Exercise 1

```
PS <u>C:\Users\aliha\Desktop\CloudAppDev\Assignment3\Exercise1> gcloud</u> init

Welcome! This command will take you through the configuration of gcloud.
 Settings from your current configuration [default] are:
 accessibility:
   screen_reader: 'False
 core:
   account: alihanmurat11@gmail.com
   disable_usage_reporting: 'project: cloud-app-dev-31
 Pick configuration to use:

[1] Re-initialize this configuration [default] with new settings
[2] Create a new configuration
Please enter your numeric choice: 1
 Your current configuration has been set to: [default]
 You can skip diagnostics next time by using the following flag:
    gcloud init --skip-diagnostics
 Network diagnostic detects and fixes local network connection issues. Checking network connection...done.
 Reachability Check passed.
Network diagnostic passed (1/1 checks passed).
 Choose the account you want to use for this configuration.
 To use a federated user account, exit this command and sign in to the gcloud CLI with your login configuration file, then run this command again.
 Select an account:
[1] alihanmurat11@gmail.com
[2] Sign in with a new Googl
   [2] Sign in with a new Google Account
[3] Skip this step
 Please enter your numeric choice: 1
```

Initialize geloud and authorize your account

```
You are signed in as: [alihanmurat11@gmail.com].

Pick cloud project to use:
[1] clvic-meridian-435815-u4
[2] cloud-app-dev-31
[3] cloud-app-dev-midterm
[4] i-woodland-435815-e8
[5] Enter a project ID
[6] Create a new project
Please enter numeric choice or text value (must exactly match list item): 6

Enter a Project ID. Note that a Project ID CANNOT be changed later.
Project IDs must be 6-30 characters (lowercase ASCII, digits, or
hyphens) in length and start with a lowercase letter. cloud-app-dev-32
Waiting for [operations/cp.4810724047486278405] to finish...done.
Your current project has been set to: [cloud-app-dev-32].

Not setting default zone/region (this feature makes it easier to use
[gcloud compute] by setting an appropriate default value for the
--zone and --region flag).

See https://cloud.pogle.com/compute/docs/gcloud-compute section on how to set
default compute region and zone manually. If you would like [gcloud init] to be
able to do this for you the next time you run it, make sure the
Compute Engine API is enabled for your project on the
https://console.developers.google.com/apis page.

The Google Cloud CLI is configured and ready to use!

* Commands that require authentication will use alihanmurati1@gmail.com by default
```

create your project, set it to default and enable billing

```
PS C:\Users\aliha\Desktop\CloudAppDev\Assignment3\Exercise1> pip install flask
Requirement already satisfied: flask in c:\users\aliha\appdata\local\programs\python\python39-32\lib\site-packages (3.0.3)
Requirement already satisfied: \text{Werkzeugy=3.0.0} in c:\users\aliha\appdata\local\programs\python\python39-32\lib\site-packages (from flask) (3.0.4)
Requirement already satisfied: \text{linjazy=3.1.2} in c:\users\aliha\appdata\local\programs\python\python39-32\lib\site-packages (from flask) (3.1.4)
Requirement already satisfied: \text{sidangerousy=2.1.2} in c:\users\aliha\appdata\local\programs\python\python39-32\lib\site-packages (from flask) (2.2.0)
Requirement already satisfied: click>=8.1.3 in c:\users\aliha\appdata\local\programs\python\python39-32\lib\site-packages (from flask) (8.1.7)
Requirement already satisfied: blinker>=1.6.2 in c:\users\aliha\appdata\local\programs\python\python39-32\lib\site-packages (from flask) (1.8.2)
Requirement already satisfied: colorama in c:\users\aliha\appdata\local\programs\python\python39-32\lib\site-packages (from flask) (8.5.0)
Requirement already satisfied: zipp>=3.20 in c:\users\aliha\appdata\local\programs\python\python39-32\lib\site-packages (from click>=8.1.3-flask) (0.4.6)
Requirement already satisfied: zipp>=3.20 in c:\users\aliha\appdata\local\programs\python\python39-32\lib\site-packages (from importlib-metadata>=3.6.0->flask) (3.20.2)
Requirement already satisfied: MarkupSafe>=2.0 in c:\users\aliha\appdata\local\programs\python\python39-32\lib\site-packages (from importlib-metadata>=3.6.0->flask) (3.20.2)
```

```
app.py > ...
    from flask import Flask, jsonify

app = Flask(__name__)

@app.route('/api/hello', methods=['GET'])
def hello():
    return jsonify({'message': 'Hello, World!'})

gif __name__ == '__main__':
    app.run(host='0.0.0.0', port=8080, debug=True)
```

