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# CS 6120 Natural Language Processing — Lab 1

## January 12, 2026 (Week 1)

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### Introduction to Google Cloud Platform

In this lab, we will be exploring and reviewing our Google Cloud Platform (GCP) resources. We are going to be spinning up a virtual machine and installing packages, where we can access our \$50 credit from GCP to [create a VM](#). On your own, feel free to peruse some [helpful instructions](#) on [Google Cloud Platform](#). Your homebase and interface to all of GCP offerings is <https://console.cloud.google.com>. This console will allow you to monitor your projects, billing, and any product that you choose to use with GCP.

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| <b>REMINDER:</b> Shut down your instance when it is not in use to avoid unnecessary costs. |
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## 1 Setting Up Your GCP Account and Billing

In this lab, we will explore the offerings in GCP by first procuring a virtual machine (VM) for yourself.

1. Create and login to your GCP account. You can use any GMail account. **Do not use your Husky e-mail address.**
2. Request the credit via the link I've supplied. You will subsequently receive a link that can be redeemed until May, 2026. The splash page looks like Fig. 1.

*This* will require your Northeastern e-mail, but your cloud GCP account should be a Google address. To claim these credits from your Northeastern e-mail, accept via the link provided.

3. You should receive an email from GCP with a link to confirm your email address. Click the link to verify your Northeastern email.
4. Once you have access to your credit, **create a *project* with the billing credit that we have procured for you.** This project will be used throughout the class. This project is required to enable the Compute Engine API to apply the billing credit to enable resources.

The image shows a web form titled "Google Cloud Platform Cloud Platform Education Grants". The header is blue with the Google Cloud logo. Below the title, it says "Use credits provided to you via the Google Cloud Platform Education Grants program to access Google Cloud Platform. Get what you need to build and run your apps, websites and services." The main content area is white and contains a thank-you message: "Thank you for your interest in Google Cloud Platform Education Grants. Please fill out the form below to receive a coupon code for credit to use on Google Cloud Platform." There are three input fields: "First Name", "Last Name", and "School Email". The "School Email" field has a dropdown menu showing "@northeastern.edu". Below the fields, there is a note: "If you do not see your domain listed, please contact your course instructor: [k.ni@northeastern.edu](\"mailto:k.ni@northeastern.edu\")". A disclaimer follows: "By clicking \"Submit\" below, you agree that we may share the following information with your educational institution and course instructor ( [k.ni@northeastern.edu](\"mailto:k.ni@northeastern.edu\") ): (1) personal information that you provide to us on this form and (2) information regarding your use of the coupon and Google Cloud Platform products." At the bottom is a blue "Submit" button.

Figure 1: Accept your google cloud credits

To do so, first enable the Compute Engine API, which will prompt you to create a project if you have not done so. This is done in Fig. 2.

5. Google Cloud does not support combining credits. Switch billing accounts from Free Tier credits to CS6120 credits. You will need to switch billing account if you want to use 2 sources of GCloud credits.

## 2 Provision Your First Virtual Machine

In this section, we will create a virtual machine (VM) for us to operate with. A VM is a software-based representation of a physical computer. It allows you to run multiple operating systems and applications on a single physical machine. Think of it as a computer within a computer.

Go ahead and provision your first virtual machine on the grant that you'd created. Simply click on Compute Engine → Virtual Machine Instances. Once you've clicked on "Create", you'll notice many options.

1. First, change the name to something that you can remember, for example "my-first-webserver".
2. Second, we won't be needing a very large machine or much memory at all. Select a smaller machine (e.g., e2-micro), and watch the cost go down on the right. Mine says \$7.11 per month.

