The documentation is used for two purposes:

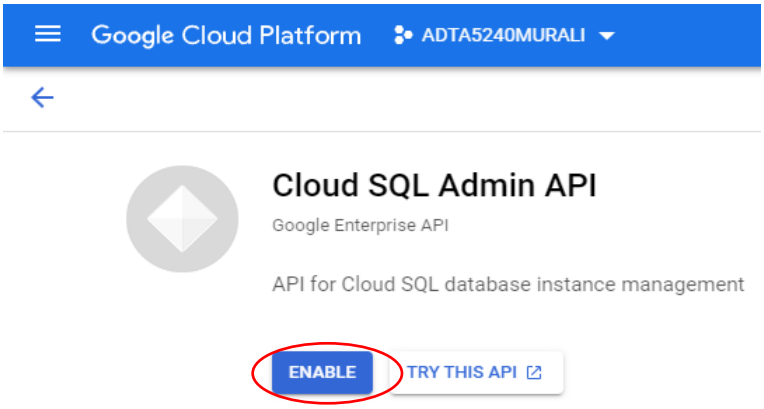
1) Creating MySQL instance, tables and loading data into it.
2) Creating instance, tables and database in Cloud spanner.

You are required to have a GCP account.

Creating MySQL instance, tables and loading data into it.

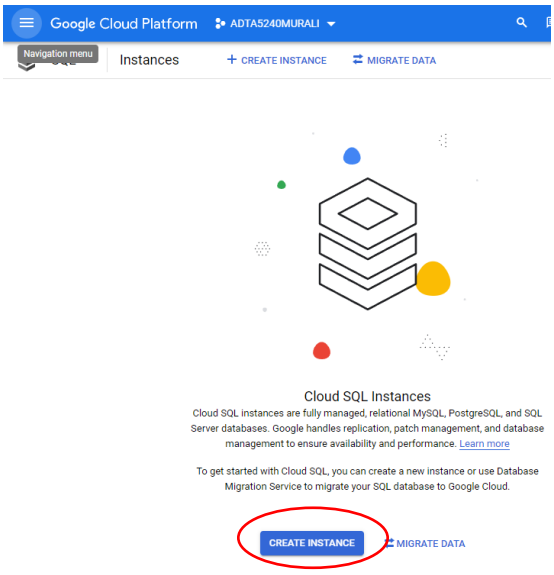
Before starting the process, you must have a project set up. You can either create a new project, perform all the functions, and then delete the project or work on a project and save it.

1) Type “Cloud SQL Admin API” in the search bar.
2) Enable the following as shown below.

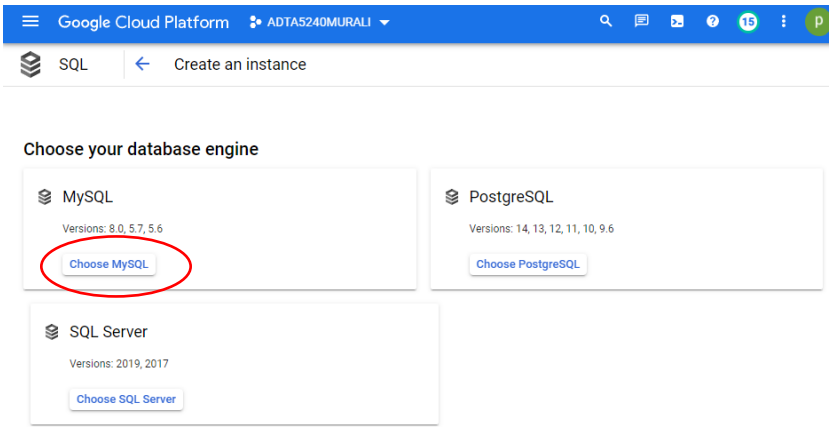


***You might encounter an error if you are using local SQL, make sure to stop it before Cloud SQL.

3) ***Creating a Cloud SQL instance*** – We will use gcloud command-line tool, curl or PowerShell.
4) Type “Cloud SQL Instances” in the search bar and select “Create Instance”.



