How to Create a Table in Google Cloud BigQuery

from a local CSV file

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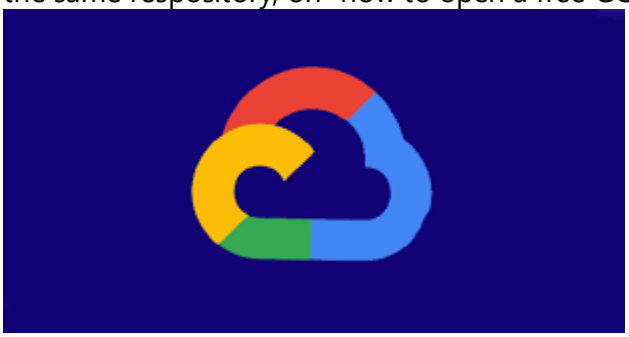
Introduction

In this document I will explain **how to create a Table** in a Dataset in Google Cloud BigQuery, using a CSV File on my computer.

This document accompanies the text "**Kaye is Learning SQL**".

I assume that, you already have a free **GCP** (Google Cloud Platform) account.
If you don't please open an account before you start working on this document.
If you accessed this document from a GitHub Repository, you will also find another document in the same respository, on "how to open a free GCP account".



I learned about **Google Cloud Platform** and **Google BigQuery** in a Bootcamp by **Istanbul Data Science Academy**.
https://istdatascience.com/

Thank you very much **Google** and **Istanbul Data Science Academy**!

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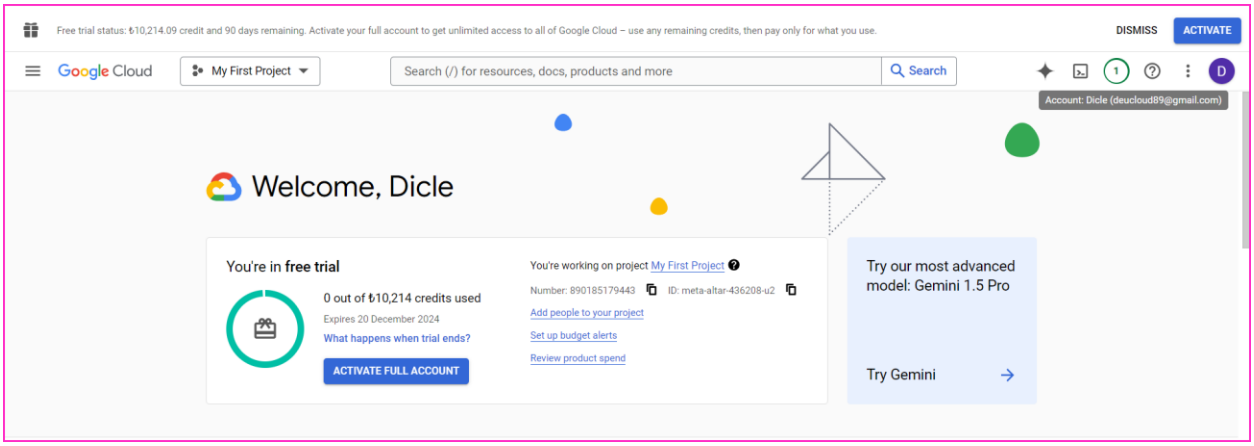
Now, let's get going.

Step 1. Google Cloud Console

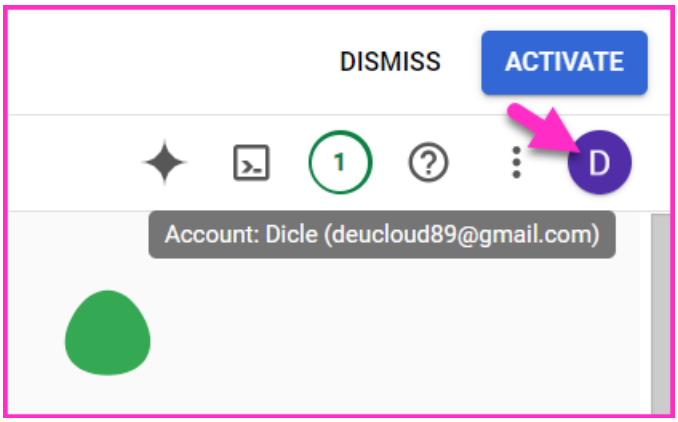
I go to Google Cloud Console

My Google Cloud Console is at the address below.
https://console.cloud.google.com/
I use a Chrome browser.



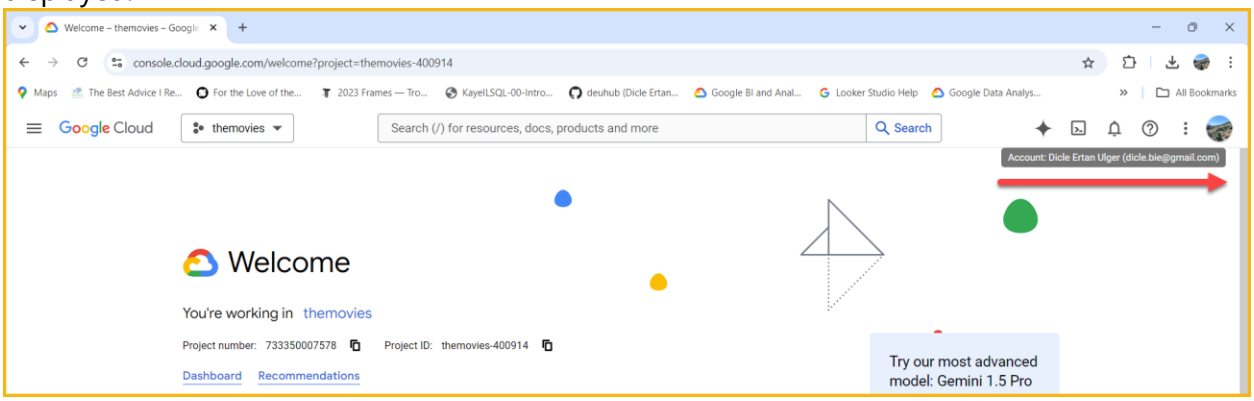
I make sure I am in the free Google Account

The **Account Name** which displays on the top right of the screen **must be** the same as the **three-months-free GCP account.**

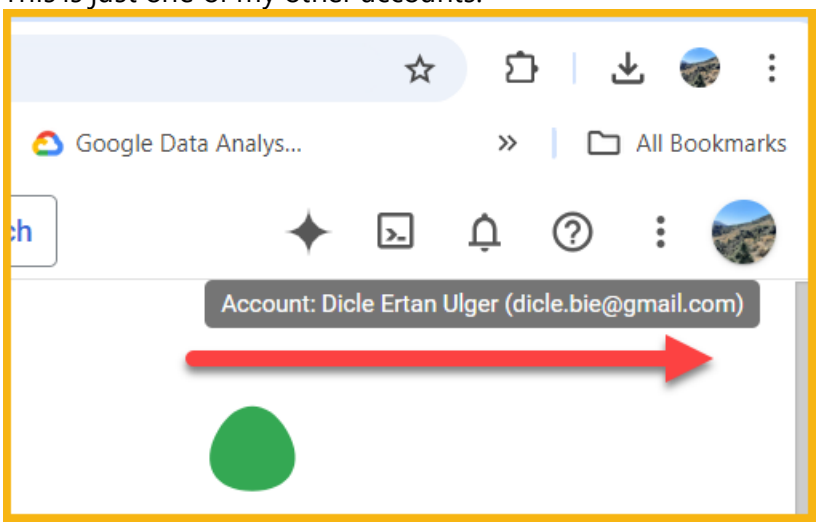


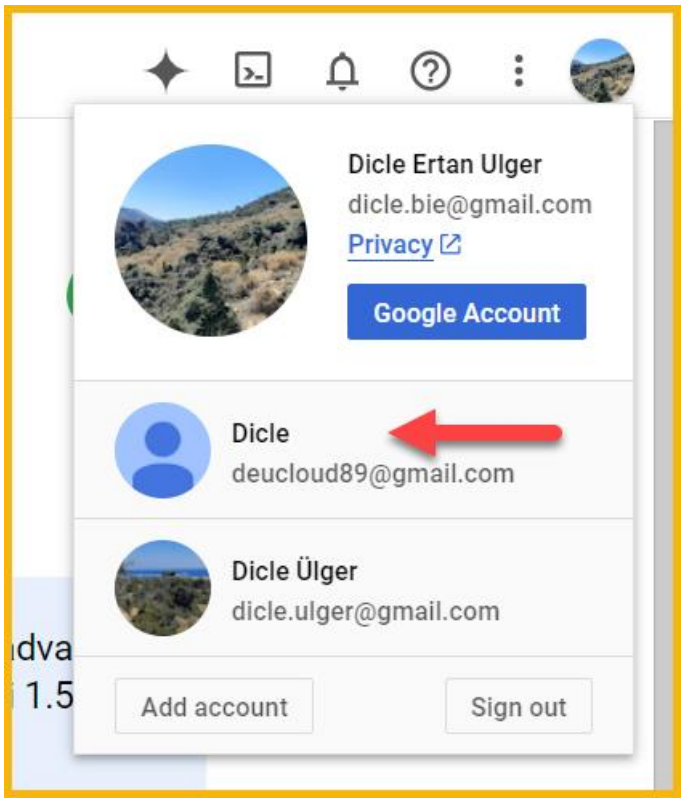
If not, I click on my Profile Picture, and select the correct one.

For example, when I first typed in https://console.cloud.google.com/ the console below was displayed.



This is **NOT** the **three-months-free** GCP account I opened.
This is just one of my other accounts.

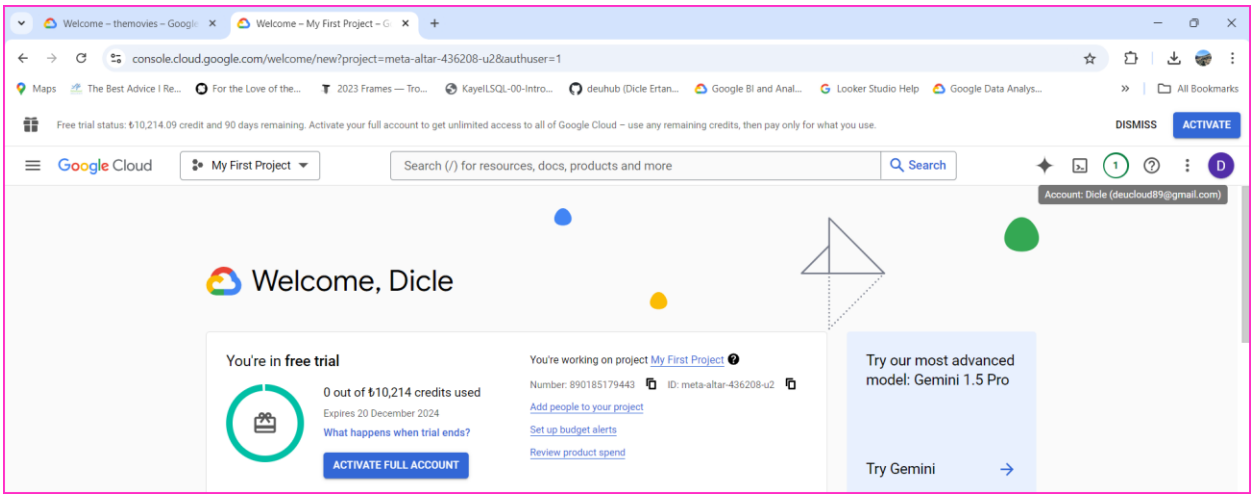




To change the account, I click on my Profile Picture.

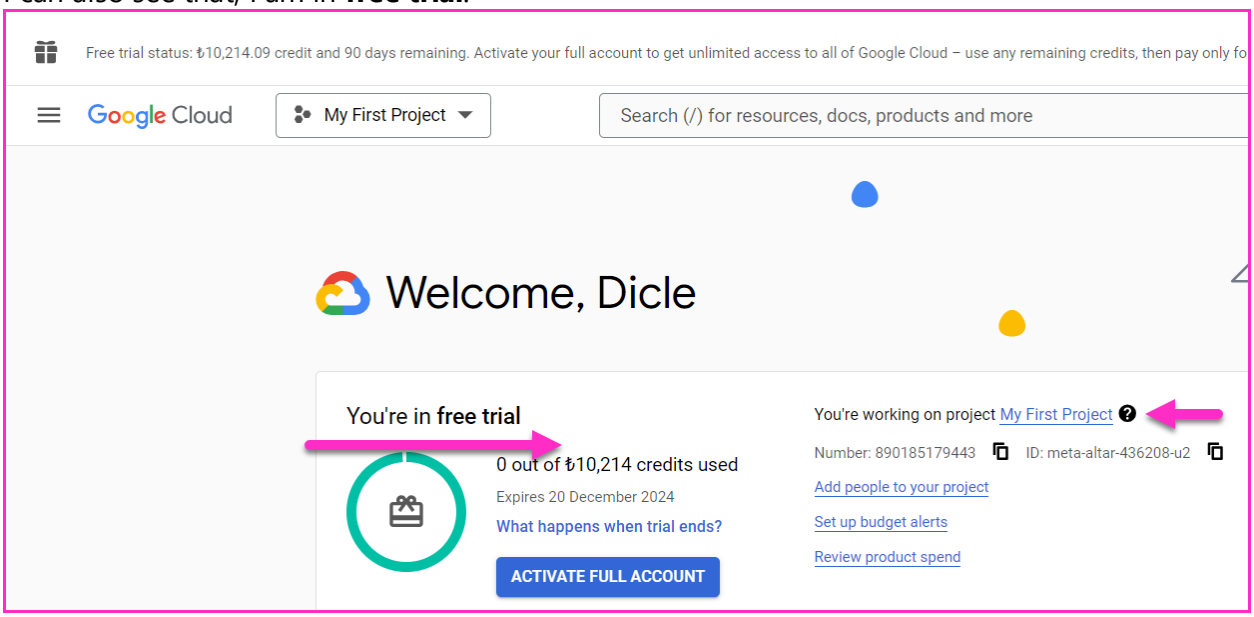
And then, click on the correct account.