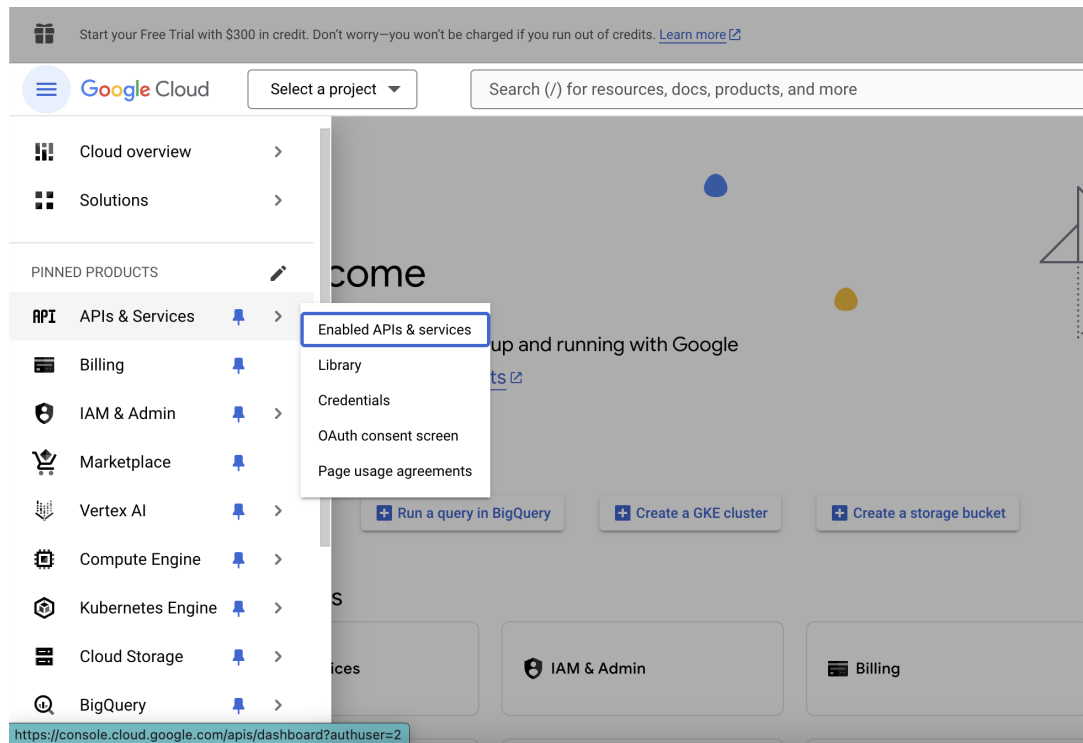


Figure 2: Enable the Compute Engine API

3. Third, we will be accessing the webpage you create through HTTP; therefore, in the Firewall settings, check all the boxes (i.e., “Allow HTTP, HTTPS, and Load Balancer Health Checks”).

At this time, you do not need to change any of the other fields, but I would encourage that you familiarize yourself with what they mean. Feel free to create your machine when ready.

Once you’ve created your VM, it should take a couple minutes to create (the status will be spinning). You’ll notice a green checkmark when it is ready. Login to it SSH under connect. Note down the External IP, which is its IP address to the outside world; we’ll need it for later. (If you wish, you could even SSH to that address.)

### 3 Deploy Your Capability

In Linux, there are a few commands that you should remember: `apt-get update` and `apt-get install <command>`. The first command updates the packages if any are out-dated, and the second command installs the package. For your VMs, you may need to type `sudo` in front, which gives you root privileges.

For this lab, you’ll need to install Apache Web server, which you can do with:

- `sudo apt update`
- `sudo apt-get install apache2`

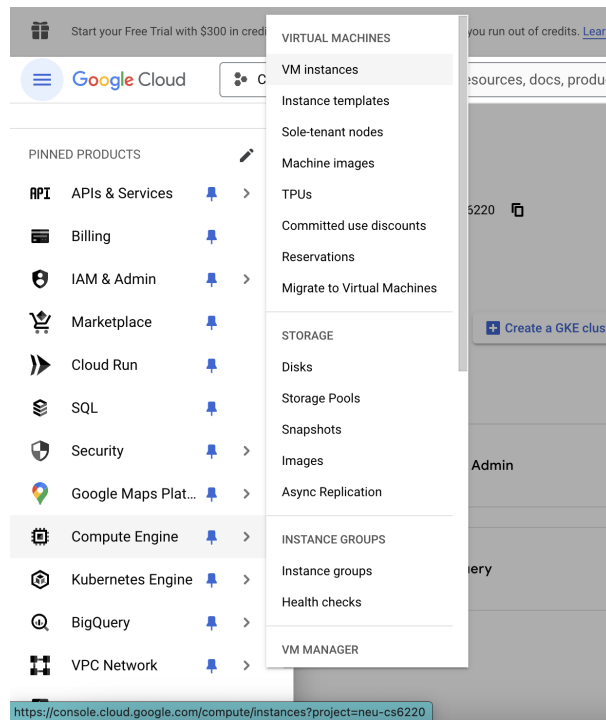


Figure 3: Create a virtual machine

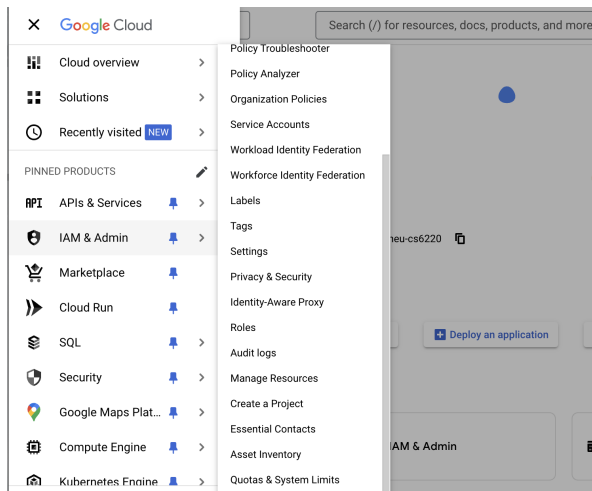
In an editor of your choice (e.g., *vim*, *nano*, *emacs*, *gedit*, etc.), open up this file