5) Select “MySQL”



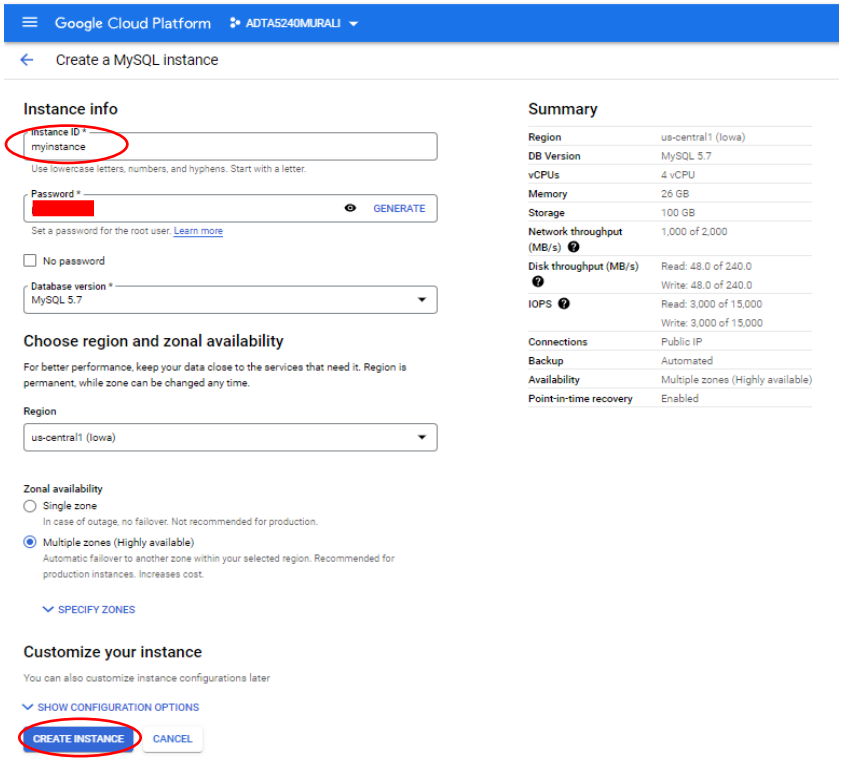
6) Since I have already enabled Compute API, it doesn’t prompt me to do so. You must enable it if you have a message.
7) Type the following:

Instance ID: myinstance

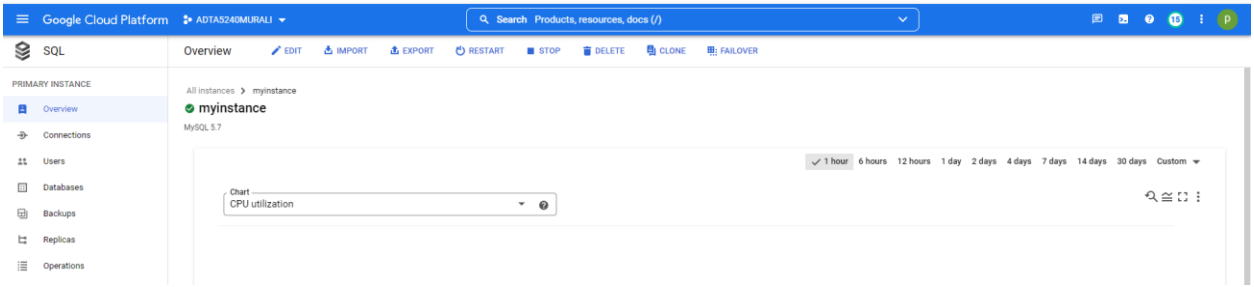
Password: Anything of your choice (MUST REMEMBER TO CONNECT TO INSTANCE)

Rest leave it at default values.

