**Assignment 1**

**PART I: Select an Operating System**

I have utilized Windows on both a personal and professional computer. I possess extensive knowledge and expertise in its functionality and can proficiently employ it to meet academic computer requirements. I can locate drivers, directories, and files. I can establish a remote SSH connection to the Google Cloud Platform to operate within Visual Studio Code.

**PART II: Set Up Deep Learning Virtual Machine (VM) in GCP**

## SUBMISSION REQUIREMENT PART II #1:

## Write a brief report summarizing the significant steps of setting up the remote server.

* Steps I took to set up the GCP Account.  
  **Step 1:** Navigate to https://cloud.google.com/free?hl=en Creation Homepage.  
  **Step 2:** Click on **Get Started for Free  
  Step 3:** It will redirect to the Sign-In page, Sign In with your **Gmail ID**.  
  **Step 4:** I have used the code from the email (where it says **Your code**) in the Google Cloud console under the **Coupon code**.  
  **Step 5:** I agree to the terms, click **Accept and continue**. The credit is added to my account in a Cloud Billing account named for the course it applies to.

Screenshot documenting that I have successfully set up a GCP Account. A screenshot of a computer

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***Steps I took to set up the GCP Project.***

**Step 1:  I ensure I am signed in to the correct GCA account.**

**Step 2: Click the project selector button**

**Step 3: Click the Create Project button and follow the instructions –**

Project name and Project ID.  
Project name: ADTA5760NLP  
Project number:449156197364  
Project ID: adta5760nlp  
  
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## *Steps I took to set up the remote server*

## ****Step 1:****start an instance by Starting the VM

## 

## ****Step 2:****Click the 'CLI' button next to your running instance and wait for several minutes.

## ****Step 3:** Run the following code**

## export IMAGE\_FAMILY="tf-ent-latest-cpu"

## export ZONE="us-south1-c"

## export DISK\_TYPE="pd-standard"

## export INSTANCE\_NAME="deep-learning-vm-tf2"

## export INSTANCE\_TYPE="e2-standard-8"

## gcloud compute instances create $INSTANCE\_NAME \

## --zone=$ZONE \

## --image-family=$IMAGE\_FAMILY \

## --image-project=deeplearning-platform-release \

## --machine-type=$INSTANCE\_TYPE \

## --boot-disk-type=$DISK\_TYPE \

## --boot-disk-size=1024GB

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## SUBMISSION REQUIREMENT PART III #2:

**Step 1:** Download the Google Cloud CLI installer.

**Step 2:** Launch the installer and follow the prompts. A screenshot of a computer

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**Step 3:**  Initialize the SDK by using code >

**Step 4:** Update the SDK

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**PART III: Connect Explore Remote VM Using SSH**

3.1:Open an SSH connection from the local computer to the remote VM.  
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3.2 . Examining the contents of the home directory using the fundamental Linux command lines. And created a new sub-folder named “JPTR\_NTBK” under the home directory

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3.4. Navigate to the freshly created folder as the current directory.

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**PART IV: Start and Connect to Jupiter Notebook in Remote VM**

4.1: In the remote virtual machine, launch the Jupyter Notebook server.

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4.2: **Connect** to the **Jupyter Notebook** server in the **remote** virtual machine (by connecting a Local Computer Port, i.e., 8000, to the Remote Server Port, i.e., 8888)

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4.3:**Use** Jupyter Notebook that is **currently running** in the **Remote Server** (in a browser on the local computer)

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Steps I took use Jupyter Notebook that runs in the remote virtual machine.

**Step 1:** SSH into VM

gcloud compute ssh biniamabebe@remote-deep-learning-vm --project adta5560nnl --zone us-south1-c

**Step 2:** Start the Jupyter Notebook

jupyter notebook --port=8888

**Step 3:**  Set Up SSH Tunneling

ssh   
 jupyter lab --ip=0.0.0.0 --port=8081 --no-browser --allow-root

google SDK

gcloud compute ssh deep-learning-vm-tf2 --zone=us-south1-c -- -L 8081:localhost:8081

**Step 4:** Enter the URL to the browser   
 <http://localhost:8000>

**PART V: Service Account for GCP Project**

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Stop the VM:

gcloud compute instances stop deep-learning-vm-tf2 --zone=us-south1-c

Update the VM with the necessary scopes:

gcloud compute instances set-service-account deep-learning-vm-tf2 \

--zone=us-south1-c \

--service-account=service-acc-dl-tf-cnn@adta5760nlp.iam.gserviceaccount.com \

--scopes=https://www.googleapis.com/auth/cloud-platform

Start the VM:

gcloud compute instances start deep-learning-vm-tf2 --zone=us-south1-c

Retry the command to create the service account key:

gcloud iam service-accounts keys create ~/key.json --iam-account service-acc-dl-tf-cnn@adta5760nlp.iam.gserviceaccount.com

chmod 600 ~/key.json

export GOOGLE\_APPLICATION\_CREDENTIALS="/home/biniamabebe/key.json"

gsutil ls

GOOGLE\_APPLICATION\_CREDENTIALS

**PART VI: Set Up** **Natural Language API for GCP Project**

1. Go to the Google Cloud console API Library page.
2. Select the Google Cloud project where you want to enable an API by performing one of the following:
   * Click on a Google Cloud project under project.
   * Use the Google Cloud project browser by performing the following steps:
     1. Click **Select project** to open the Google Cloud project browser.
     2. Find your project and then click on the Google Cloud project name.
     3. Click **Open** to open the project.
3. Click the API you want to enable. If you need help finding the API, use the **Search for Natural Language API**  box near the top of the page. A page describing the API appears.
4. Click the **Enable** button.

**PART VII: Join a Group**

Group Names   
**Abebe, Biniam -** [biniamabebe@my.unt.edu](mailto:biniamabebe@my.unt.edu)

**Terrazas, Joshua -** [joshuaterrazas@my.unt.edu](mailto:joshuaterrazas@my.unt.edu)

**Chaudhary, Yog -** [yogchaudhary@my.unt.edu](mailto:yogchaudhary@my.unt.edu)