And here I am.
This is the account I will work on.

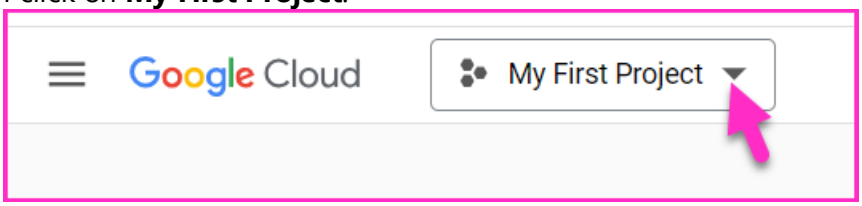


I select the project I will work on

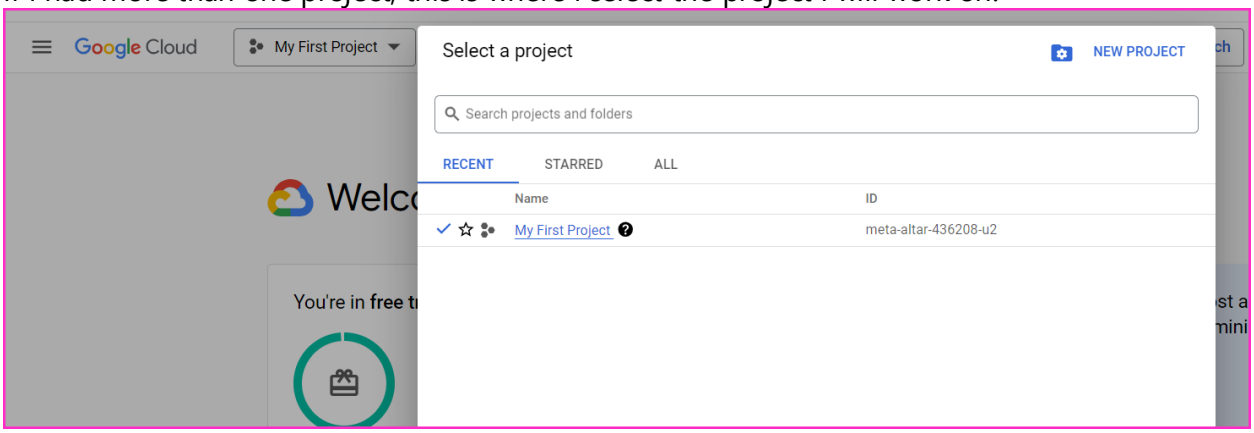
I can see **My First Project** Google assigned me.
I can also see that, I am in **free trial**.



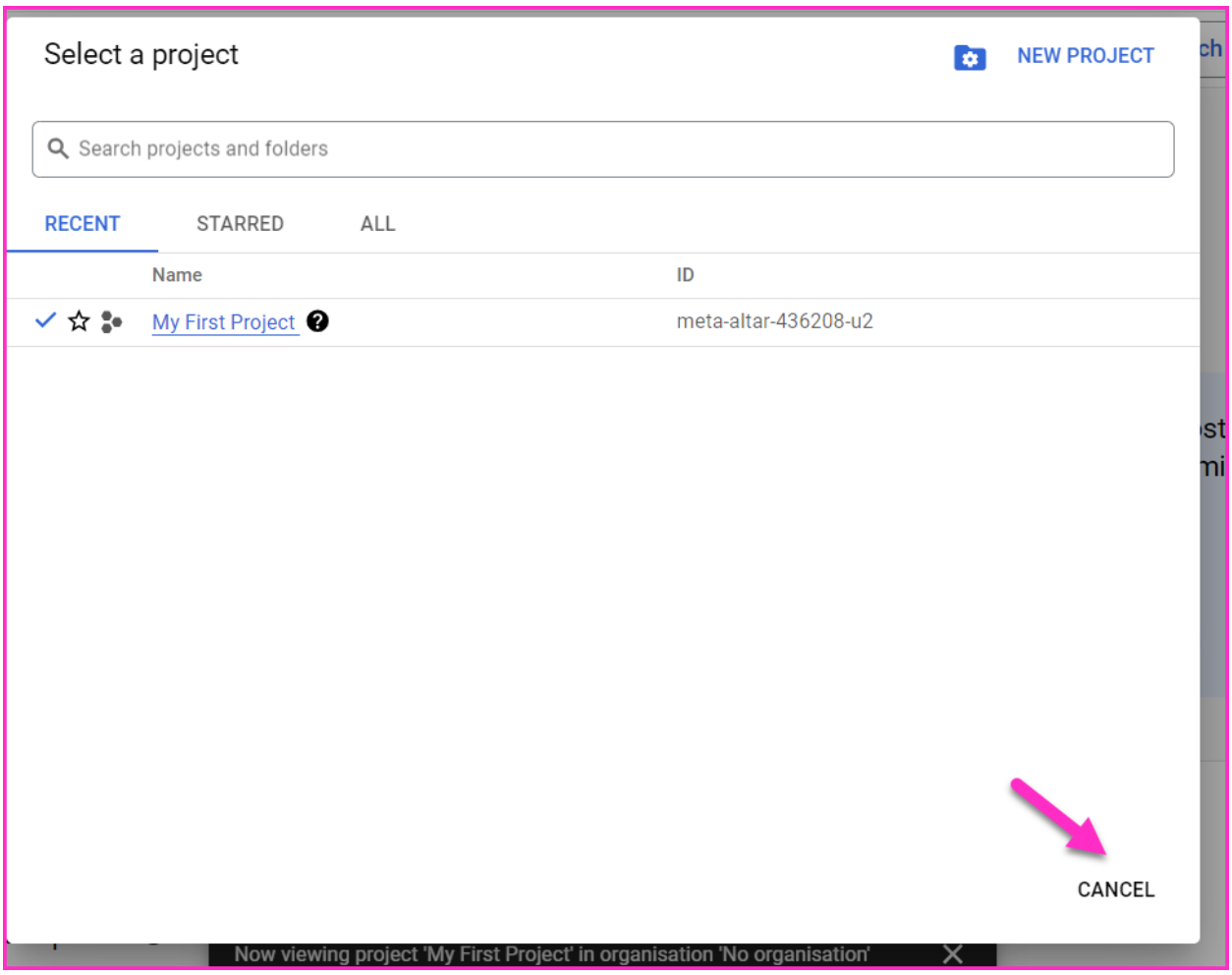
However, I might have some other projects that I have been working on.
Here is how I find my projects.
I click on **My First Project**.



List of my projects are displayed.
I have currently no other projects.
If I had more than one project, this is where I select the project I will work on.

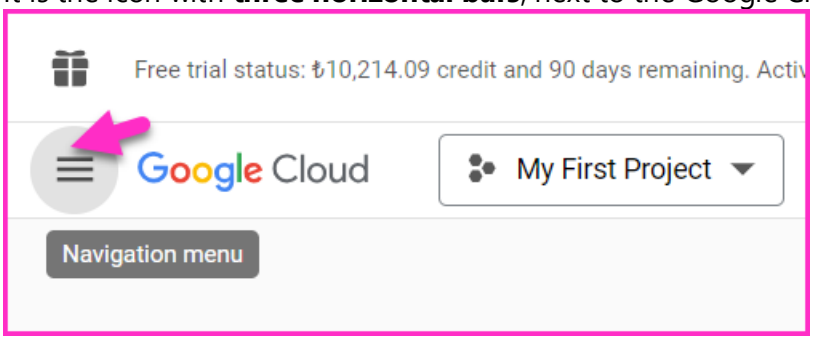


I click on **Cancel** to leave this window.

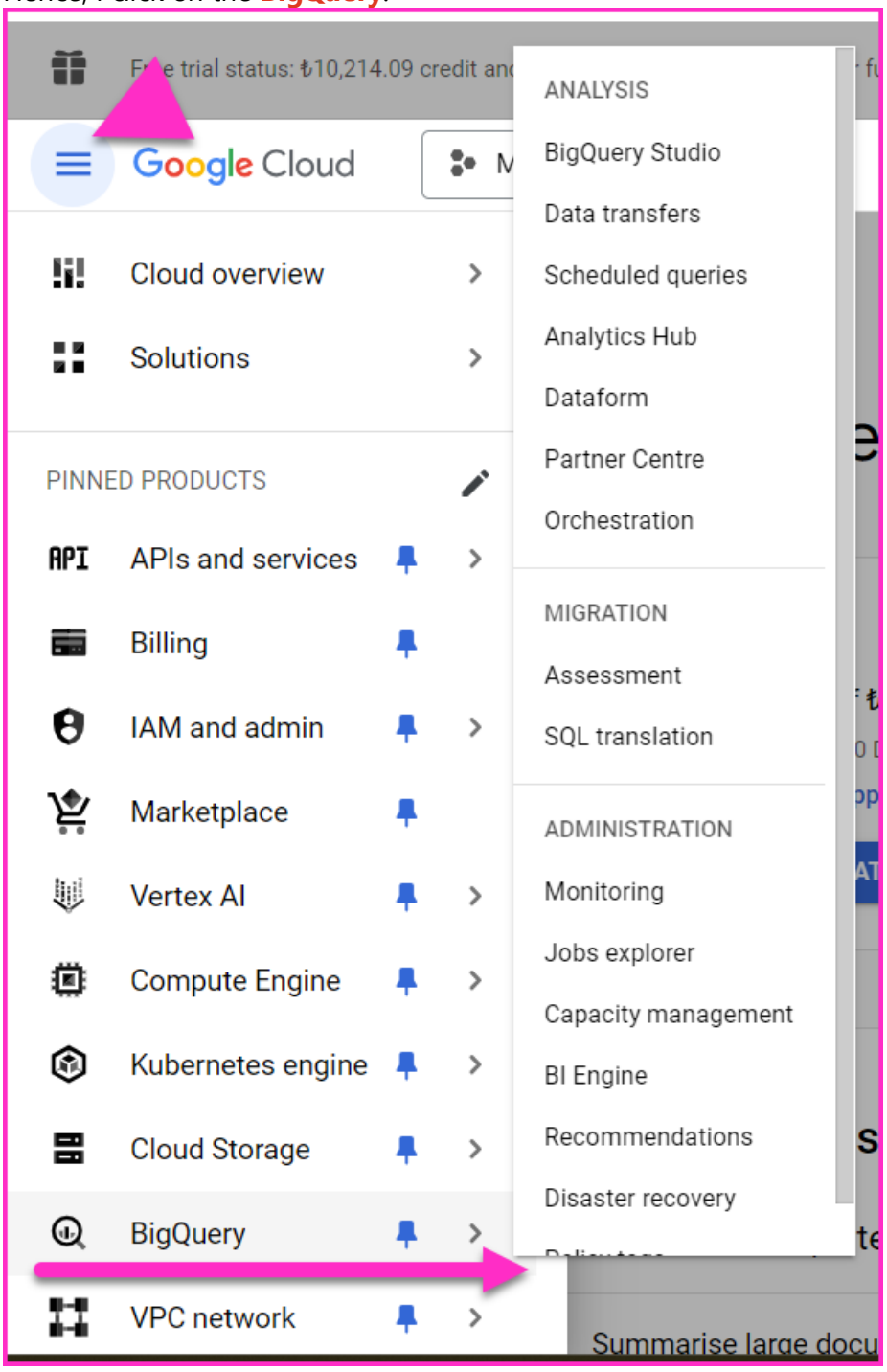


Step 2. Navigation Menu

The Navigation Menu is on the top left of the screen.
It is the icon with **three horizontal bars**, next to the Google Cloud logo.