Create a python file and write the following code

```
! openapi.yaml
      openapi: 3.0.0
      info:
        title: Hello World API
        description: A simple API to say hello
        version: 1.0.0
      paths:
        /api/hello:
          get:
            summary: Returns a hello message
            responses:
              '200':
11
                description: A hello message
12
                content:
                  application/json:
15
                     schema:
                       type: object
                      properties:
                         message:
                           type: string
                           example: Hello, World!
21
```

Create a YAML file and write the following code

```
PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS

PS C:\Users\aliha\Desktop\CloudAppDev\Assignment3\Exercise1> gcloud endpoints services deploy openapi.yaml

ERROR: (gcloud.endpoints.services.deploy) Unable to parse Open API, or Google Service Configuration specification from openapi.yaml

PS C:\Users\aliha\Desktop\CloudAppDev\Assignment3\Exercise1> gcloud endpoints services deploy openapi.yaml

ERROR: (gcloud.endpoints.services.deploy) Unable to parse Open API, or Google Service Configuration specification from openapi.yaml

PS C:\Users\aliha\Desktop\CloudAppDev\Assignment3\Exercise1> []
```

Deploy

This Error shows up due to a problem with swagger or openapi(maybe, I tried to change code, instal packages however still got same error.)

Exercise 2

```
PS C:\Users\aliha\Desktop\CloudAppDev\Assignment3\Exercise2> gcloud init
Welcome! This command will take you through the configuration of gcloud.

Settings from your current configuration [default] are:
accessibility:
screen_reader: 'False'
core:
account: alihanmuratli@gmail.com
disable_usage_reporting: 'False'
project: cloud-app-dev-31

Pick configuration to use:
[1] Re-initialize this configuration [default] with new settings
[2] Create a new configuration
Please enter your numeric choice: 1

Your current configuration has been set to: [default]
You can skip diagnostics next time by using the following flag:
gcloud init --skip-diagnostics

Network diagnostic detects and fixes local network connection issues.
Checking network connection...done.
Reachability Check passed.
Network diagnostic passed (1/1 checks passed).

Choose the account you want to use for this configuration.
To use a federated user account, exit this command and sign in to the gcloud CLI with your login configuration file, then run this command again.
```

Initialize gcloud and authorize your account

```
Pick cloud project to use:
[1] civic-meridian-435815-u4
[2] cloud-app-dev-31
[3] cloud-app-dev-ainterm
[4] i-woodland-435815-e8
[5] Enter a project ID
[6] Create a new project
Please enter numeric choice or text value (must exactly match list item): 6

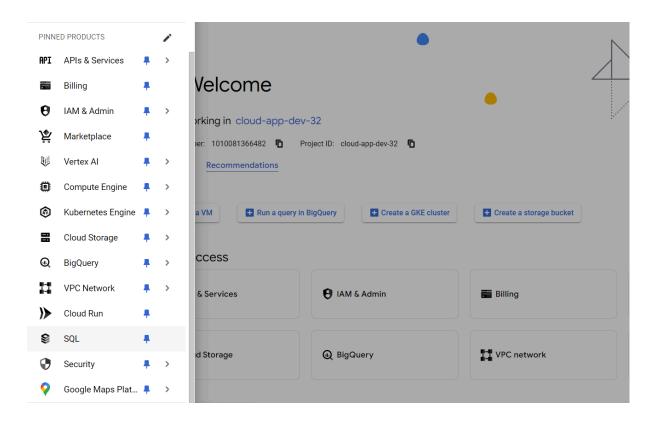
Enter a Project ID. Note that a Project ID CANNOT be changed later.
Project IDs must be 6-30 characters (lowercase ASCII, digits, or hyphens) in length and start with a lowercase letter. cloud-app-dev-32
Waiting for [operations/cp.4810724047486278405] to finish...dome.
Your current project has been set to: [cloud-app-dev-32].

Not setting default zone/region (this feature makes it easier to use
[gcloud compute] by setting an appropriate default value for the
--zone and --region flag).
See https://cloud-gogle.com/compute/docs/gcloud-compute section on how to set
default compute region and zone manually. If you would like [gcloud init] to be
able to do this for you the next time you run it, make sure the
Compute Engine API is enabled for your project on the
https://console.developers.google.com/capis page.

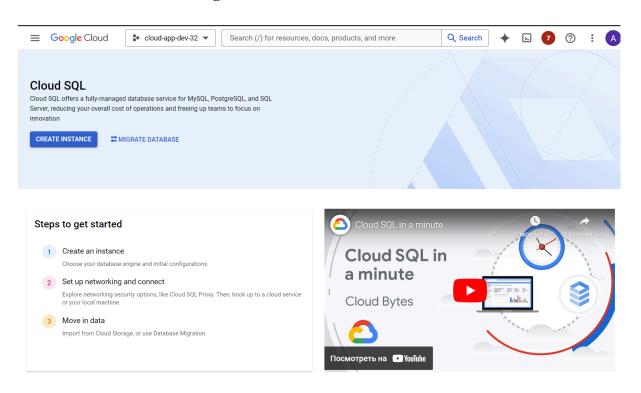
The Google Cloud CII is configured and ready to use!

* Commands that require authentication will use aliharmurat11@gmail.com by default
```