- `/var/www/html/index.html`

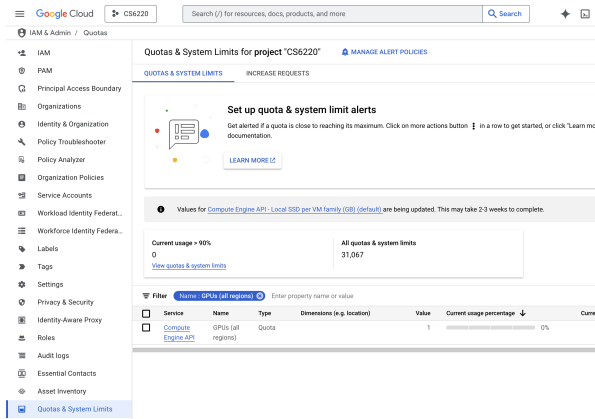
Alternatively, you can create the file locally, and then upload it. There may be an `index.html` already in that directory that you'll need to overwrite. If you're worried about losing what was there originally, you can always copy the file. Finally, since this file is in a protected directory, you may also need to use `sudo` in front of each command.

In the HTML file, use the following text while replacing the text words between the double parentheses with the appropriate words.

```
<!DOCTYPE html>
<html>
<head>
  <title>Hello, World!</title>
</head>
<body>
  <h1>Hello, World!</h1>
  My name is ((YOUR NAME)). My LDAP is ((YOUR LDAP)).
  I LOVE Natural Language Processing.
</body>
</html>
```



(a) Access quotas under IAM



(b) Increase GPU count to at least 1

## 4 Enabling GPUs on Your Account

In this course, for homeworks, labs, and the project, you will need specialized hardware in order to meaningfully optimize and run your algorithms (e.g., LLMs). You can rent GPUs from Google, albeit at greater cost, which you will need to be mindful of. These resources require an increase in quota of GPU's. ***Please do this immediately, as it may take up to two weeks for the approval to arrive.***

To access GPUs from GCP, you need to increase your quota. In your [console](#), navigate to *Quotas & System Limits* for the project that you have resources in. (Note: GPUs will *not* work allowed for the free \$300 credit. You must use the cloud credit that I have provided.) You can filter for GPUs in all regions with *GPUs (all regions)*. Increase the value to 1, which is your maximum.

## 5 Turn In Your Lab

Navigate to Gradescope and turn in screenshots of

1. a screenshot of the e-mail verification that Google has received your request to increase your GPU credit
2. your webpage with the address. Your screenshot should look like Fig. 5.

**Don't forget to delete your instance; you will be charged otherwise.**

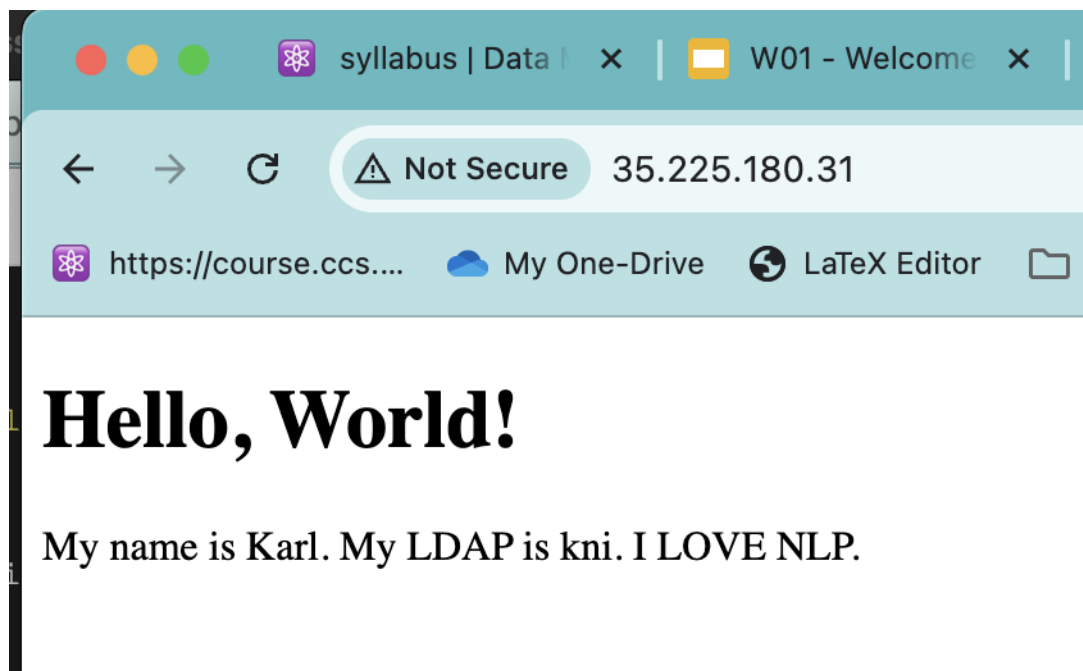


Figure 5: Hello World! Your first web application.