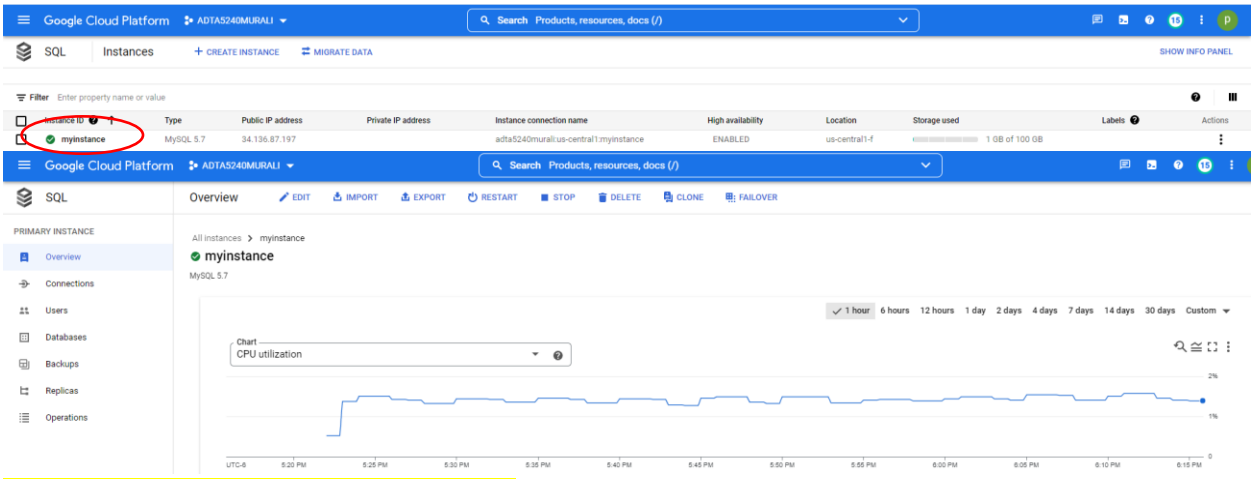
8) Select “Create Instance”



9) It should take you to the following page.



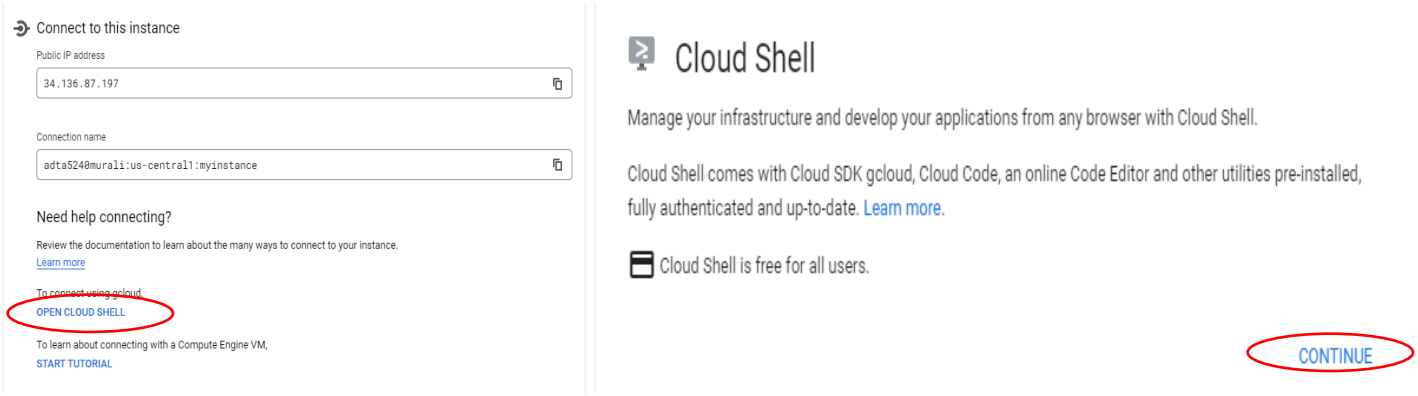
10) Click on the instance, you can check the utilization.



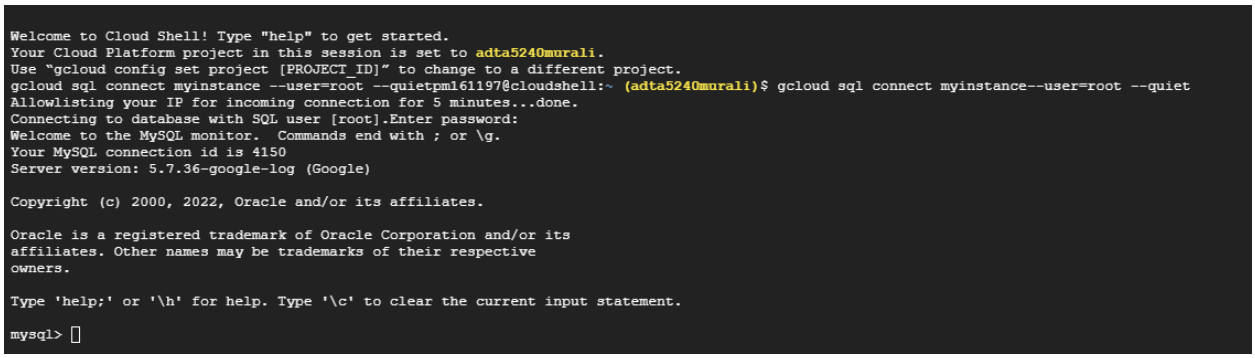
11) ***Creating a database to upload data into it***- We will used GCP Cloud shell to connect to our instances in MySQL.