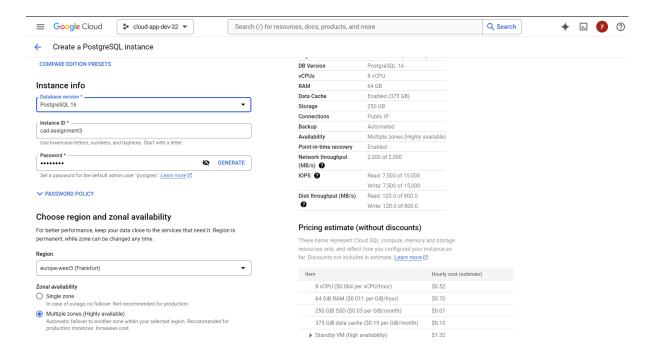
Create your project, set project to default and enable Billing



On Google Cloud Console click to SQL section



Click to CREATE INSTANCE and choose Database Engine



Fill everything according to your project

```
alihanmurat11@cloudshell:~ (cloud-app-dev-32)$ gcloud sql connect cad-assignment-3 --user=root Allowlisting your IP for incoming connection for 5 minutes...done.

Connecting to database with SQL user [root].Enter password:

Welcome to the MySQL monitor. Commands end with; or \g.

Your MySQL connection id is 88

Server version: 8.0.31-google (Google)

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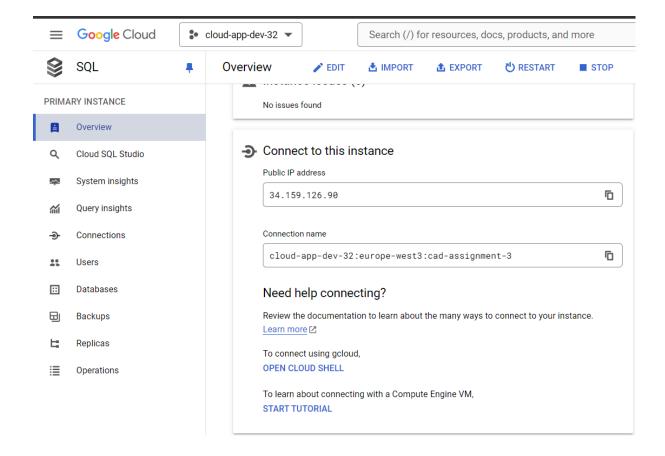
Type 'help;' or '\h' for help. Type '\c' to clear the current input statement.
```

Activate **Cloud Shell** and connect to your instance

```
mysql> CREATE DATABASE sample db;
Query OK, 1 row affected (0.21 sec)
mysgl> USE sample db;
Database changed
mysql>
mysql> CREATE TABLE users (
   -> id INT AUTO INCREMENT PRIMARY KEY,
    -> name VARCHAR(100) NOT NULL,
       email VARCHAR(100) NOT NULL
    -> );
Query OK, 0 rows affected (0.22 sec)
mysq1>
mysql> INSERT INTO users (name, email) VALUES ('Alice', 'alice@example.com');
Query OK, 1 row affected (0.21 sec)
mysql> INSERT INTO users (name, email) VALUES ('Bob', 'bob@example.com');
Query OK, 1 row affected (0.21 sec)
```

```
* Run `gcloud cheat-sheet` to see a roster of go-to `gcloud` pip install mysql-connector-python
>> C:\Users\aliha\Desktop\CloudAppDev\Assignment3\Exercise2>
Collecting mysql-connector-python
Downloading mysql_connector_python-9.1.0-py2.py3-none-any.whl.metadata (6.0 kB)
Downloading mysql_connector_python-9.1.0-py2.py3-none-any.whl (381 kB)
Installing collected packages: mysql-connector-python
Successfully installed mysql-connector-python-9.1.0
```