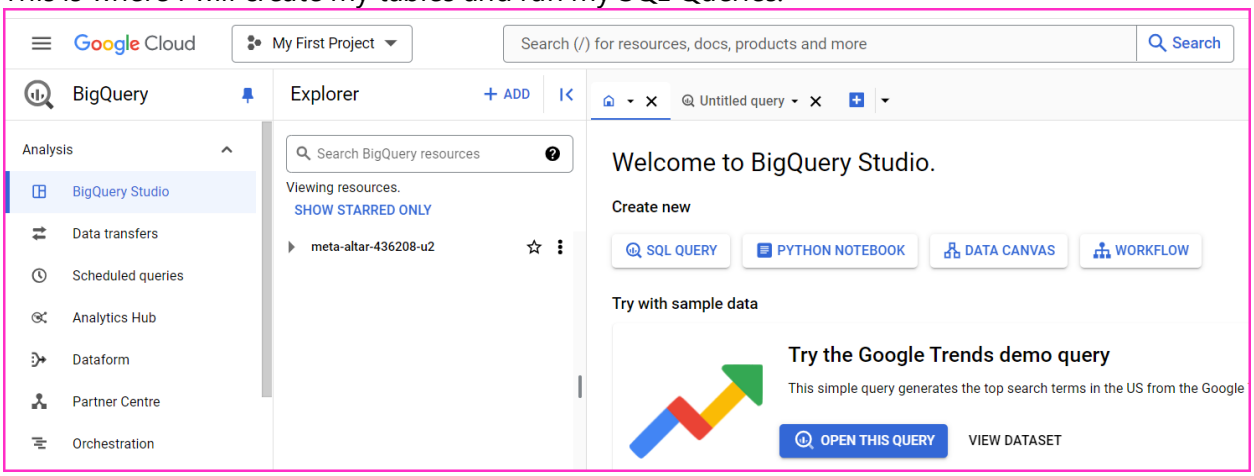


I click on the Navigation Menu.
A list of Google Products are displayed.
I will work on **BigQuery.**
Hence, I click on the **BigQuery**.

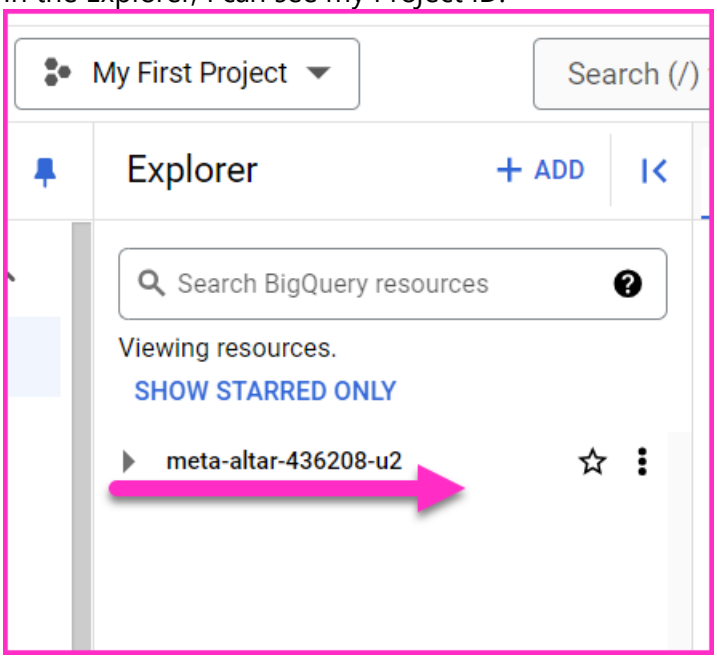


Step 3. I am in BigQuery

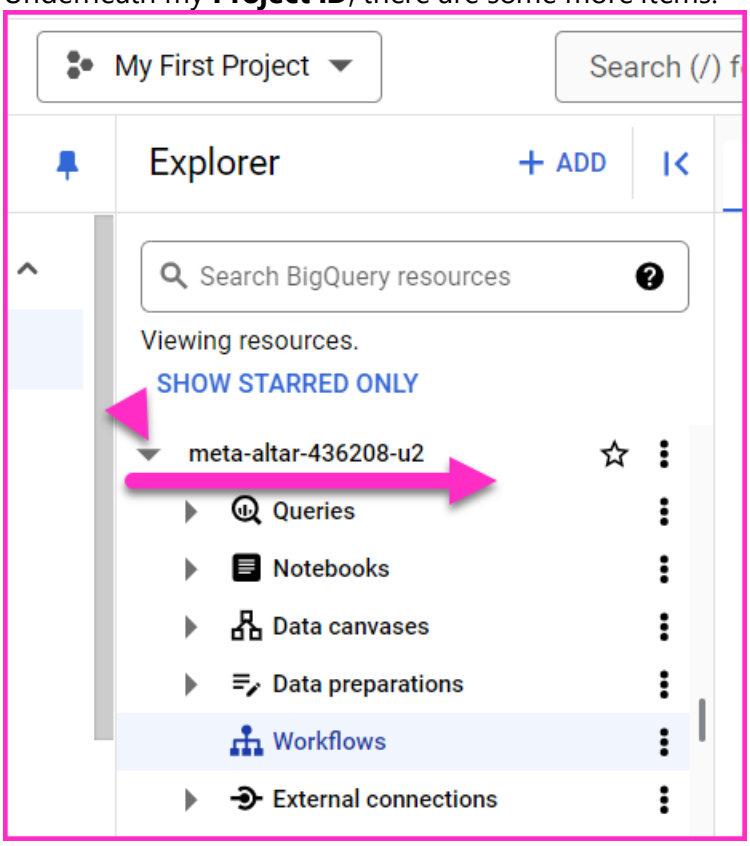
Here I am in BigQuery.
BigQuery is the Data Warehouse of Google Cloud.
This is where I will create my tables and run my SQL Queries.



In the Explorer, I can see my Project ID.



Underneath my **Project ID**, there are some more items.

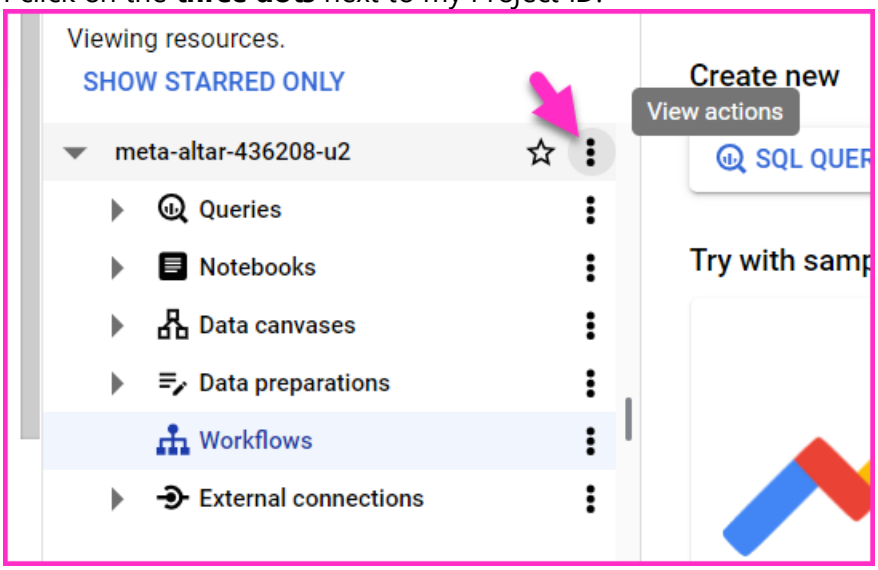


I will now create a Dataset under my Project ID.

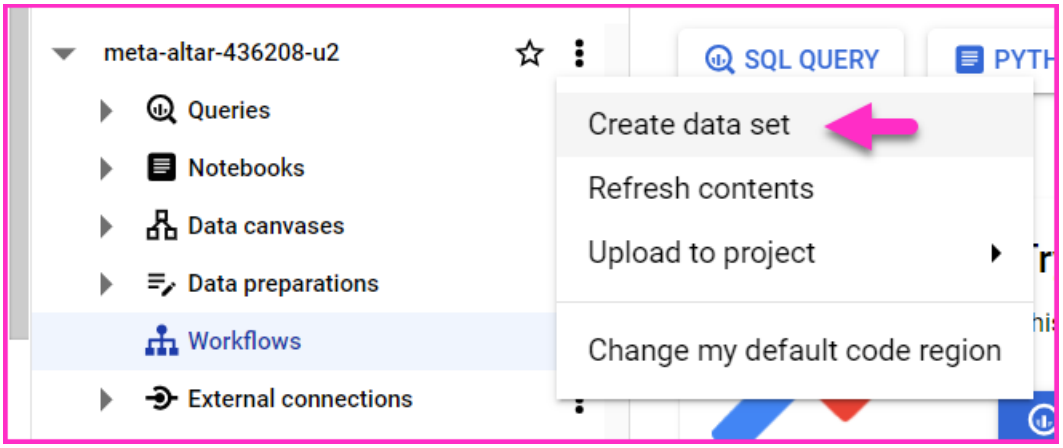
Step 4. Create a Dataset

A table is created under a Dataset.
Therefore, I will initially create a Dataset.
I will name my Dataset **kayeilsql**.
This is because, the SQL queries we will use refer to the tables as **dataset_name.table_name**.
And all queries use **kayeilsql** as the dataset name.

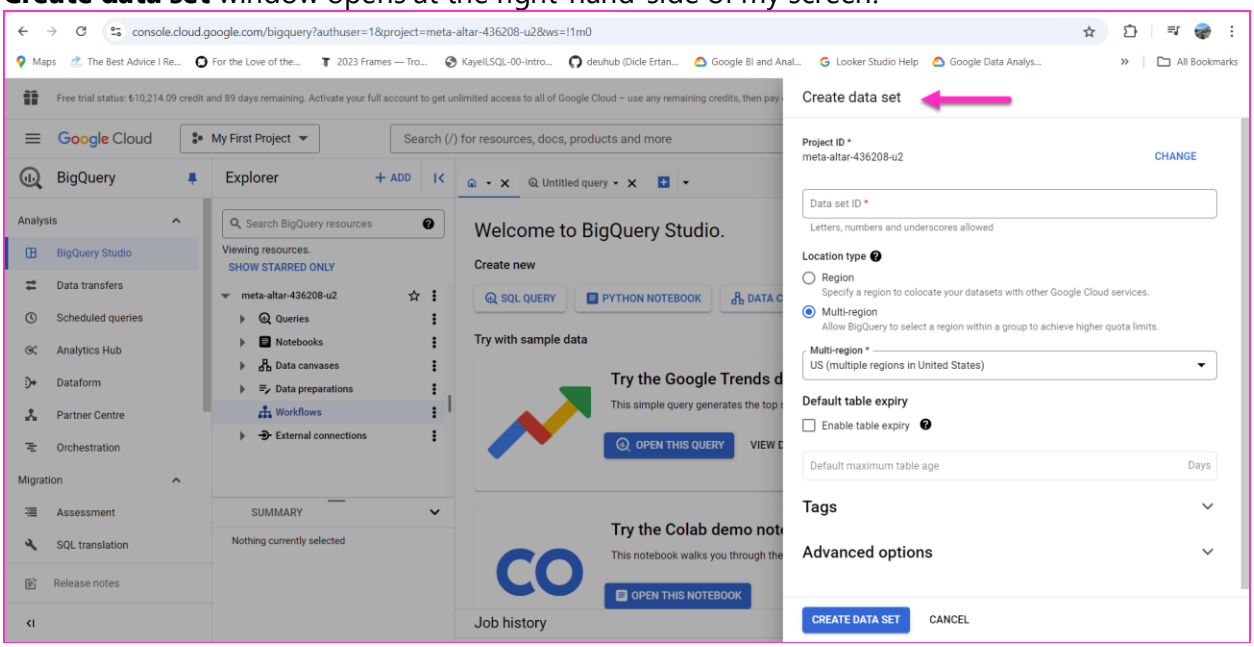
The three vertical dots next to the Project ID is the **View Actions** button.
I click on the **three dots** next to my Project ID.



Another **menu panel** is displayed.
I select Create data set.