12) Create SQL database on your instance

13) Scroll down, under “Connect to this instance”, click on “Open Cloud Shell”.



14) It should show you the window below.



15) Type the following: **CAPITALIZATION OF CERTAIN WORDS IS IMPORTANT**.

```
CREATE DATABASE customers;

USE customers;

CREATE TABLE customers (fName VARCHAR (255) , lName VARCHAR(255) , phone
VARCHAR(255), address VARCHAR(255) , city VARCHAR(255) , state VARCHAR(255),
model VARCHAR(255) , comments VARCHAR(255));

INSERT  INTO customers (fName, lName, phone, address, city, state, model,
comments) values
 ("Tony", "Barone", "555-676-7778","1018 State  Street", "Houston", "TX", "A-
1237", "This is the best product I have ever purchased.");

INSERT  INTO customers (fName, lName, phone, address, city, state, model,
comments) values
("Helen", "Smith", "777-879-0098", "889 Elm Road", "St. Louis",  "MO", "H-435",
"I would never
buy this product again!");

INSERT  INTO customers (fName, lName, phone,  address, city, state, model,
comments) values
 ("Susan", "Heller", "876-888-6795", "879 Main Street", "Los Angeles", "CA", "K-
8887", "All
 good");

INSERT  INTO customers (fName, lName, phone,  address, city, state, model,
comments) values
("Betsy", "Clark", "555-887-1098", "45 West 54th Ave.", "Topeka", "KS", "Z-2",
"No issues");
```

```
mysql> CREATE DATABASE customers;
Query OK, 1 row affected (0.01 sec)

mysql> USE customers;
ERROR 1049 (42000): Unknown database 'customers'
mysql> USE customers;
Database changed
mysql> CREATE TABLE customers (fName VARCHAR(255),lName VARCHAR(255), phone VARCHAR(255), address VARCHAR(255) , city VARCHAR (255) , state VARCHAR (255), model VARCHAR(255), comments VARCHAR(255));
Query OK, 0 rows affected (0.03 sec)

mysql> INSERT  INTO customers (fName, lName, phone, address, city, state, model, comments) values
    ->  ("Tony", "Barone", "555-676-7778","1018 State  Street", "Houston", "TX", "A-1237", "This
    "> is the best product I have ever purchased.");
Query OK, 1 row affected (0.00 sec)

mysql> INSERT  INTO customers (fName, lName, phone, address, city, state, model, comments) values
    -> ("Helen", "Smith", "777-879-0098", "889 Elm Road", "St. Louis",  "MO", "H-435",  "I would never
    "> buy this product again!");
Query OK, 1 row affected (0.01 sec)

mysql> INSERT  INTO customers (fName, lName, phone,  address, city, state, model, comments) values
    ->  ("Susan", "Heller", "876-888-6795", "879 Main Street", "Los Angeles", "CA", "K-8887", "All
    "> good");
Query OK, 1 row affected (0.00 sec)

mysql> INSERT  INTO customers (fName, lName, phone,  address, city, state, model, comments) values
    -> ("Betsy", "Clark", "555-887-1098", "45 West 54th Ave.", "Topeka", "KS", "Z-2", "No issues");
Query OK, 1 row affected (0.01 sec)
```

