Create and Manage Cloud Spanner Instances: Challenge Lab

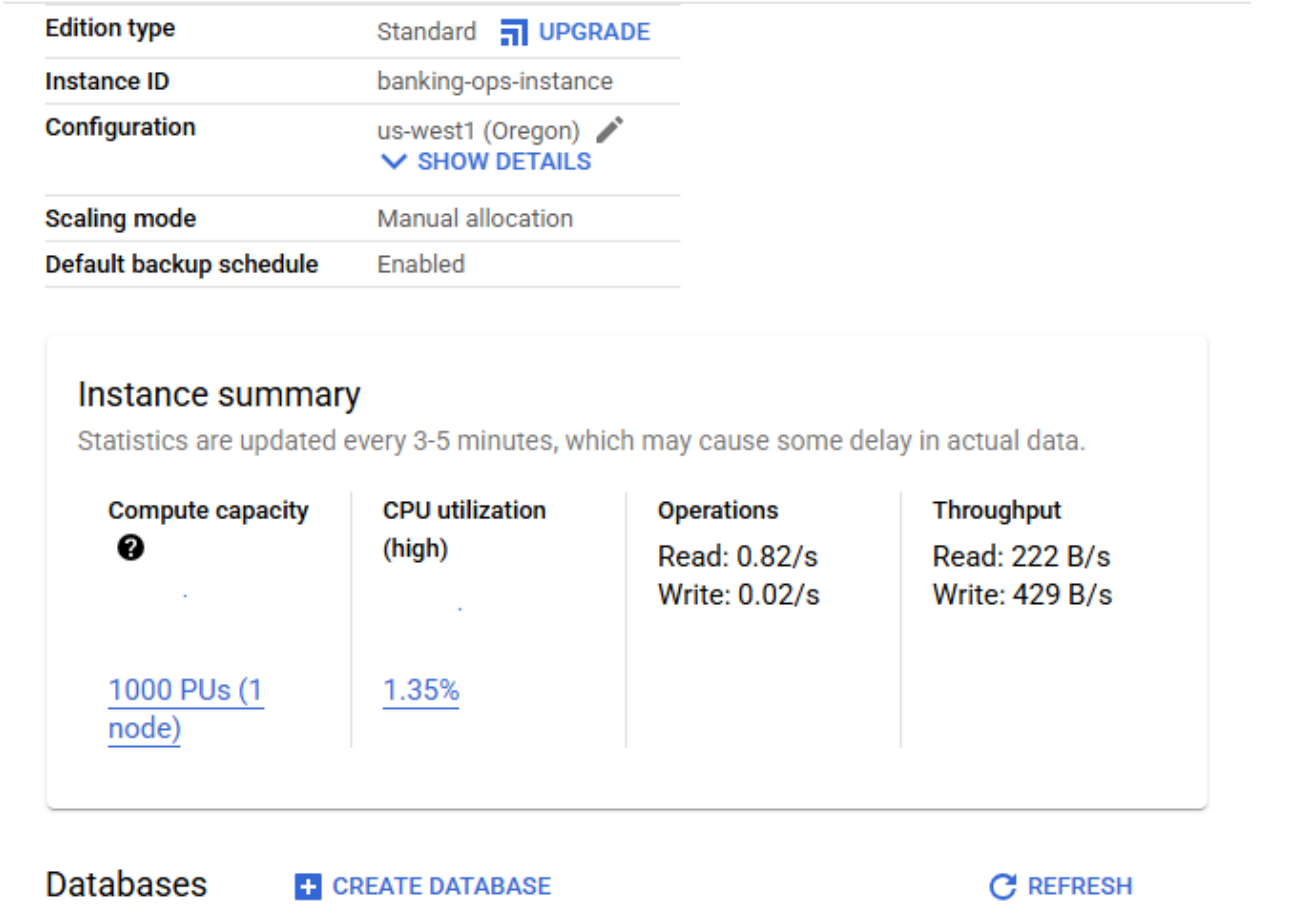
Objective

To demonstrate the ability to create and manage a Cloud Spanner instance, database, schema, and data operations including batch data loading and schema updates.

Task 1. Create a Cloud Spanner instance

1. Your first task is to create an instance.
2. You may complete this step using the Cloud Console or the gcloud CLI.
3. Your instance must have following attributes:

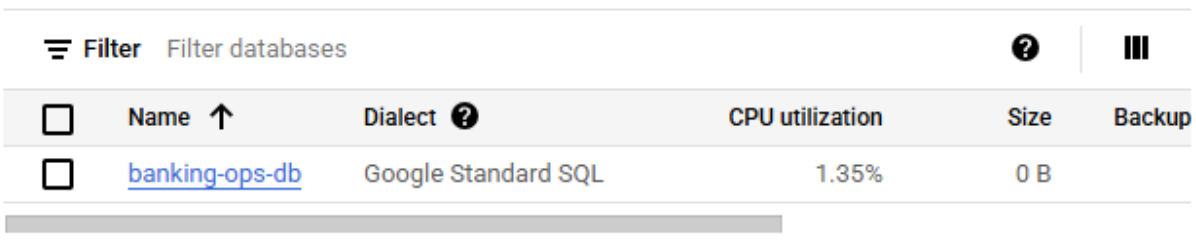
Item	Value
Name	**banking-ops-instance**
Region	**<REGION>**
Allocate Compute Capacity	**Unit - Nodes // Quantity - 1**