Make sure that you installed sql connector



From cloud SQL copy your Public IP address

```
connect.py > [@] cnx
import mysql.connector

cnx = mysql.connector.connect(
    user='root', # or your username
    password='alihan11', # replace with your root password
    host='34.159.126.90', # replace with your Cloud SQL public IP
    database='sample_db'
    )

cursor = cnx.cursor()
    cursor.execute('SELECT * FROM users')

for row in cursor:
    print(row)

cursor.close()
    cnx.close()
```

Create python file and write the following code

```
PS C:\Users\aliha\Desktop\CloudAppDev\Assignment3\Exercise2> python connect.py
>>
(1, 'Alice', 'alice@example.com')
(2, 'Bob', 'bob@example.com')
```

Run your code

Exercise 3

```
PS C:\Users\aliha\Desktop\CloudAppDev\Assignment3\Exercise2> gcloud init
Welcome! This command will take you through the configuration of gcloud.

Settings from your current configuration [default] are:
accessibility:
screen_reader: 'False'
core:
account: alihanmuratli@gmail.com
disable_usage_reporting: 'False'
project: cloud-app-dev-31

Pick configuration to use:
[1] Re-initialize this configuration [default] with new settings
[2] Create a new configuration
Please enter your numeric choice: 1

Your current configuration has been set to: [default]
You can skip diagnostics next time by using the following flag:
gcloud init --skip-diagnostics

Network diagnostic detects and fixes local network connection issues.
checking network connection...done.
Reachability Check passed (1/1 checks passed).

Choose the account you want to use for this configuration.
To use a federated user account, exit this command and sign in to the gcloud CLI with your login configuration file, then run this command again.
```

Initialize gcloud and authorize your account

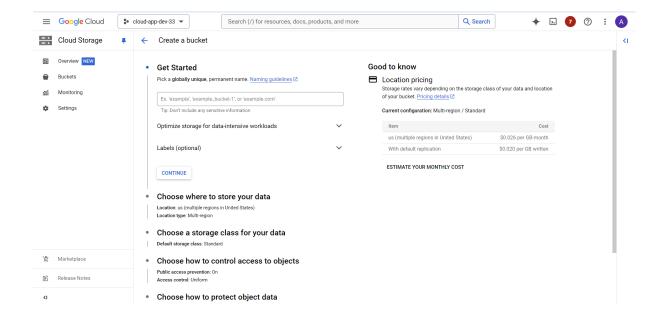
```
Pick cloud project to use:
[1] civic-meridian-435815-u4
[2] cloud-app-dev-31
[3] cloud-app-dev-midterm
[4] i-woodland-435815-e8
[5] Enter a project ID
[6] Create a new project
Please enter numeric choice or text value (must exactly match list item): 6
Enter a Project ID. Note that a Project ID CANNOT be changed later.
Project IDs must be 6-30 characters (lowercase ASCII, digits, or
hyphens) in length and start with a lowercase letter. cloud-app-dev-32
Waiting for [operations/cp.4810724047486278405] to finish...done.
Your current project has been set to: [cloud-app-dev-32].
Not setting default zone/region (this feature makes it easier to use
[gcloud compute] by setting an appropriate default value for the
--zone and --region flag).
See https://cloud.google.com/compute/docs/gcloud-compute section on how to set
default compute region and zone manually. If you would like [gcloud init] to be
able to do this for you the next time you run it, make sure the
Compute Engine API is enabled for your project on the
https://console.developers.google.com/apis page.

The Google Cloud CLI is configured and ready to use!

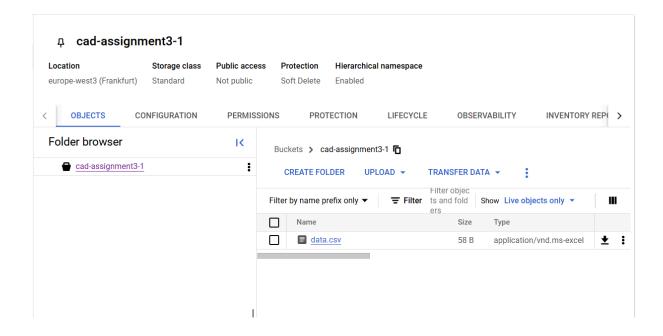
* Commands that require authentication will use aliharmuratil@gmail.com by default
```