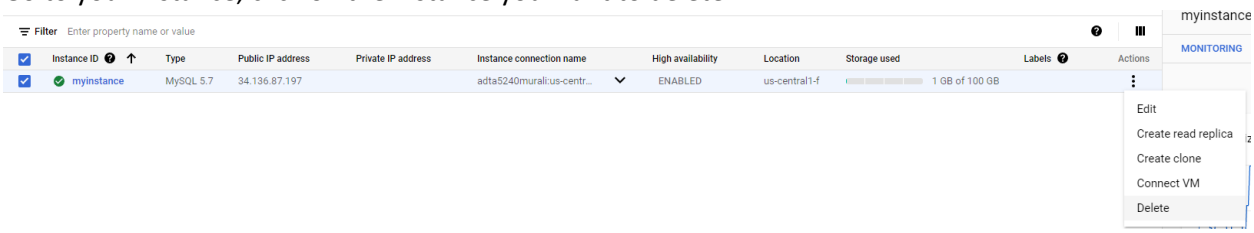
16) You can view your table using the following command.

SELECT * FROM customers;

```
mysql> SELECT * FROM customers
    -> ;
+-------+--------+--------------+--------------------+-------------+-------+--------+-----------------------------------------------------------+
| fName | lName  | phone        | address            | city        | state | model  | comments                                                  |
+-------+--------+--------------+--------------------+-------------+-------+--------+-----------------------------------------------------------+
| Tony  | Barone | 555-676-7778 | 1018 State  Street | Houston     | TX    | A-1237 | This
 is the best product I have ever purchased. |
| Helen | Smith  | 777-879-0098 | 889 Elm Road       | St. Louis   | MO    | H-435  | I would never
buy this product again!           |
| Susan | Heller | 876-888-6795 | 879 Main Street    | Los Angeles | CA    | K-8887 | All
 good                                    |
| Betsy | Clark  | 555-887-1098 | 45 West 54th Ave.  | Topeka      | KS    | Z-2    | No issues                                                 |
+-------+--------+--------------+--------------------+-------------+-------+--------+-----------------------------------------------------------+
4 rows in set (0.00 sec)
```

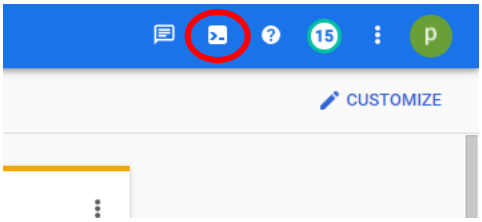
17) ***Cleanup***

Go to your instance, click on the instance you want to delete.

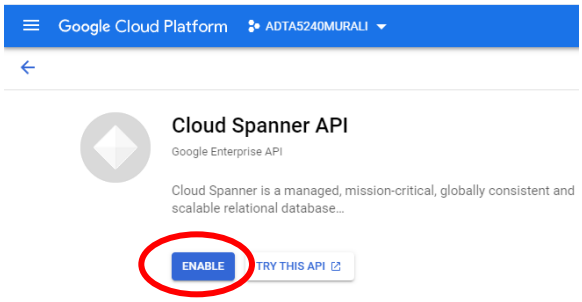


Creating instance, tables and database in Cloud spanner.

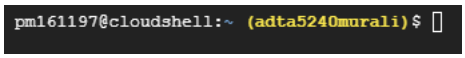
1) Log into your GCP account and select “Activate Cloud Shell” has shown below.



2) Type “Cloud Spanner API” on the search bar and enable it.



3) This is what your console should show when you activate the cloud shell.



4) You must have already set a project for this, if not make sure to that by following the first documentation created on this.
***You can also do the previous step by typing:

Click Authorize

5) Instances are created to allocate resources that are used by Cloud Spanner databases. By creating an instance, you can assign the location of the data as well as set compute capacity.You must select instance configuration, which determines the geographic placement and replication of your cloud spanner data.