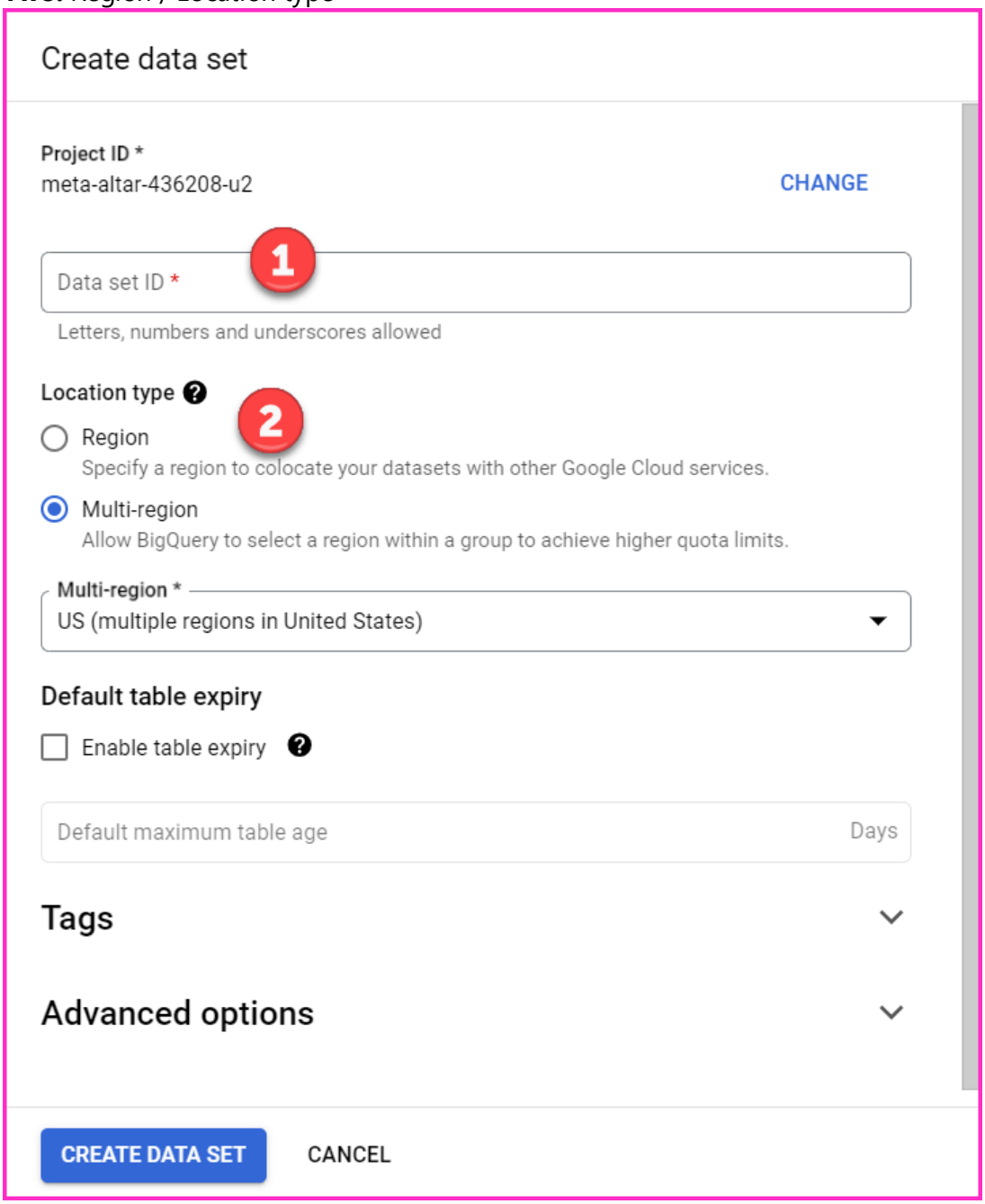
Create data set window opens at the right-hand-side of my screen.



This is what the default **Create data set** window looks like.

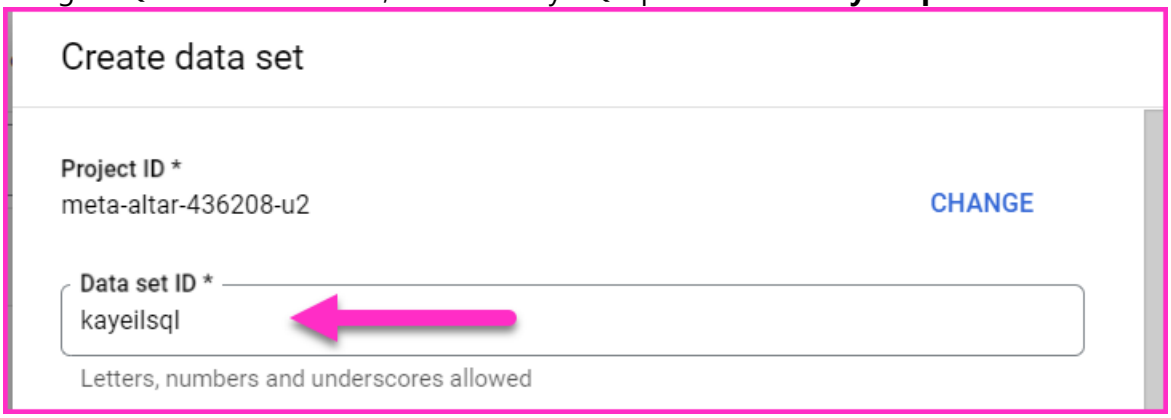
Project ID is assigned automatically by BigQuery, because I am working under this project.

I will fill in,
One. Data set ID
Two. Region / Location type



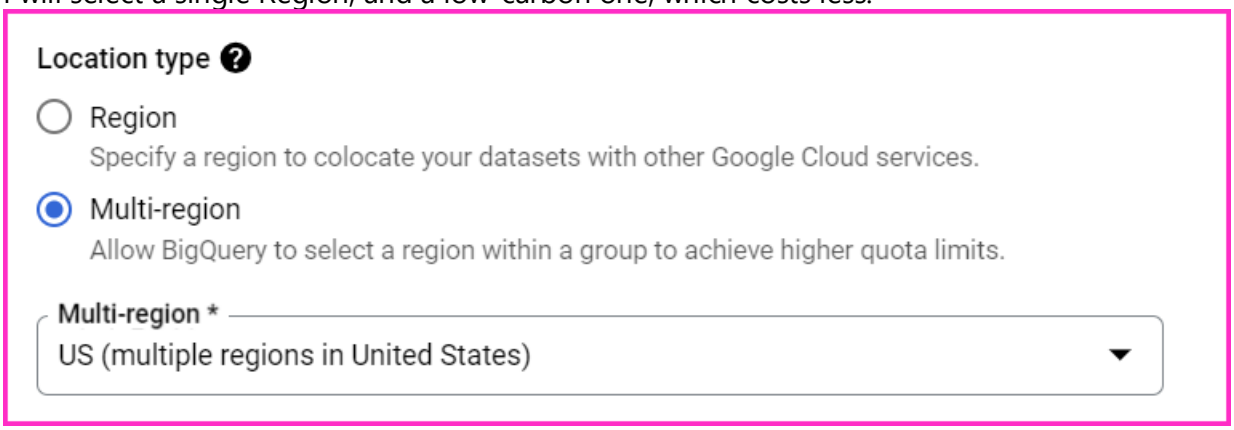
Fill in the Data set ID

My Data set ID is **kayeilsql**.
I make sure it is **lowercase**.
Google SQL is **case-sensitive**, and in all my SQL queries I used **kayeilsql in lowercase**.

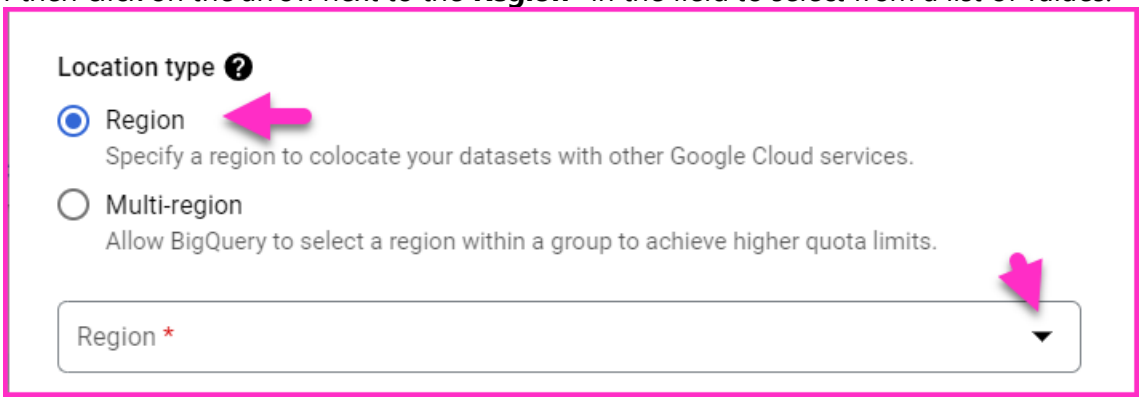


Fill in the Region/Location type

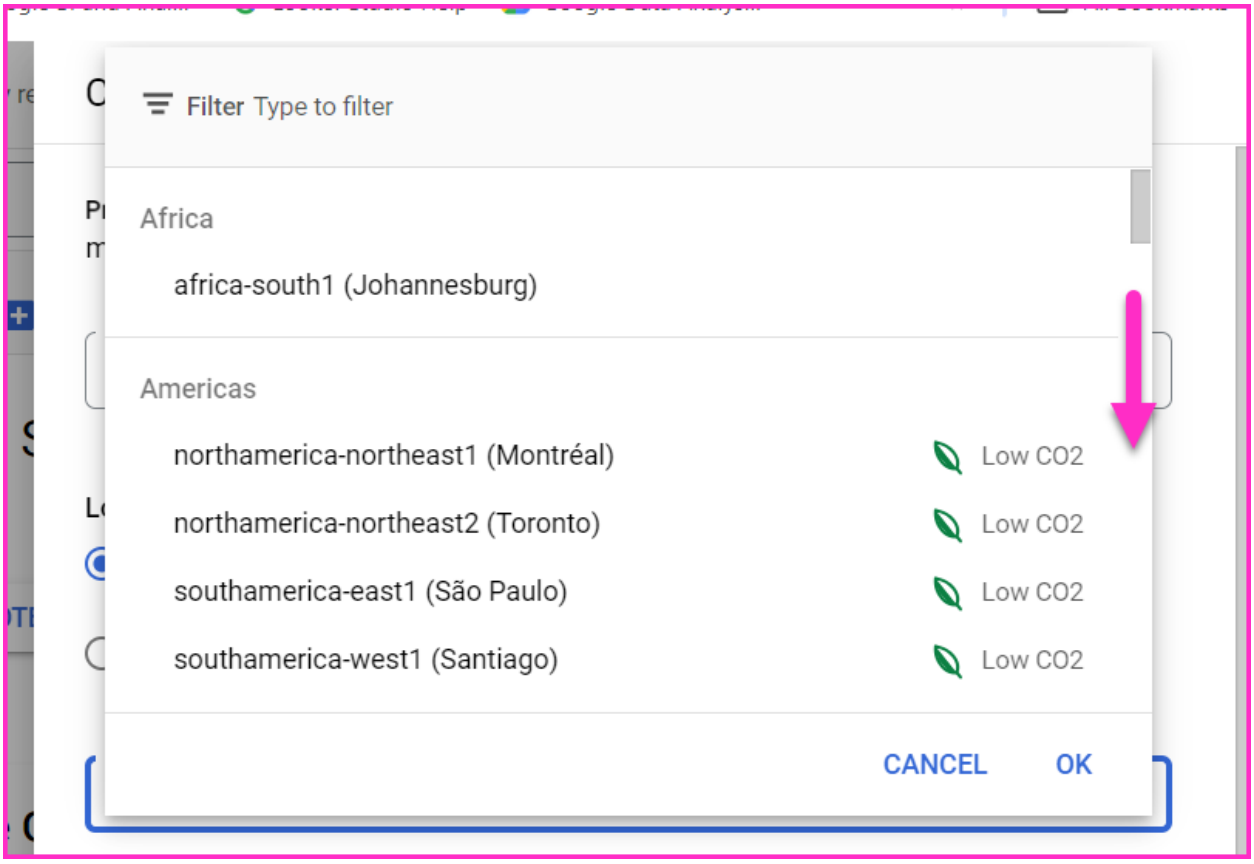
Google chose a Multi-region by default.
I will select a single Region, and a low-carbon one, which costs less.



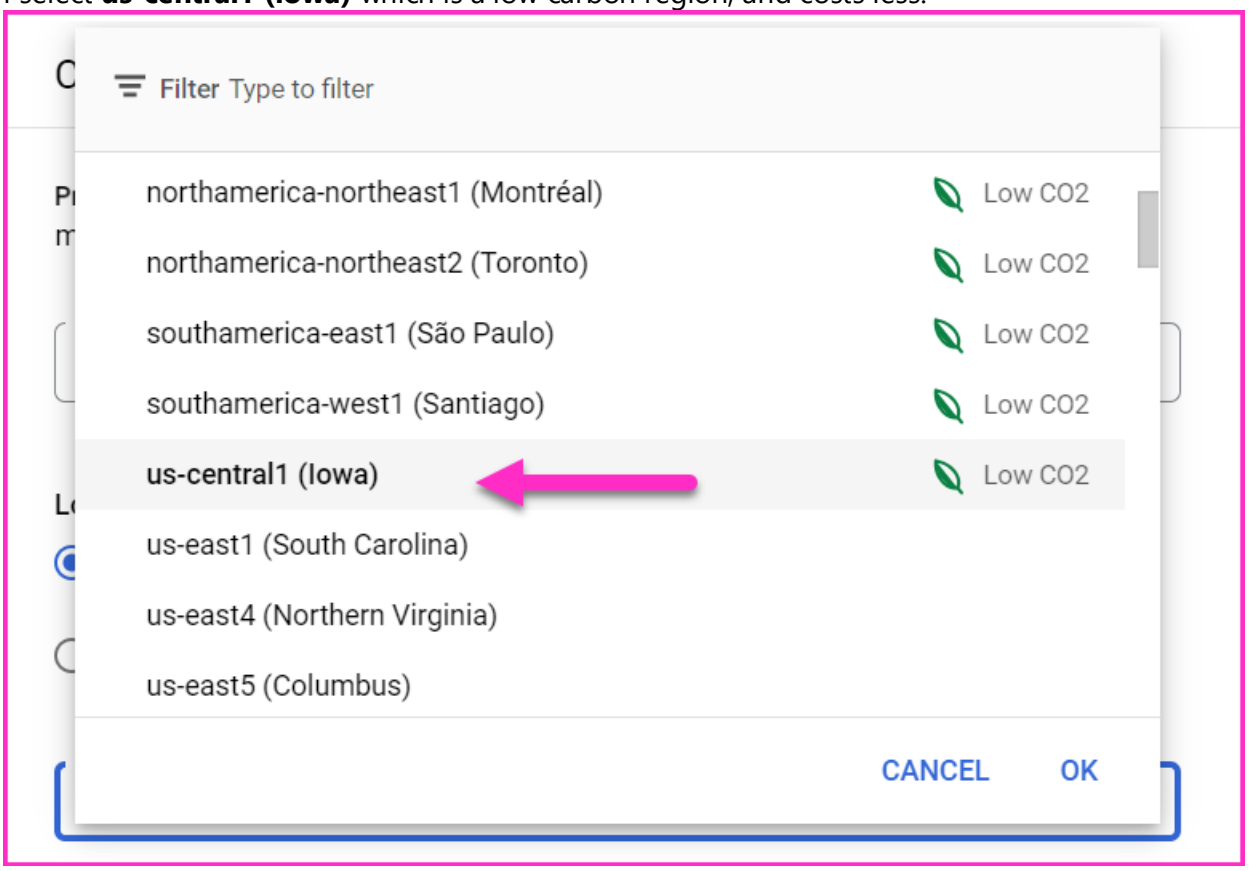
I click on the **Region radio-button**.
I then click on the arrow next to the **Region*** in the field to select from a list of values.



