**CSIS4270 - Lab #4**

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***Introduction to the Google Cloud Platform***

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**Introduction:** This lab will introduce you to the Google Cloud Platform.

**Important Note:** Throughout these Google Cloud Platform based labs, you might find that buttons have a slightly different name, a step is missing, or an extra step is required. Google constantly updates and extends its cloud offerings, and while the instructions are accurate when I test the lab just a few days before I provide it to you, occasionally there will be slight differences. When this occurs, try to figure out how to achieve the objectives of the lab. If you need help or are unsure, don’t hesitate to ask on the Blackboard discussion group for the labs or by email.

**Objectives:**

1. To provide an overview of the Google Cloud Platform
2. To deploy a simple Hello World App
3. To learn how to use storage buckets
4. **Overview of the Google Cloud Platform**

**[\_\_\_\_\_/8]**

1. Open Google Chrome and go to <https://console.cloud.google.com>
2. Log in with the google account with which you redeemed your Google Cloud Platform Education Grant cloud credit.
3. If you are offered to “Sign up for a free trial and you’ll get $300 in credit”, click on *Dismiss*. At no point should you have to enter a credit card number.
4. In the user interface that opens, you should see a “hamburger button” on the top left side of the screen. When you click on it, a menu should open, with a few menu items like “Home”, “Marketplace” etc. on the top. After that, there are several sections of menu items, starting with “Compute”. What are the other section headers in the menu?

**App Engine**

**Compute Engine**

**Kubernetes Engine**

**Cloud Functions**

**Cloud Run**

**VMware Engine**

1. Go to *Compute Engine* and select *Create*. Note that you will probably need to create a new project to do this. You can give the project any name you like (e.g. csis4270).
2. Under machine type, select the *most* powerful machine from the machine family “General-purpose”. How many CPUs and how much memory does it have, and what does it cost per hour?

**32 CPUs**

**32GB memory**

**$0.792 hourly cost**

1. Similarly, select the *least* powerful machine. How many CPUs and how much memory does it have, and what does it cost per hour?

**1 shared core**

**1GB memory**

**$0.009 hourly cost**

1. Under *Boot Disk*, what are some of the different operating systems offered (no need to write down all the versions, just the main types)?

**CentOS**

**Container Optimized OS**

**Debian**

**Deep learning on Linux**

**Ubuntu**

**Windows server etc.**

1. Do NOT create any virtual machines at this point.
2. In the hamburger menu, select *SQL* under *Databases*.
3. Click on *Create Instance*. What database engines are offered?

**MySQL**

**PostgreSQL**

**SQL server**

1. Select the first choice.
2. Expand “Show configuration options”.
3. What is the default machine type and storage?

**Machine type is db-n1-standard-1.**

**Storage type is SSD.**

1. Under *Maintenance*, pick a day of the week for *Preferred Window*. Once you picked a day, what is the default time window for maintenance?

**12:00AM to 01:00AM**

1. Click on Cancel and do NOT create a database at this point.
2. **Deploying a “Hello World” App [\_\_\_\_\_/6]**
3. In the hamburger menu, in the section *Compute*, click on *App Engine*.
4. Under *Hello World,* click on *Start Tutorial*, and select *Java*.
5. Follow the steps of the interactive tutorial.
6. After you deployed the app, what is its default URL?

**https://8080-0ceded45-31e4-4d8f-beac-c23f1a2d99ae.us-east1.cloudshell.dev/?authuser=0**

1. What is the output of the app?

**Hello, World**

1. When done with tutorial, close the cloud console at the bottom of the screen.
2. **Storage Buckets [\_\_\_\_\_/4]**
3. In the hamburger menu, click on *Storage* under *Storage*.
4. Click on *Create Bucket*.
5. Give the bucket a unique name. Write down the unique name you chose:

**Csi\_bucket1**

1. What are the three location types offered?

**Region**

**Dual-region**

**Multi-region**

1. Use the default location type and click on *Continue*.
2. What are the four default storage classes offered? How much does it cost to store and retrieve one GB of data per month for each storage class?

**Standard- $0.03**

**Nearline- $0.02**

**Coldline- $0.03**

**Archive- $0.05**

1. Use the standard storage class and click on *Continue*.
2. What are the two Access Control Models?

**Fine-grained**

**Uniform**

1. Pick the first choice and click on *Continue*.
2. Don’t make changes to the optional advanced settings. Click on *Create*.
3. Use notepad to create a text file with the content “Hello World!” and the file name “Csis4270” on your local computer. Upload the file into your cloud bucket.
4. Open the cloud console (using the button “>\_” at the top of the screen).
5. Enter the command gsutil ls. If prompted, click on “Authorize”. What is the output?

**You are attempting to perform an operation that requires a project id, with none configured. Please re-run gsutil config and make sure to follow the instructions for finding and entering your default project id.**

1. Enter the command gsutil ls gs://*<NameOfYourBucket>* (replace *<NameOfYourBucket>* with bucket name you wrote down above under step 3). What is the output?

**gs://csi\_bucket1/Csis4270.txt**

1. Enter the command gsutil cp gs://*<NameOfYourBucket>*/Csis4270.txt .(You have to enter the space and period at the end)
2. Enter the commandcat Csis4270.txt
3. What is the output?

**Hello World!**

1. **Exploring GCP [\_\_\_\_\_/2]**

Take some time to explore the Google Cloud Platform. Write down a couple of cool/interesting/useful things you find:

**It can perform any type or language of code and run an application.**

**Can monitor progress etc**