[Optional] Set up and authentication and authorization – to run your code locally during development and testing, use the following command line with the default login credentials.

gcloud auth application-default login

6) Type the following – gcloud spanner instance-configs list

You can see many locations as we set it to multiregion

```
ERROR: (gcloud.auth.application-default.login) Aborted by user.
pm161197@cloudshell:~ (adta5240murali)$ gcloud spanner instance-configs list
NAME: asia1
DISPLAY_NAME: Asia (Tokyo/Osaka/Seoul)

NAME: eur3
DISPLAY_NAME: Europe (Belgium/Netherlands)

NAME: eur5
DISPLAY_NAME: Europe (London/Belgium/Netherlands)

NAME: eur6
DISPLAY_NAME: Europe (Netherlands, Frankfurt)

NAME: nam-eur-asia1
DISPLAY_NAME: United States, Europe, and Asia (Iowa/Oklahoma/Belgium/Taiwan)

NAME: nam10
DISPLAY_NAME: United States (Iowa/Salt Lake/Oklahoma)

NAME: nam11
DISPLAY_NAME: United States (Iowa, South Carolina, Oklahoma)

NAME: nam12
DISPLAY_NAME: United States (Iowa, Northern Virginia, Oregon)

NAME: nam3
DISPLAY_NAME: United States (Northern Virginia/South Carolina)

NAME: nam6
DISPLAY_NAME: United States (Iowa/South Carolina/Oregon/Los Angeles)

NAME: nam7
DISPLAY_NAME: United States (Iowa, Northern Virginia, Oklahoma)

NAME: nam8
DISPLAY_NAME: United States (Los Angeles, Oregon, Salt Lake City)
```

7) ***Creating an instance*** – We are going to create an instance named “test-instance” with the display name as My Instance in regional instance configuration “regional-us-central1” with 1 node.

   Type the following – gcloud spanner instances create test-instance --config=regional-us-central1 --description=”My Instance” --nodes=1

```
pm161197@cloudshell:~ (adta5240murali)$ gcloud spanner instances create test-intance --config=regional-us-central1 --de
scription="My Instance" --nodes=1
Creating instance...done.
```

8) Setting default instance by the following command –

   gcloud config set spanner/instance test-instance

```
pm161197@cloudshell:~ (adta5240murali)$ gcloud config set spanner/instance test-instance
Updated property [spanner/instance].
```

9) ***Creating a database*** –

   gcloud spanner databases create example-db

```
pm161197@cloudshell:~ (adta5240murali)$ gcloud spanner databases create example-db
Creating database...done.
```

10) ***Making tables*** –
glcoud spanner databases ddl update example-db –ddl=’CREATE TABLE Singers (SingerId INT64 NOT NULL,FirstName STRING(1024) , LastName STRING(1024) , SingerInfo BYTES(MAX) PRIMARY KEY (SingerId)’

glcoud spanner databases ddl update example-db –ddl=’CREATE TABLE Albums (SingerId INT64 NOT NULL,AlbumID INT64 NOT NULL, AlbumTitle STRING(MAX) PRIMARY KEY (SingerId, AlbumId) , INTERLEAVE IN PARENT Singers ON DELETE CASCADE’

```
pm161197@cloudshell:~ (adta5240murali)$ gcloud spanner databases ddl update example-db --ddl='CREATE TABLE Singers ( SingerId INT64 NOT NULL, FirstName STRING(1024),LastName STRING(1024), SingerInfo BYTES(MAX) ) PRIMARY KEY (SingerId)'
Schema updating...done.
pm161197@cloudshell:~ (adta5240murali)$ gcloud spanner databases ddl update example-db --ddl='CREATE TABLE Albums ( SingerId INT64 NOT NULL, AlbumId INT64 NOT NULL,AlbumTitle STRING(MAX)) PRIMARY KEY (SingerId, AlbumId), INTERLEAVE IN PARENT

Singers ON DELETE CASCADE'
Schema updating...
Schema updating...done.
pm161197@cloudshell:~ (adta5240murali)$
pm161197@cloudshell:~ (adta5240murali)$
```