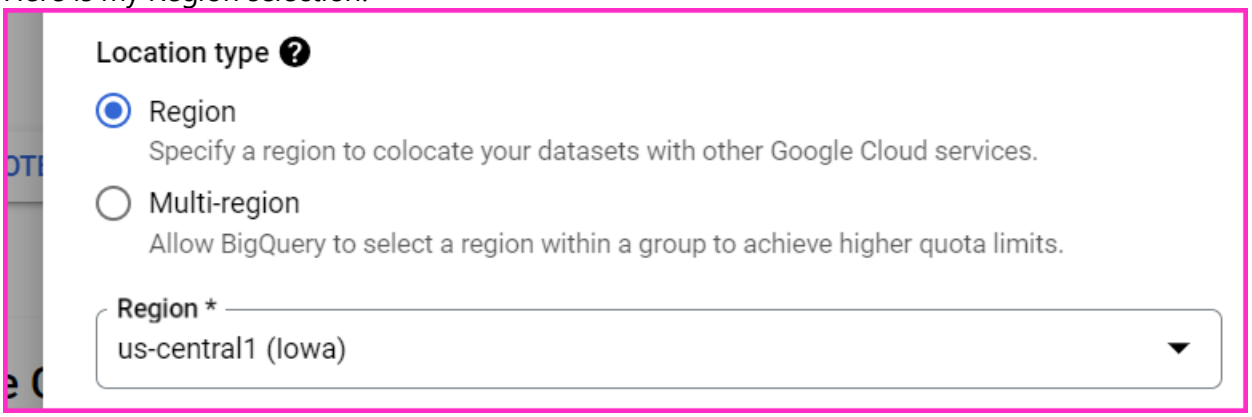
Google offers me many regions to choose from.
I scroll down.



I select **us-central1 (Iowa)** which is a low carbon region, and costs less.



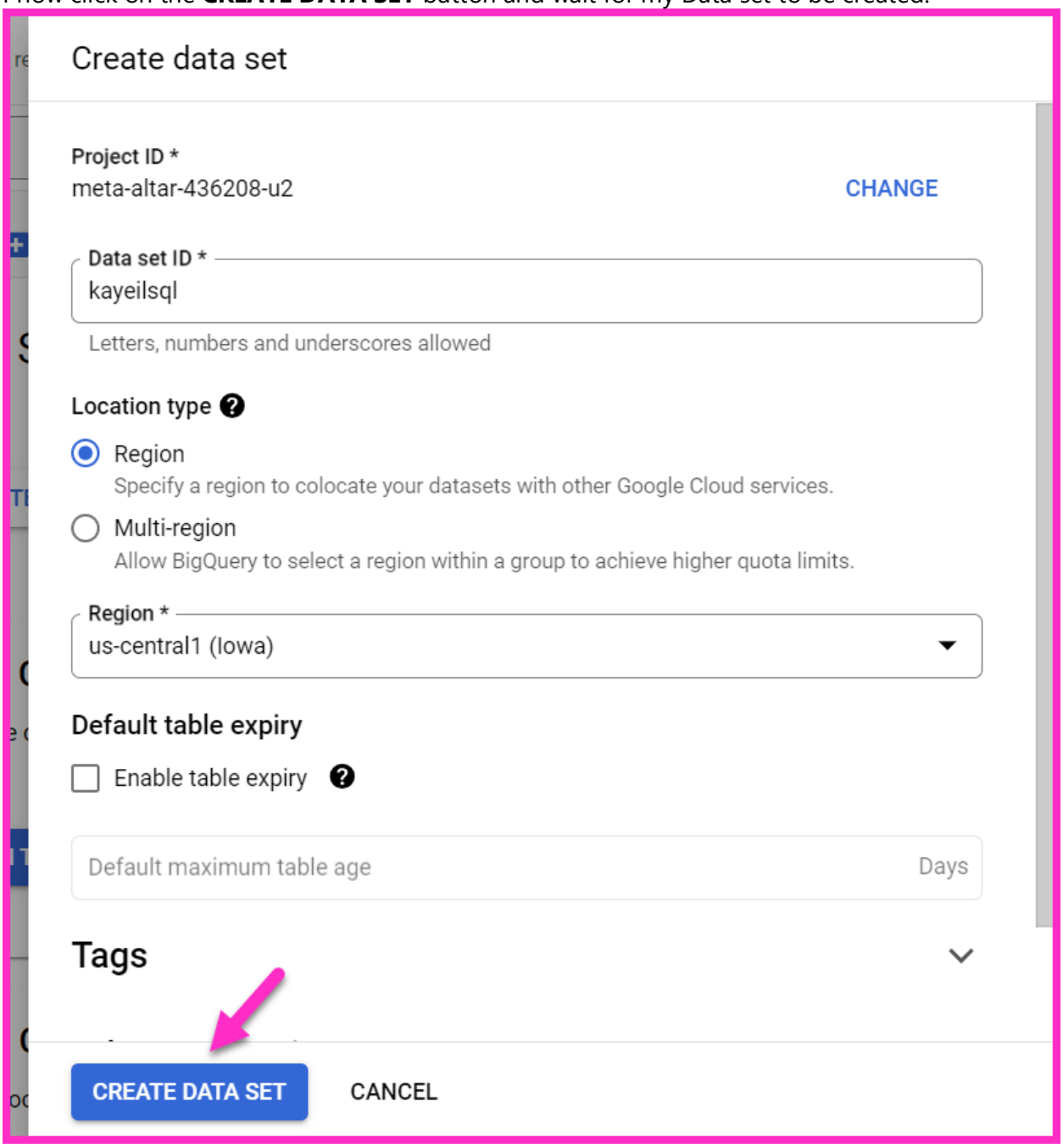
Here is my Region selection.



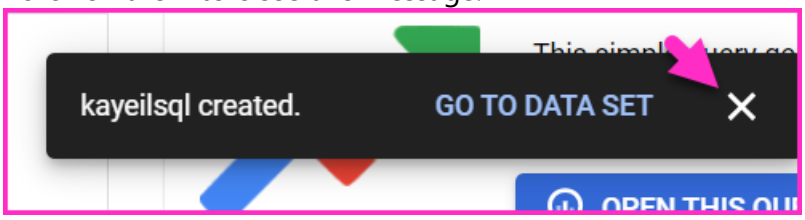
You can select any other region you prefer.
However, please keep in mind that, if you are working on a Google Cloud project, and you are using several products, all of them must be in the same Region.

CREATE DATA SET

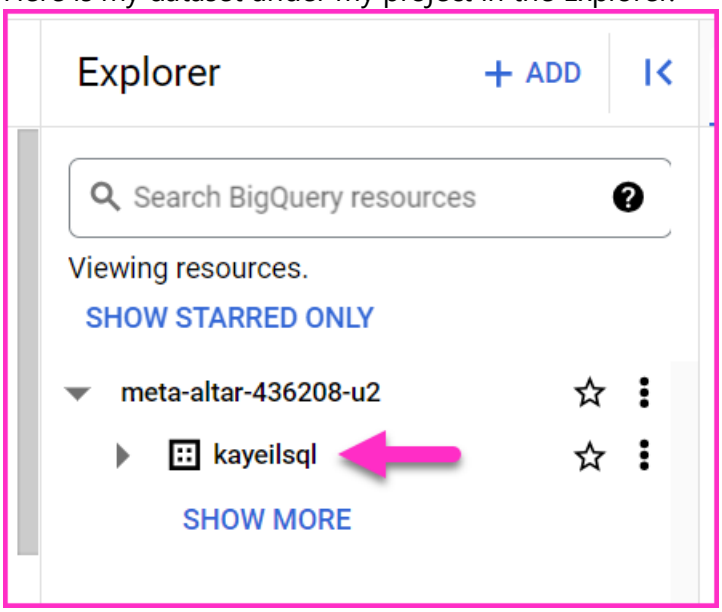
I now click on the **CREATE DATA SET** button and wait for my Data set to be created.



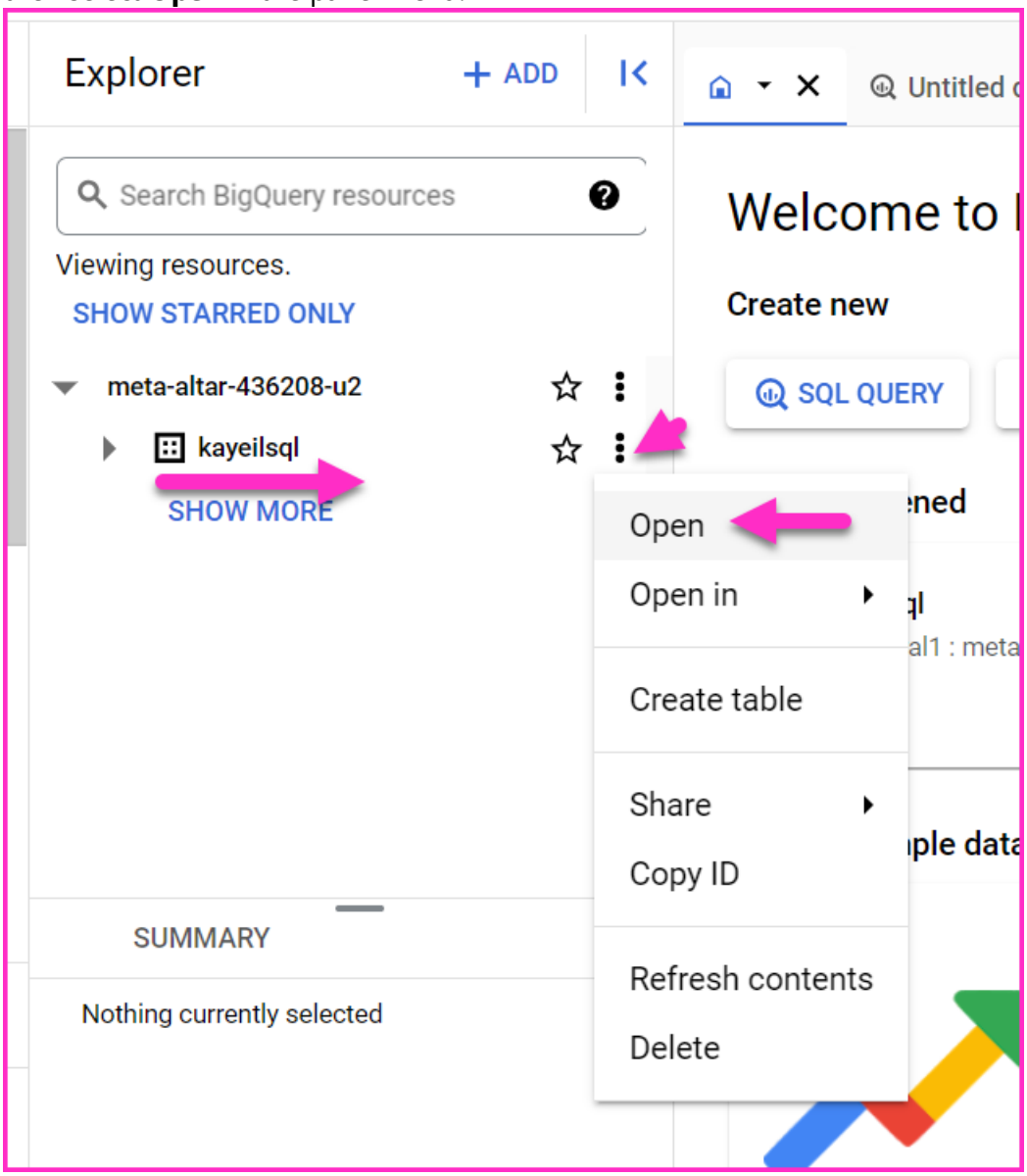
Google gives me the message that my Data set is created.
I click on the X to close this message.



