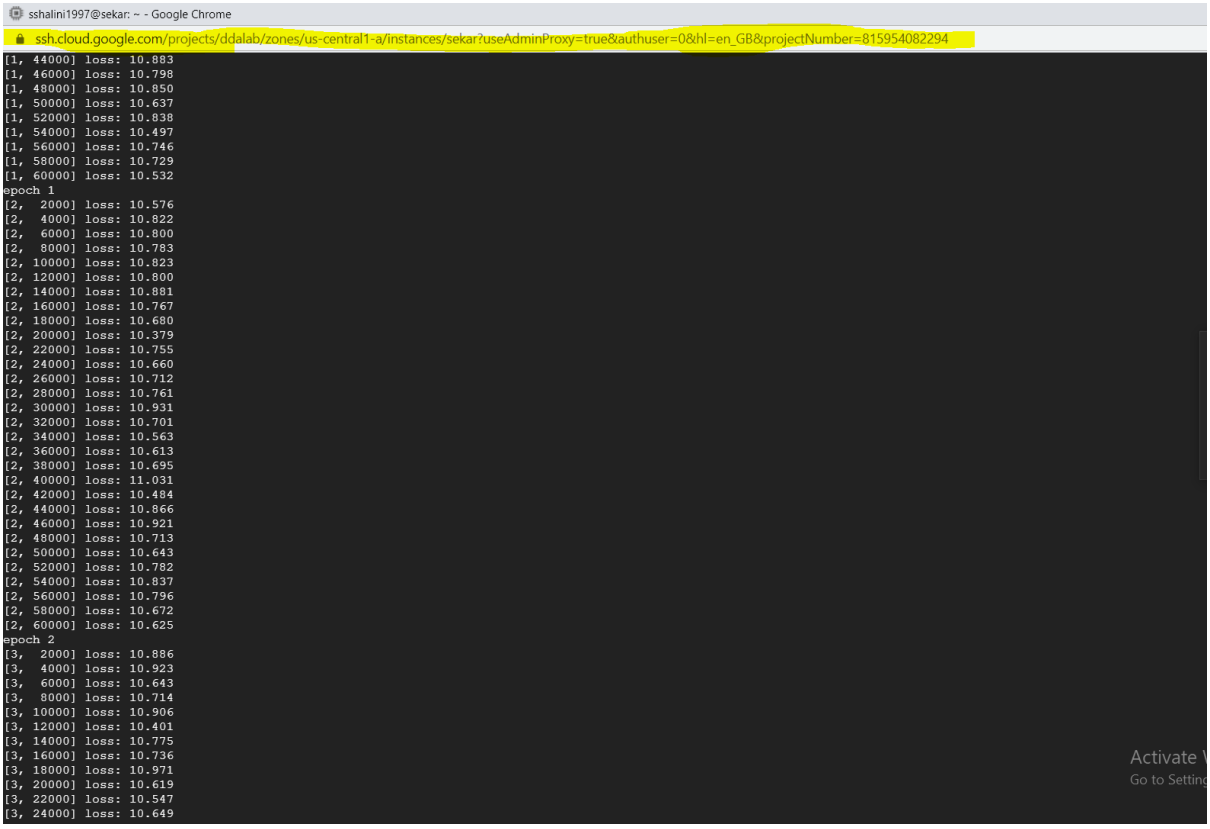
I have chosen to run excercise sheet 9:

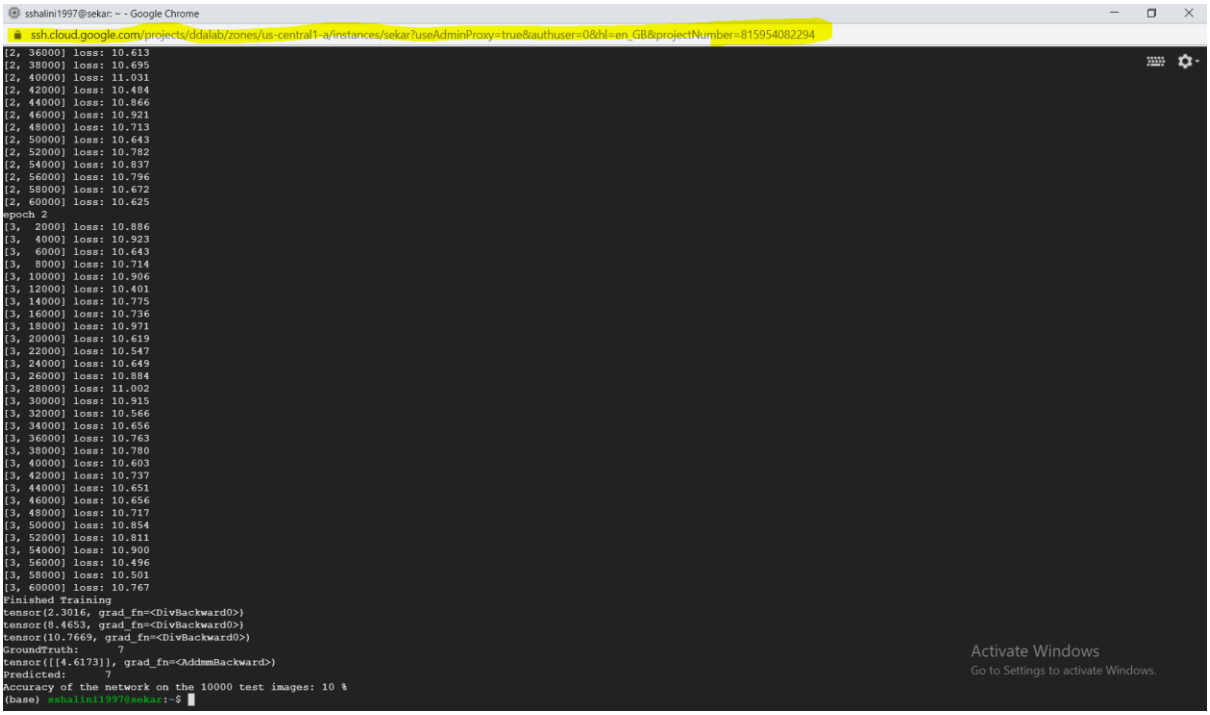
Excercise 1 and 2:



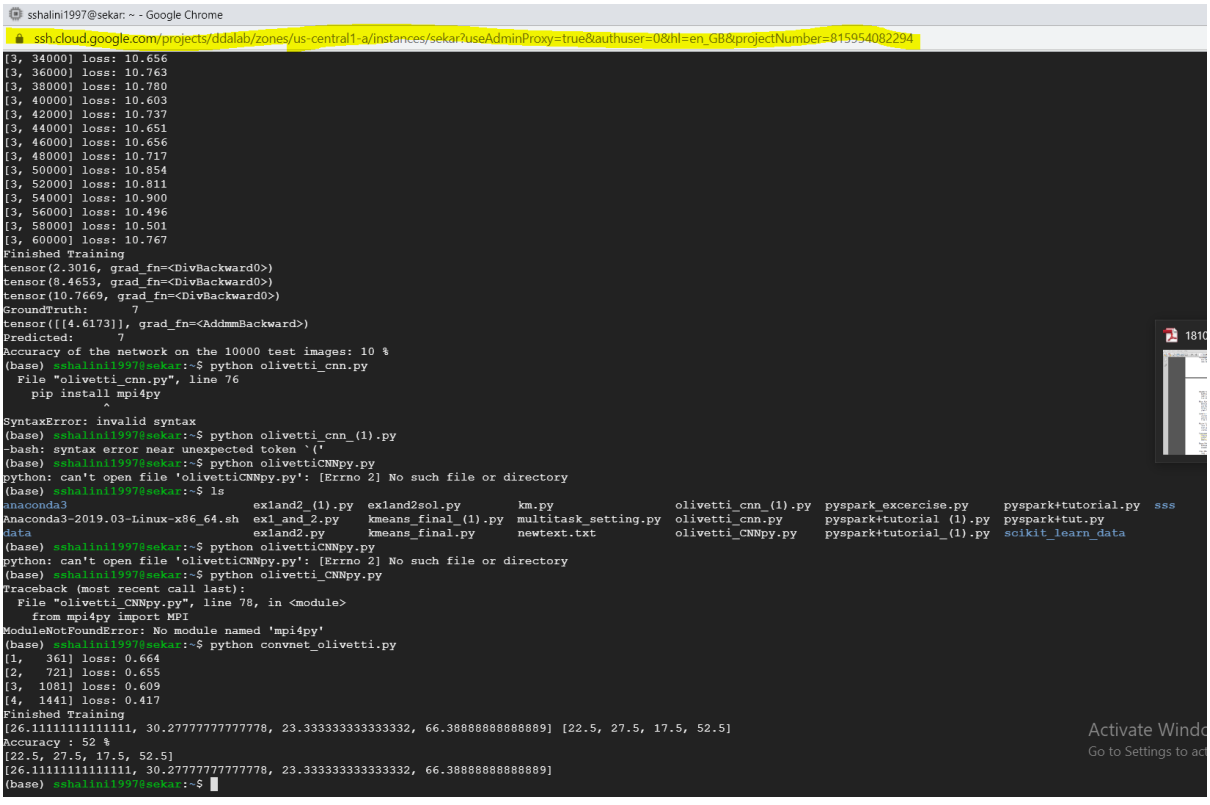
Excercise 4:


sshalini1997@sekar: ~ - Google Chrome
ssh.cloud.google.com/projects/ddalab/zones/us-central1-a/instances/sekar?useAdminProxy=true&authuser=0&hl=en_GB&projectNumber=815954082294
Requirement already satisfied: future in ./anaconda3/lib/python3.7/site-packages (from torch==
1.5.1->torchvision) (0.17.1)
Installing collected packages: torchvision
Successfully installed torchvision-0.6.1
(base) sshalini1997@sekar:~$ python multitask_setting.py
Downloading http://yann.lecun.com/exdb/mnist/train-images-idx3-ubyte.gz to ./data/MNIST/raw/tr
ain-images-idx3-ubyte.gz
9920512it [00:00, 23261659.95it/s]
Extracting ./data/MNIST/raw/train-images-idx3-ubyte.gz to ./data/MNIST/raw
Downloading http://yann.lecun.com/exdb/mnist/train-labels-idx1-ubyte.gz to ./data/MNIST/raw/tr
ain-labels-idx1-ubyte.gz
32768it [00:00, 288125.94it/s]
Extracting ./data/MNIST/raw/train-labels-idx1-ubyte.gz to ./data/MNIST/raw
Downloading http://yann.lecun.com/exdb/mnist/t10k-images-idx3-ubyte.gz to ./data/MNIST/raw/t10
k-images-idx3-ubyte.gz
1654784it [00:00, 5529535.28it/s]
Extracting ./data/MNIST/raw/t10k-images-idx3-ubyte.gz to ./data/MNIST/raw
Downloading http://yann.lecun.com/exdb/mnist/t10k-labels-idx1-ubyte.gz to ./data/MNIST/raw/t10
k-labels-idx1-ubyte.gz
8192it [00:00, 86220.08it/s]
Extracting ./data/MNIST/raw/t10k-labels-idx1-ubyte.gz to ./data/MNIST/raw
Processing...
/pytorch/torch/csrc/utils/tensor_numpy.cpp:141: UserWarning: The given NumPy array is not writ
eable, and PyTorch does not support non-writeable tensors. This means you can write to the und
erlying (supposedly non-writeable) NumPy array using the tensor. You may want to copy the arra
y to protect its data or make it writeable before converting it to a tensor. This type of warn
ing will be suppressed for the rest of this program.
Done!
60000 10000
9
epoch 0
[1, 2000] loss: 9.898
[1, 4000] loss: 10.233
[1, 6000] loss: 9.965
[1, 8000] loss: 10.882
[1, 10000] loss: 10.911
[1, 12000] loss: 10.634
[1, 14000] loss: 10.991
[1, 16000] loss: 10.729
[1, 18000] loss: 10.703
[1, 20000] loss: 10.833
[1, 22000] loss: 10.476
[1, 24000] loss: 10.965
[1, 26000] loss: 10.926
[1, 28000] loss: 10.697
[1, 30000] loss: 10.722
[1, 32000] loss: 10.515
[1, 34000] loss: 10.381
[1, 36000] loss: 10.652
[1, 38000] loss: 10.698
[1, 40000] loss: 10.744
[1, 42000] loss: 10.726
[1, 44000] loss: 10.883
Activate
Go to Setting


sshalini1997@sekar: ~ - Google Chrome
ssh.cloud.google.com/projects/ddalab/zones/us-central1-a/instances/sekar?useAdminProxy=true&authuser=0&hl=en_GB&projectNumber=815954082294
[1, 44000] loss: 10.883
[1, 46000] loss: 10.798
[1, 48000] loss: 10.850
[1, 50000] loss: 10.637
[1, 52000] loss: 10.838
[1, 54000] loss: 10.497
[1, 56000] loss: 10.746
[1, 58000] loss: 10.729
[1, 60000] loss: 10.532
epoch 1
[2, 2000] loss: 10.576
[2, 4000] loss: 10.822
[2, 6000] loss: 10.800
[2, 8000] loss: 10.783
[2, 10000] loss: 10.823
[2, 12000] loss: 10.800
[2, 14000] loss: 10.881
[2, 16000] loss: 10.767
[2, 18000] loss: 10.680
[2, 20000] loss: 10.379
[2, 22000] loss: 10.755
[2, 24000] loss: 10.660
[2, 26000] loss: 10.712
[2, 28000] loss: 10.761
[2, 30000] loss: 10.931
[2, 32000] loss: 10.701
[2, 34000] loss: 10.563
[2, 36000] loss: 10.613
[2, 38000] loss: 10.695
[2, 40000] loss: 11.031
[2, 42000] loss: 10.484
[2, 44000] loss: 10.866
[2, 46000] loss: 10.921
[2, 48000] loss: 10.713
[2, 50000] loss: 10.643
[2, 52000] loss: 10.782
[2, 54000] loss: 10.837
[2, 56000] loss: 10.796
[2, 58000] loss: 10.672
[2, 60000] loss: 10.625
epoch 2
[3, 2000] loss: 10.886
[3, 4000] loss: 10.923
[3, 6000] loss: 10.643
[3, 8000] loss: 10.714
[3, 10000] loss: 10.906
[3, 12000] loss: 10.401
[3, 14000] loss: 10.775
[3, 16000] loss: 10.736
[3, 18000] loss: 10.971
[3, 20000] loss: 10.619
[3, 22000] loss: 10.547
[3, 24000] loss: 10.649
Activate
Go to Setting



Excercise 4's last part and Excercise 3:



Thus the programs were run in the VM instance in the cloud.