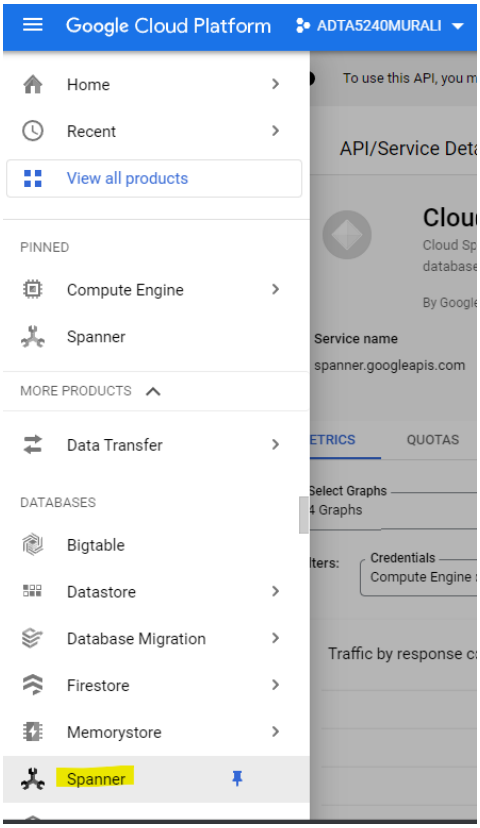
11) Writing into the table

```
gcloud spanner rows insert --database=example-db \
    --table=Singers \
    --data=SingerId=1,FirstName=Marc,LastName=Richards

gcloud spanner rows insert --database=example-db \
    --table=Singers \
    --data=SingerId=2,FirstName=Catalina,LastName=Smith

gcloud spanner rows insert --database=example-db \
    --table=Albums \
    --data=SingerId=1,AlbumId=1,AlbumTitle="Total Junk"

gcloud spanner rows insert --database=example-db \
    --table=Albums \
    --data=SingerId=2,AlbumId=1,AlbumTitle="Green"
```

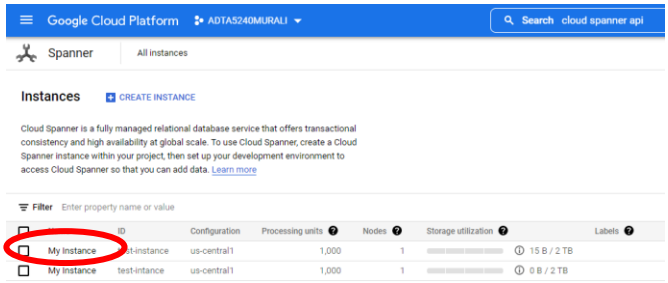
```
pm161197@cloudshell:~ (adta5240murali)$ gcloud spanner rows insert --database=example-db --table=Singers --data=SingerId=1,FirstName=Marc,LastName=Richards
commitTimestamp: '2022-02-25T02:15:23.495341Z'
pm161197@cloudshell:~ (adta5240murali)$ gcloud spanner rows insert --database=example-db --table=Singers --data=SingerId=2,FirstName=Catalina,LastName=Smith
ERROR: (gcloud.spanner.rows.insert) ALREADY_EXISTS: Row [2] in table Singers already exists
pm161197@cloudshell:~ (adta5240murali)$ gcloud spanner rows insert --database=example-db --table=Singers --data=SingerId=3,FirstName=Catalina,LastName=Smith
commitTimestamp: '2022-02-25T02:16:26.622309Z'
pm161197@cloudshell:~ (adta5240murali)$ gcloud spanner rows insert --database=example-db --table=Albums --data=SingerId=1,AlbumId=1,AlbumTitle="Total Junk"
commitTimestamp: '2022-02-25T02:18:34.200751Z'
pm161197@cloudshell:~ (adta5240murali)$ gcloud spanner rows insert --database=example-db --table=Albums --data=SingerId=2,AlbumId=1,AlbumTitle="Green"
commitTimestamp: '2022-02-25T02:19:00.173289Z'
pm161197@cloudshell:~ (adta5240murali)$
```

CLOSE THE SHELL AND OPEN YOUR GCP CONSOLE.

Use the navigation pane to scroll to the database. Under “databases” select “Spanner” as shown below

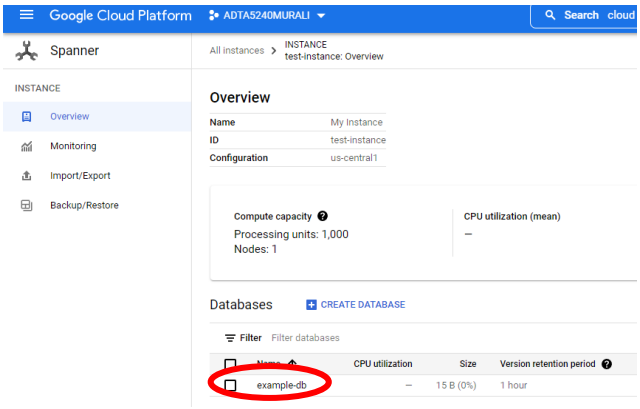


12) Select on the instance created called “My instance”