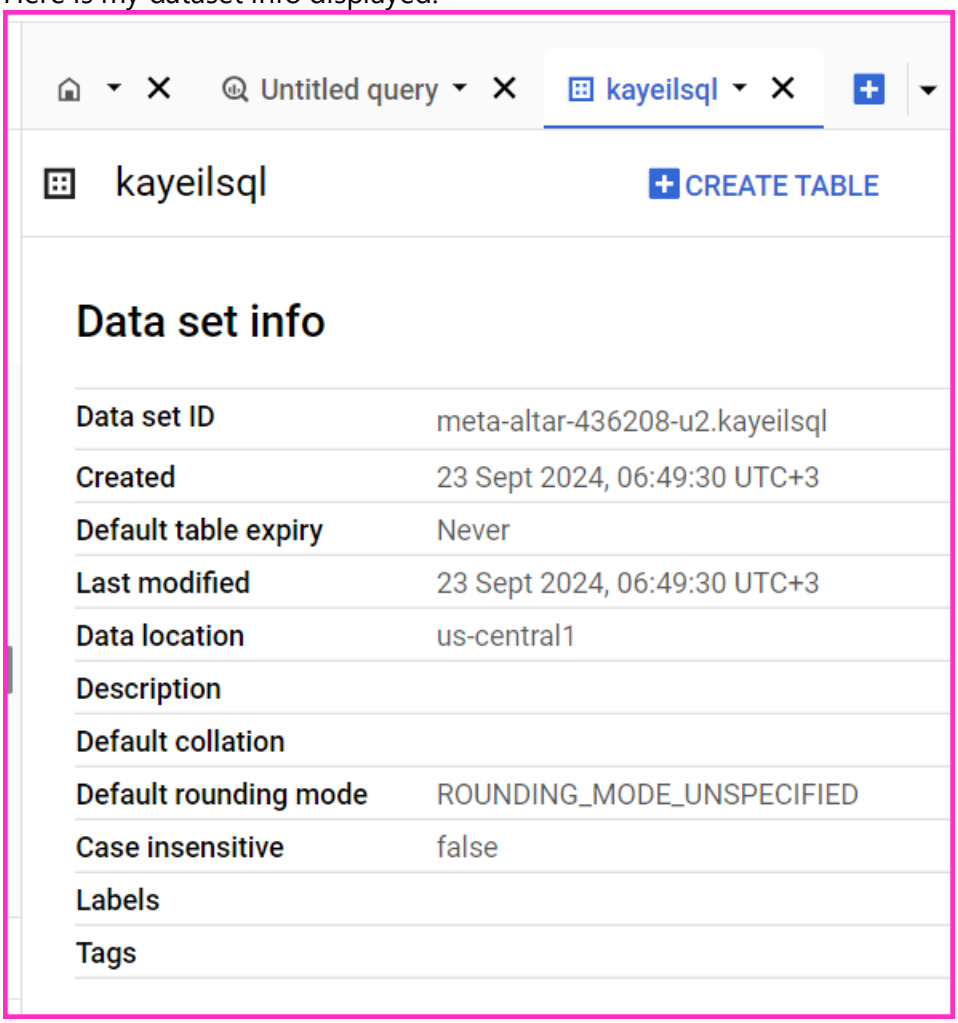
Here is my dataset under my project in the Explorer.



I click on the **three vertical dots** (View Actions) next to my dataset, then select **Open** in the panel menu.



Here is my dataset info displayed.



Now, I can create my tables under my dataset.

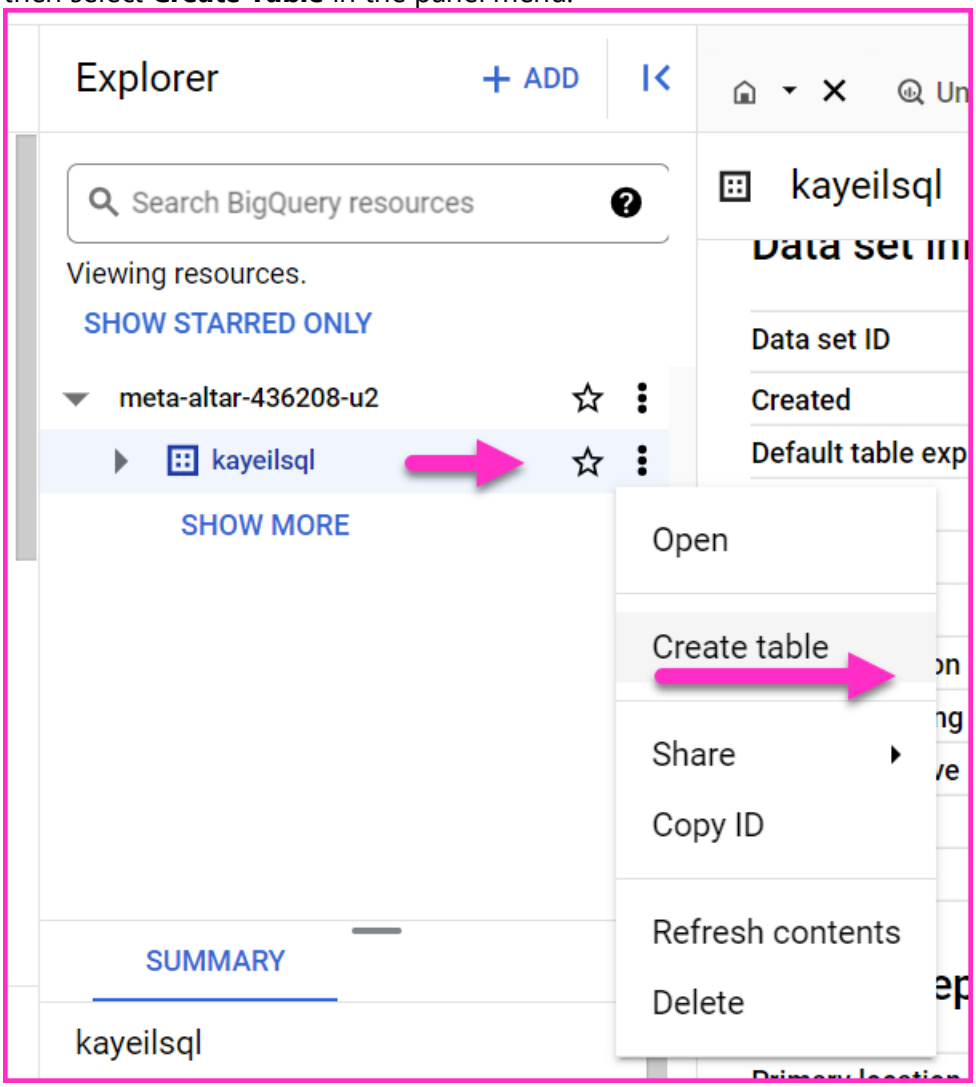
Step 5. Create a Table

Go to Create Table window

I can go to **Create Table window** in two ways.

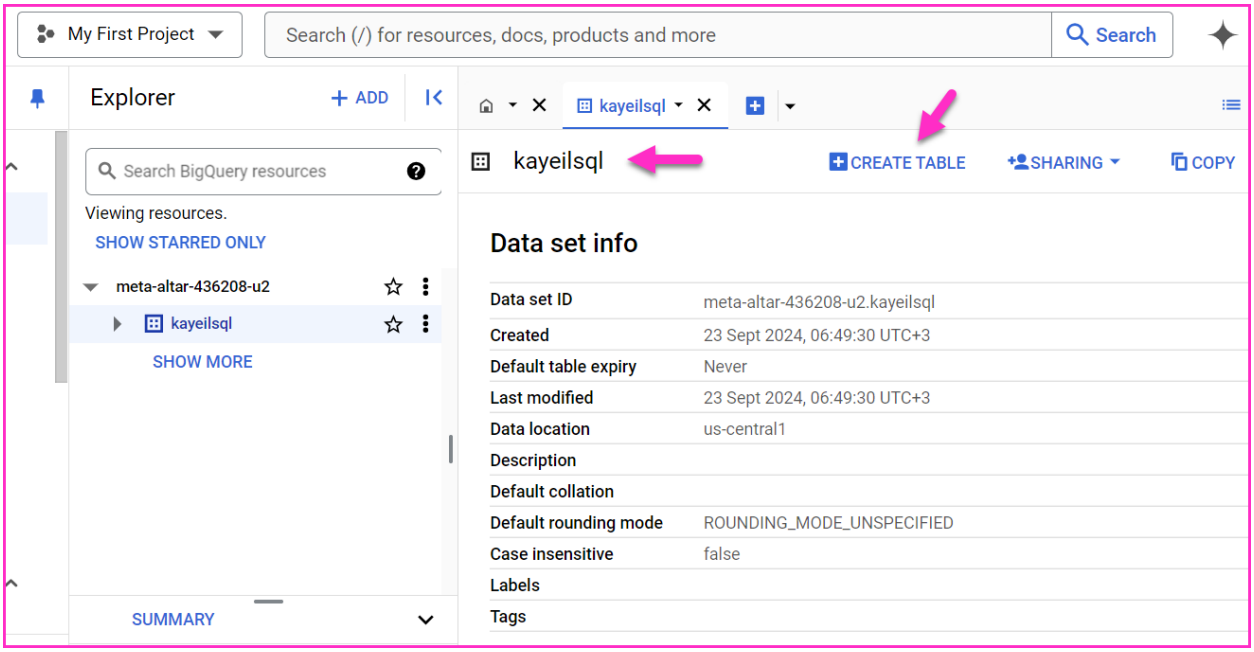
First Way

One way is, I can click on the **three vertical dots** (View Actions) next to my dataset, then select **Create Table** in the panel menu.



Second Way

The other way is, if I have my **Data set info** screen open, I can click on the **CREATE TABLE** button.

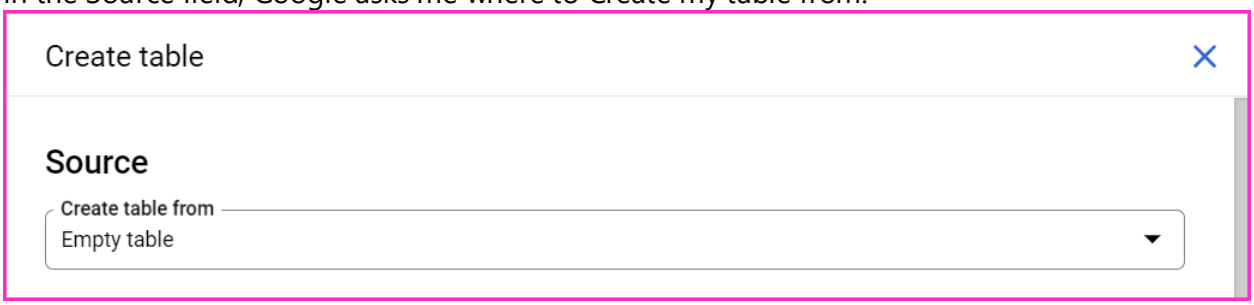


Either way, takes me to the Create Table window, seen below.

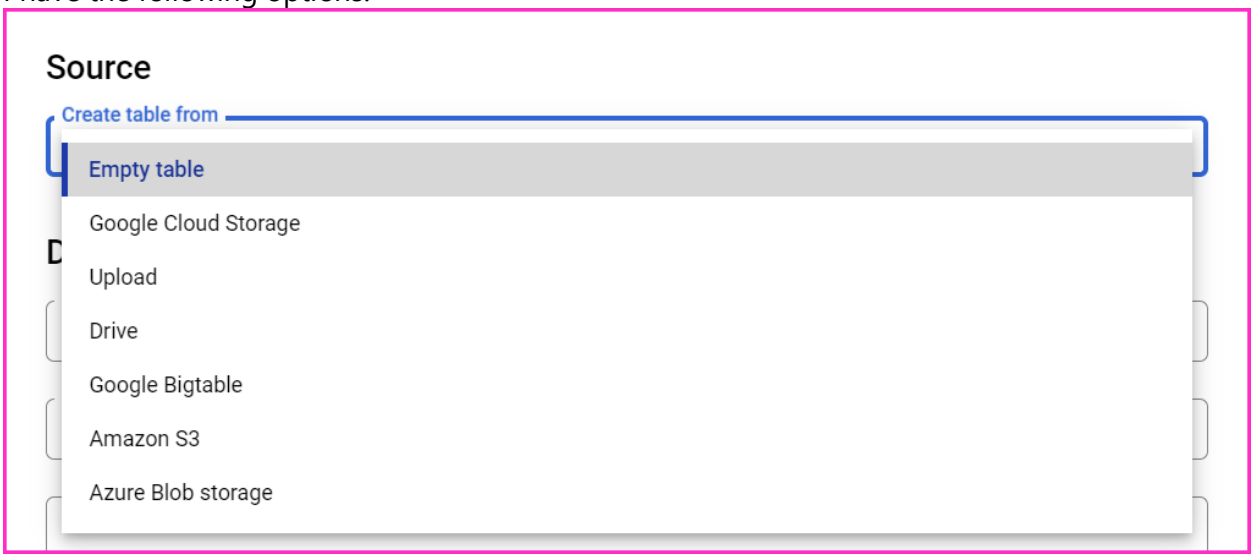
I will now fill in the required fields in the Create Table window.