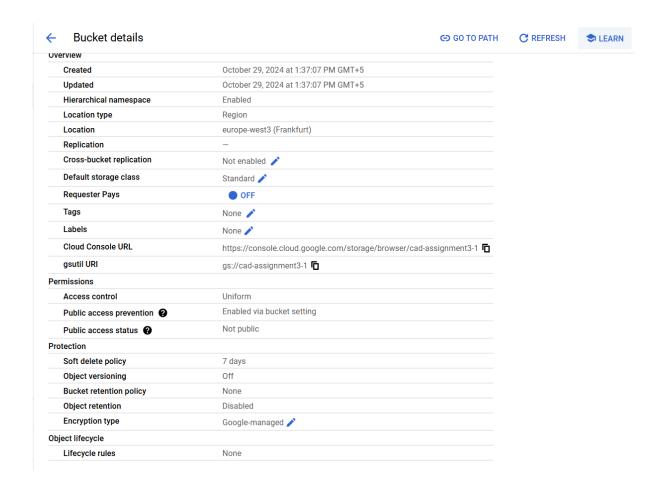
create your project, set it to default and enable billing

```
PS C:\Users\aliha\Desktop\cloudAppDev\Assignment3\Exercise3> pip install --upgrade https://storage.googleapis.com/tensorflow/mac/cpu/tensorflow-0.12.0-py3-none-any.wh local tensorflow=0.12.0
Using cached https://storage.googleapis.com/tensorflow/mac/cpu/tensorflow-0.12.0-py3-none-any.whl (38.4 MB)
Collecting numpy>=1.11.0 (from tensorflow=0.12.0)
Using cached numpy-2.0.2-py3-ep3-win32.whl.metadata (59 kB)
Using cached protobuf-3.1.0-py2.py3-none-any.whl.metadata (761 bytes)
Collecting six>=1.0.0 (from tensorflow=0.12.0)
Requirement already satisfied: wheel>=0.26 in c:\users\aliha\appdata\local\programs\python\python39-32\lib\site-packages (from tensorflow=0.12.0) (0.44.0)
Requirement already satisfied: setuptools in c:\users\aliha\appdata\local\programs\python\python39-32\lib\site-packages (from protobuf=3.1.0->tensorflow=0.12.0) (49 .2.1)
Using cached protobuf-3.1.0-py2.py3-none-any.whl (339 kB)
Using cached inumpy-2.0.2-cp39-cp39-win32.whl (6.5 MB)
Using cached six-1.16.0-py2.py3-none-any.whl (11 kB)
Installing collected packages: six, numpy, protobuf, tensorflow=0.12.0
Successfully installed numpy-2.0.2 protobuf-3.1.0 six-1.16.0 tensorflow=0.12.0
```



From Cloud Storage click to "Create Bucket"





Copy your gsutil URI

Create data.csv

```
PS C:\Users\aliha\Desktop\CloudAppDev\Assignment3\Exercise3> gsutil cp data/data.csv gs://cad-assignment3-1 Copying file://data\data.csv [Content-Type=application/vnd.ms-excel]...
\ [1 files][ 58.0 B/ 58.0 B]
```

upload your data to your bucket

```
🕏 train.py > 😭 create_model
      import pandas as pd
      def load_data():
          df = pd.read_csv('gs://cad-assignment3-1/data.csv')
X_train = df[['feature1', 'feature2']].values
y_train = df['label'].values
          return X_train, y_train
      def create_model():
           model = tf.keras.Sequential([
              tf.keras.layers.Dense(10, activation='relu', input_shape=(2,)),
               tf.keras.layers.Dense(1, activation='sigmoid')
           model.compile(optimizer='adam', loss='binary_crossentropy', metrics=['accuracy'])
           return model
      def main():
           X_train, y_train = load_data()
          model = create_model()
          train_data = tf.data.Dataset.from_tensor_slices((X_train, y_train)).batch(32)
          model.fit(train_data, epochs=5)
          model.save('gs://cad-assignment3-1/model')
      if __name__ == '__main__':
    main()
```

Write the following code

PS C:\Users\alina\Desktop\cloudAppDev\Assignment3\Exercise3> gcloud ai custom-jobs create --region=europe-west3 --display-name=ml_job --python-package-uris=gs://cad-assignment3-1/train.py --python-module=train --container-image-uri=gcr.io/cloud-aiplatform/training/tf-cpu.2-4:latest

--python-module=train --container-image-uri=gcr.io/cloud-aiplatform/training/tf-cpu.2-4:latest
--python-module=train

Submit the following command

```
to search the help text of gload commands, run:
gload help - SCHOMET (1996). SCHOMET (1996)
TO CHARGE AND ALL CONTROL (1996). SCHOMET (1996).
```

(Tried to debug it, however I keep getting error)