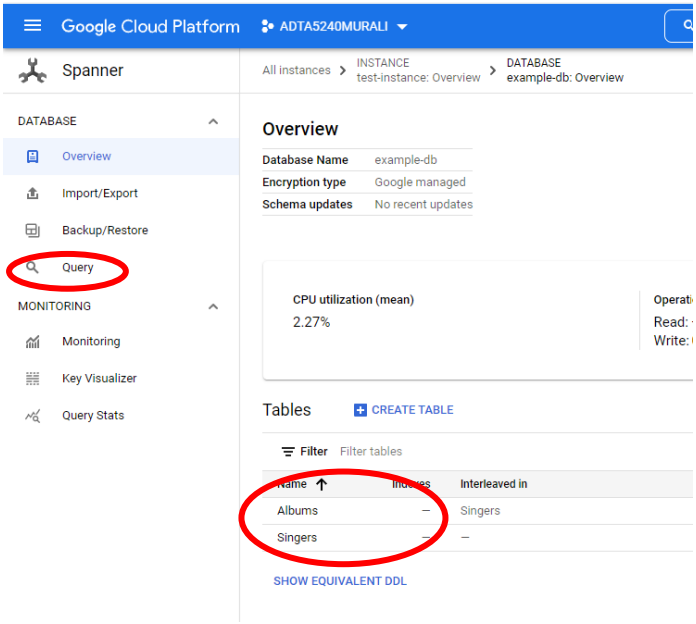


I created two instances by mistake. So, you can see that there is data in only one of them.

13) Click on the instance and you can see the database created through the cloudshell. Select the database.

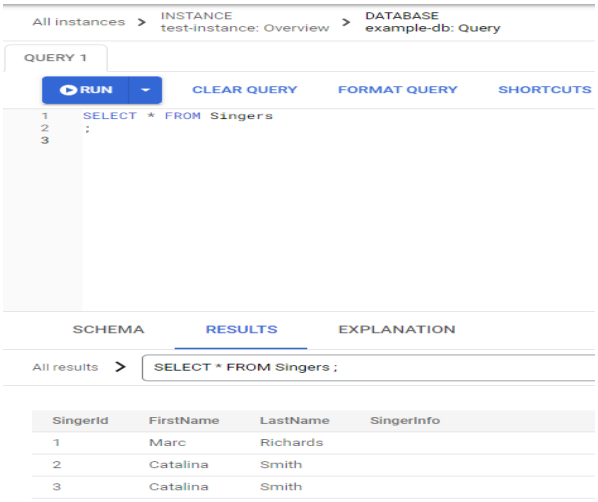


14) You can see the two tables have been created in the database. Select the database.



15) Select “Query” as shown in the above screenshot and type the query shown below.

SELECT * FROM Singers;



16) You must type the correct instance name you will not be able to delete it.

gcloud spanner instances delete test-instance

```
You are about to delete database: [example-db]

Do you want to continue (Y/n)?  Y

pm161197@cloudshell:~ (adta5240murali)$ gcloud spanner instances delete test-instanc
Delete instance [test-instanc]. Are you sure?

Do you want to continue (Y/n)?  Y

pm161197@cloudshell:~ (adta5240murali)$ gcloud spanner instances delete test-instance
Delete instance [test-instance]. Are you sure?

Do you want to continue (Y/n)?  Y

pm161197@cloudshell:~ (adta5240murali)$ gcloud spanner instances list
NAME: test-intance
DISPLAY_NAME: My Instance
CONFIG: regional-us-central1
NODE_COUNT: 1
STATE: READY
pm161197@cloudshell:~ (adta5240murali)$ gcloud spanner instances delete test-instance
Delete instance [test-instance]. Are you sure?

Do you want to continue (Y/n)?  Y

pm161197@cloudshell:~ (adta5240murali)$ gcloud spanner instances list
NAME: test-intance
DISPLAY_NAME: My Instance
CONFIG: regional-us-central1
NODE_COUNT: 1
STATE: READY
pm161197@cloudshell:~ (adta5240murali)$
```