Task 2. Create a Cloud Spanner database

1. Your next task is to create a database.
2. You may complete this step using the Cloud Console or the gcloud CLI.
3. Your database must have following attribute:

Item	Value
Name	**banking-ops-db**



Task 3. Create tables in your database

1. Your database must have a total of four (4) tables - **Portfolio**, **Category**, **Product**, and **Customer**.
2. The tables must be defined as listed below.

```
CREATE TABLE Sample (
  SampleId INT64 NOT NULL,
  SampleName STRING(MAX)
) PRIMARY KEY (SampleId);
```

Table: **Portfolio**

Primary Key: **PortfolioId**

Column	Datatype
PortfolioId	INT64 NOT NULL
Name	STRING(MAX)
ShortName	STRING(MAX)
PortfolioInfo	STRING(MAX)

Table: **Category**

Primary Key: **CategoryId**

Column	Datatype
CategoryId	INT64 NOT NULL
PortfolioId	INT64 NOT NULL
CategoryName	STRING(MAX)

PortfolioInfo	STRING(MAX)

Table: **Product**

Primary Key: **ProductId**

Column	Datatype
ProductId	INT64 NOT NULL
CategoryId	INT64 NOT NULL
PortfolioId	INT64 NOT NULL
ProductName	STRING(MAX)
ProductAssetCode	STRING(25)
ProductClass	STRING(25)

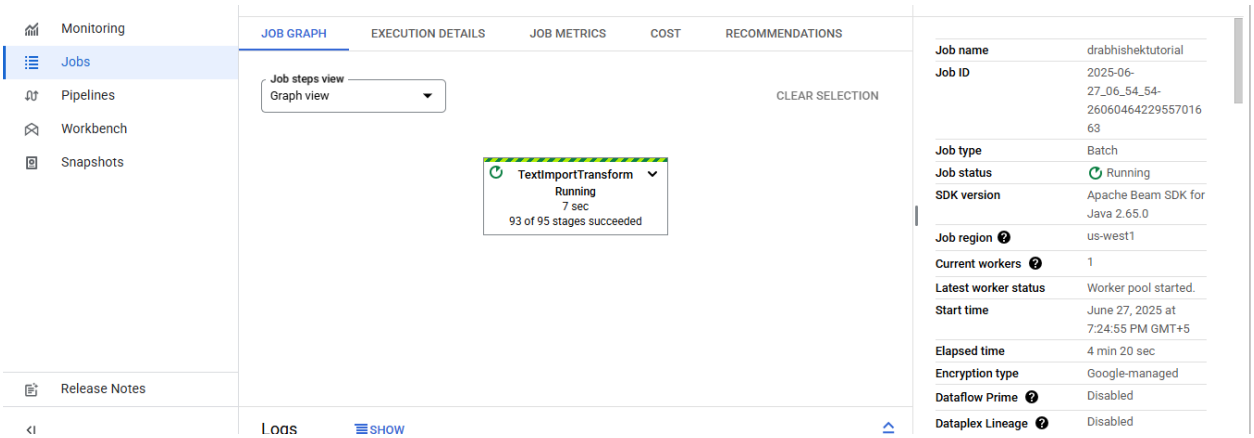
Table: **Customer**

Primary Key: **CustomerId**

Column	Datatype
CustomerId	STRING(36) NOT NULL
Name	STRING(MAX) NOT NULL
Location	STRING(MAX) NOT NULL

Task 4. Load simple datasets into tables

1. Three of your tables, **Portfolio**, **Category**, and **Product**, will be loaded with simple, low-volume datasets.
2. You may employ any method to load these tables.



Task 5. Load a complex dataset

1. You will load the **Customer** table with a much larger set of data.
2. A file named **Customer_List_500.csv** contains 500 rows of data and is located in the following public Cloud Storage bucket. You may reference or download it as necessary.

gsutil URI

gs://cloud-training/OCBL375/Customer_List_500.csv

HTTP URL

https://storage.googleapis.com/cloud-training/OCBL375/Customer_List_500.csv

3. You may recall from the lab Cloud Spanner - Loading Data and Performing Backups that a few options exist to load larger datasets. These include using Dataflow or a client library in Batch mode. You may choose to create simple insert statements. The decision is yours but you must load all 500 rows.
4. Utilize any method that you prefer to load the 500 row datafile. Some methods will require edits to the datafile which will require downloading it to your local machine. Please be sure to make a backup file if you choose that option.

Task 6. Add a new column to an existing table

1. As part of your DBA responsibilities you are required to add a new column called **MarketingBudget** to the **Category** table.
2. The column **MarketingBudget** must have a datatype of **INT64**.
3. Adding a new column is accomplished by a DDL command. You may issue the DDL via a gcloud command, the Cloud Console, or client library call.

Conclusion

This project demonstrated end-to-end database administration on **Cloud Spanner**, including:

- Instance provisioning
- Database creation
- Table and schema definition
- Data ingestion (manual and batch)
- Schema evolution