One. Source / Create Table from

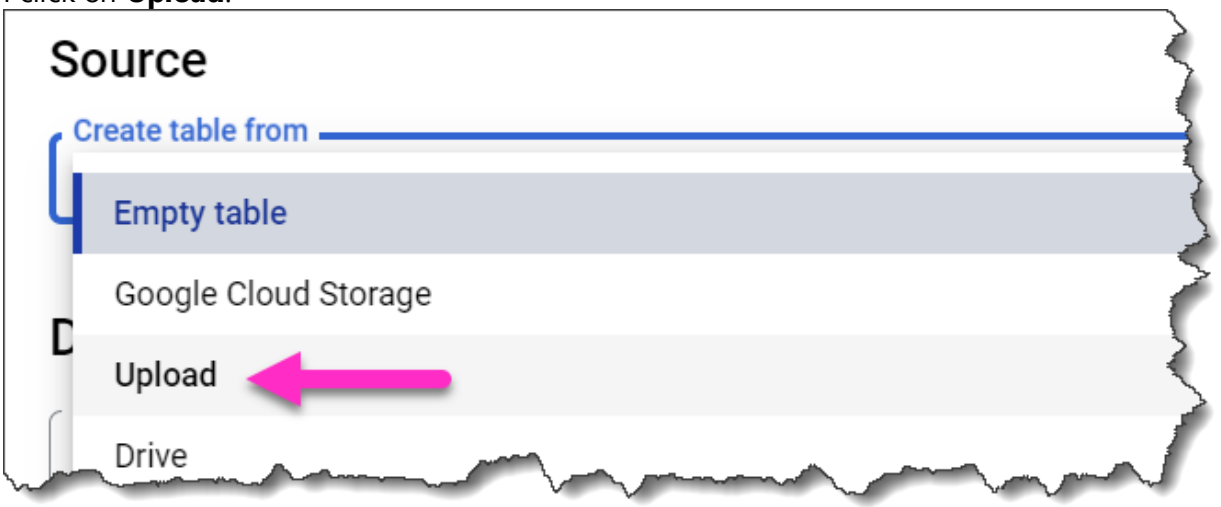
In the Source field, Google asks me where to Create my table from.



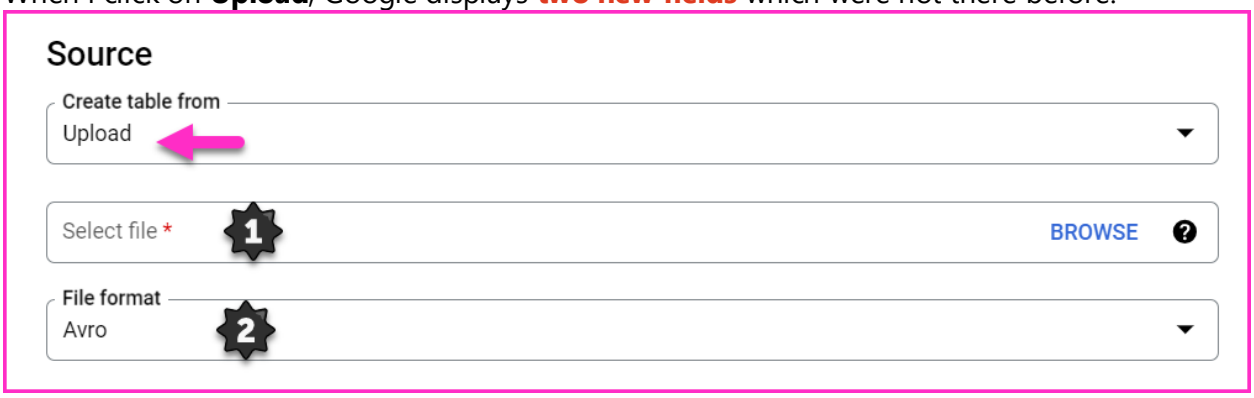
I have the following options.



I know that I will create my table by uploading data from my own computer.
I click on **Upload**.

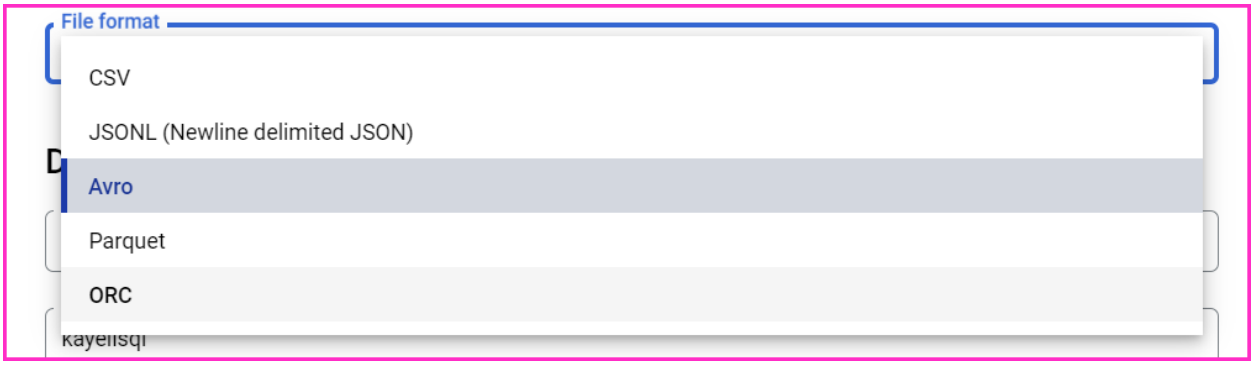


When I click on **Upload**, Google displays **two new fields** which were not there before.



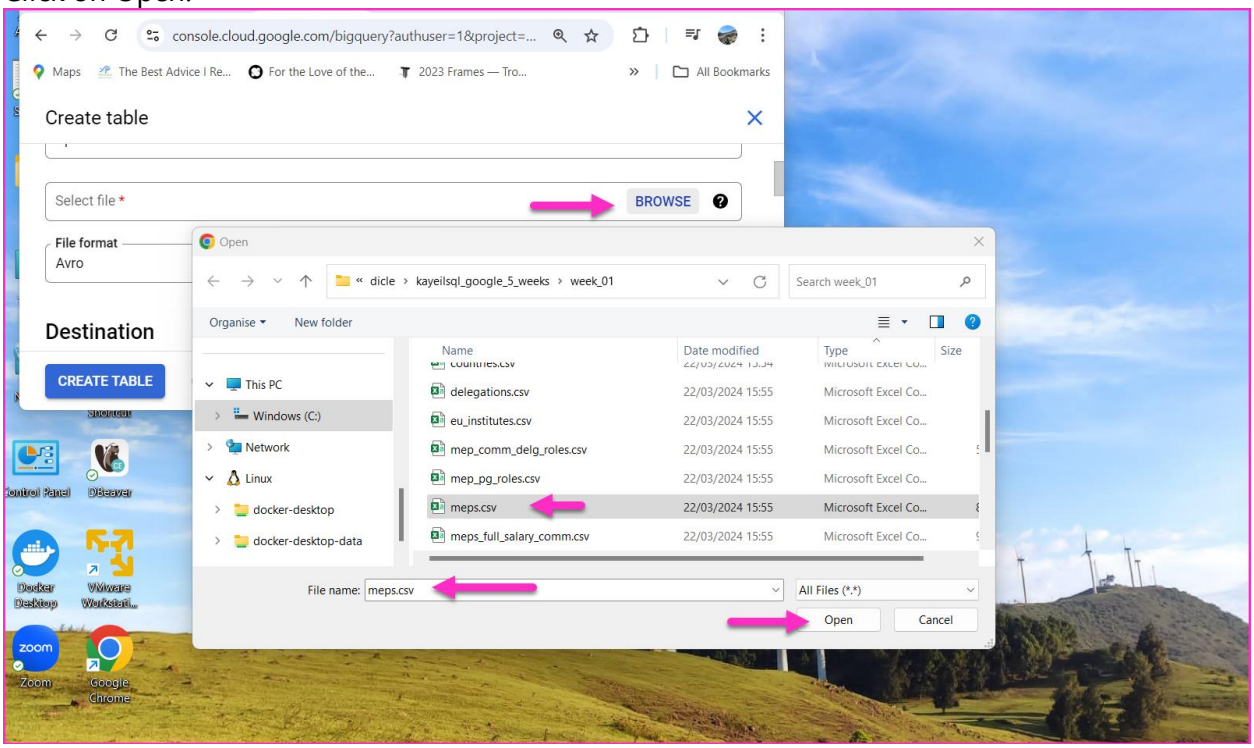
The first field is to Select the file I want to upload.
Google gives me a **BROWSE button** for this purpose.

The second field is to choose from a list of **File formats**.

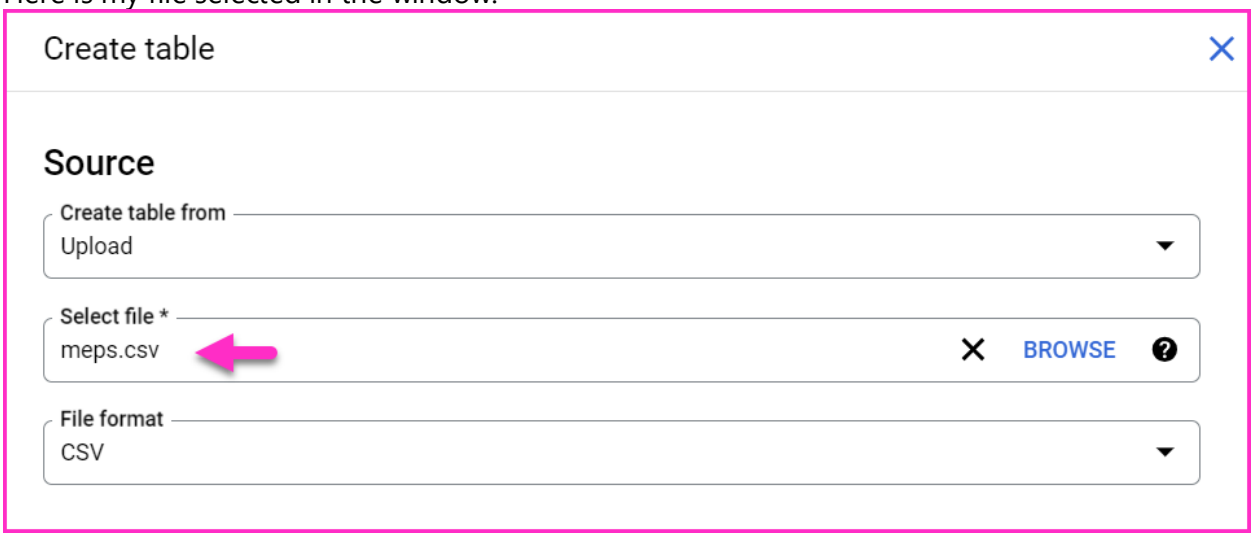


Select File

I click on the BROWSE button.
Find the file I want to upload on my laptop.
Click on the file.
Click on Open.

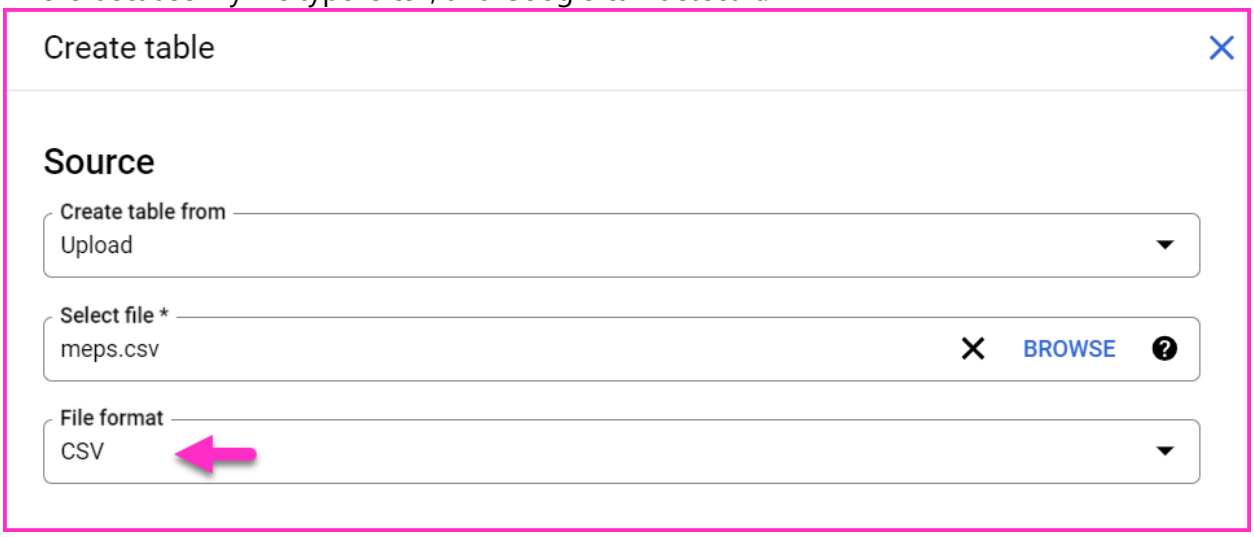


Here is my file selected in the window.



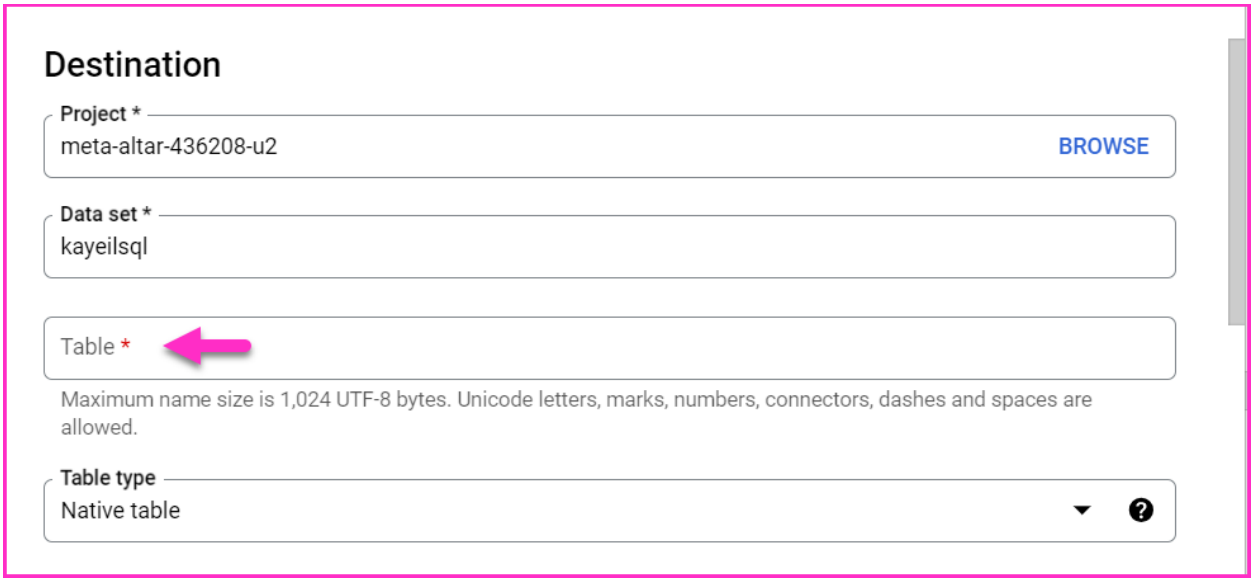
File Format

The **File format** is filled in automatically as CSV.
This is because my file type is csv, and Google can detect it.

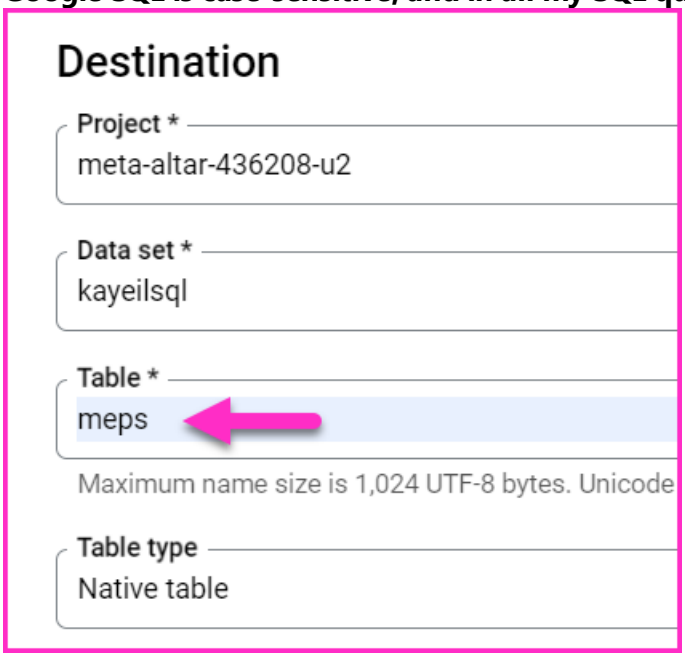


Two. Destination

In the **Destination** section, **Project** and **Data set** fields are filled in automatically.
I will fill in the **Table** name.



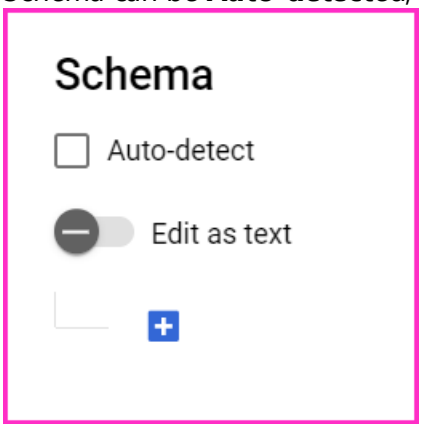
I name my table **meps**.
It is the same as the name of the file.
Filename is meps.csv.
Table name is meps.
I make sure it is **lowercase**.
Google SQL is case-sensitive, and in all my SQL queries I used lowercase table names.



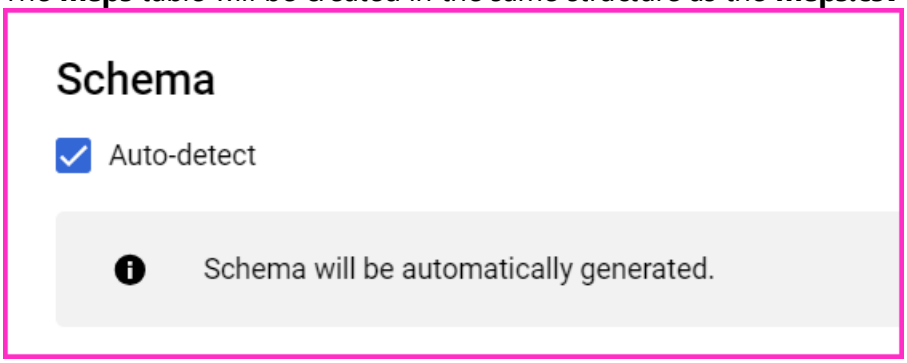
I leave the **Table type** as is.

Three. Schema

Schema can be **Auto-detect**ed, or it can be entered manually.

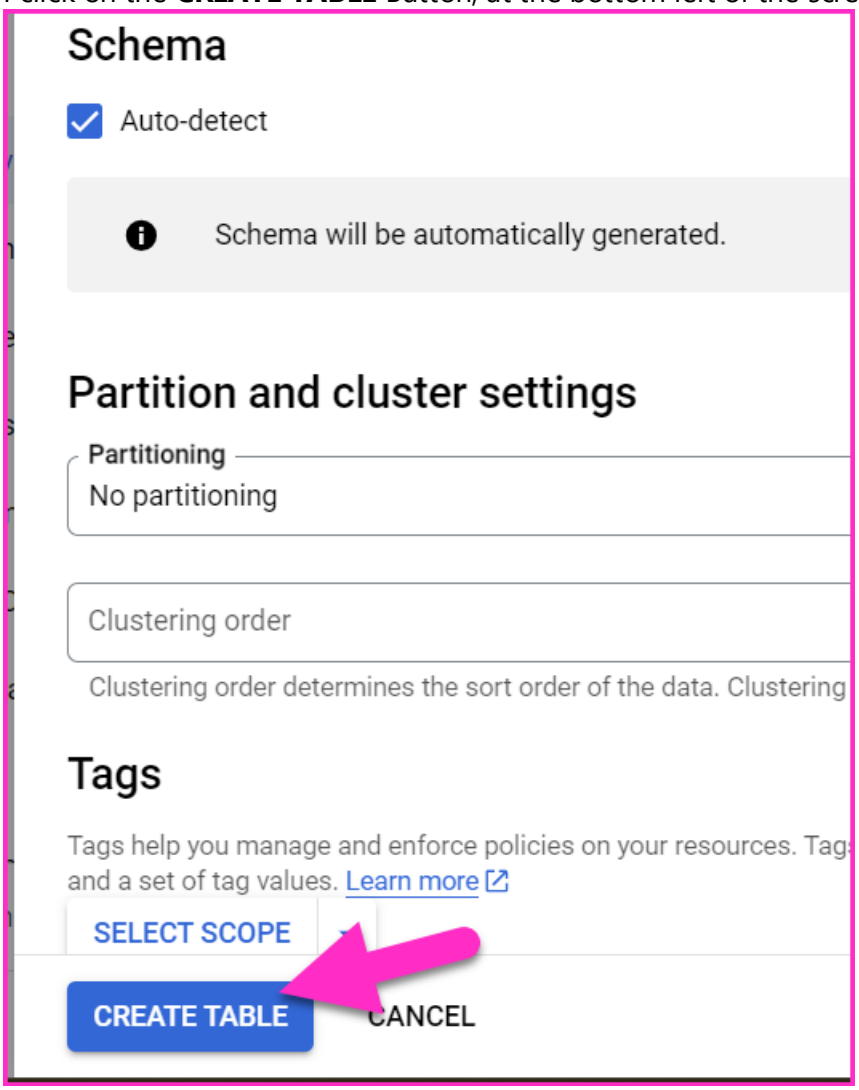


I tick on **Auto-detect**.
The **meps** table will be created in the same structure as the **meps.csv** file.

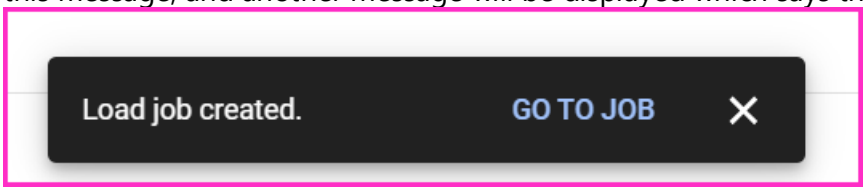


CREATE TABLE Button

I leave everything else as is.
I click on the **CREATE TABLE** Button, at the bottom left of the screen.

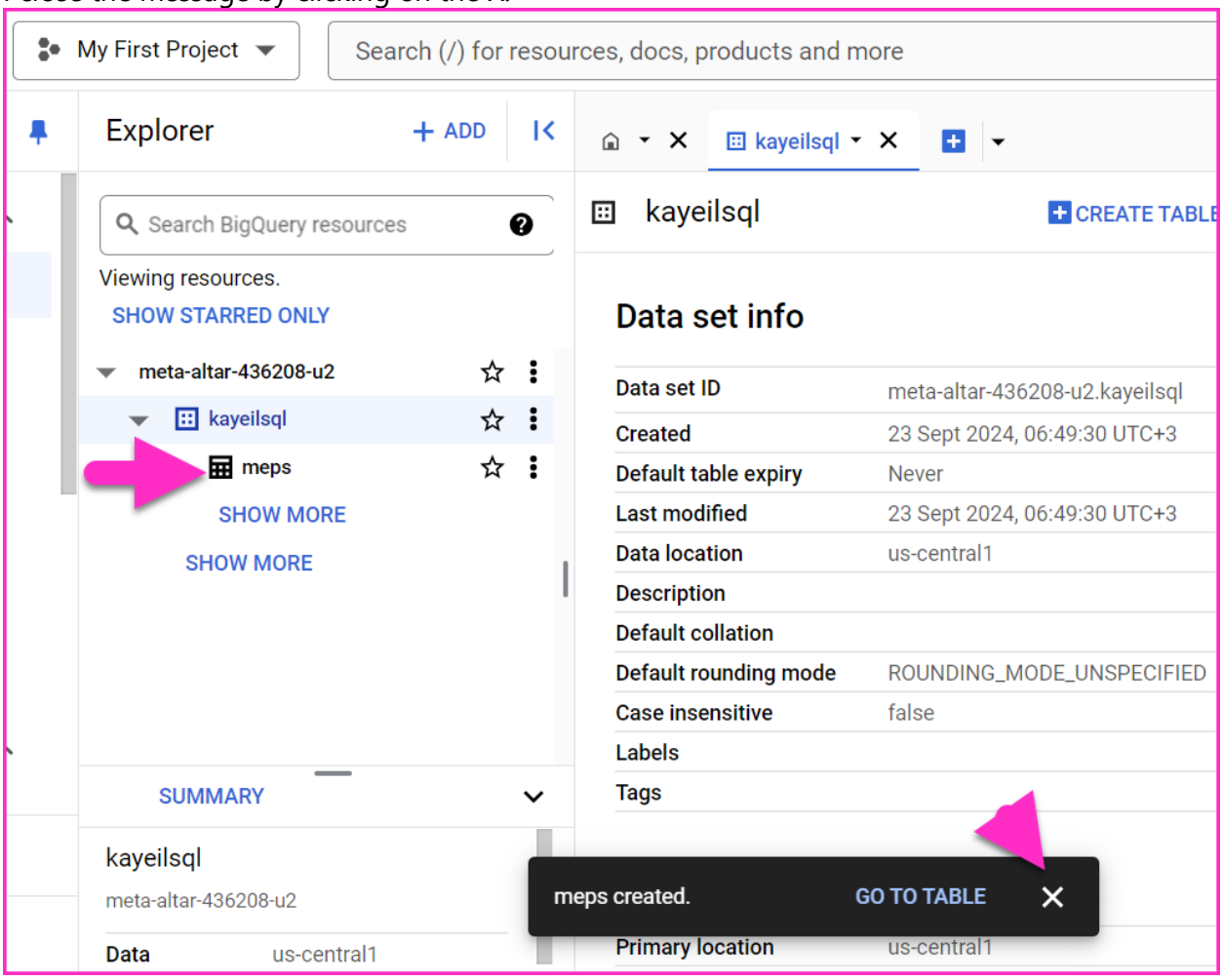


A little while after I click on the CREATE TABLE button, the following message which says **Load Job created**, is displayed.
I **wait for this message to disappear automatically**, because the Table will be created after this message, and another message will be displayed which says that **the table is created**.

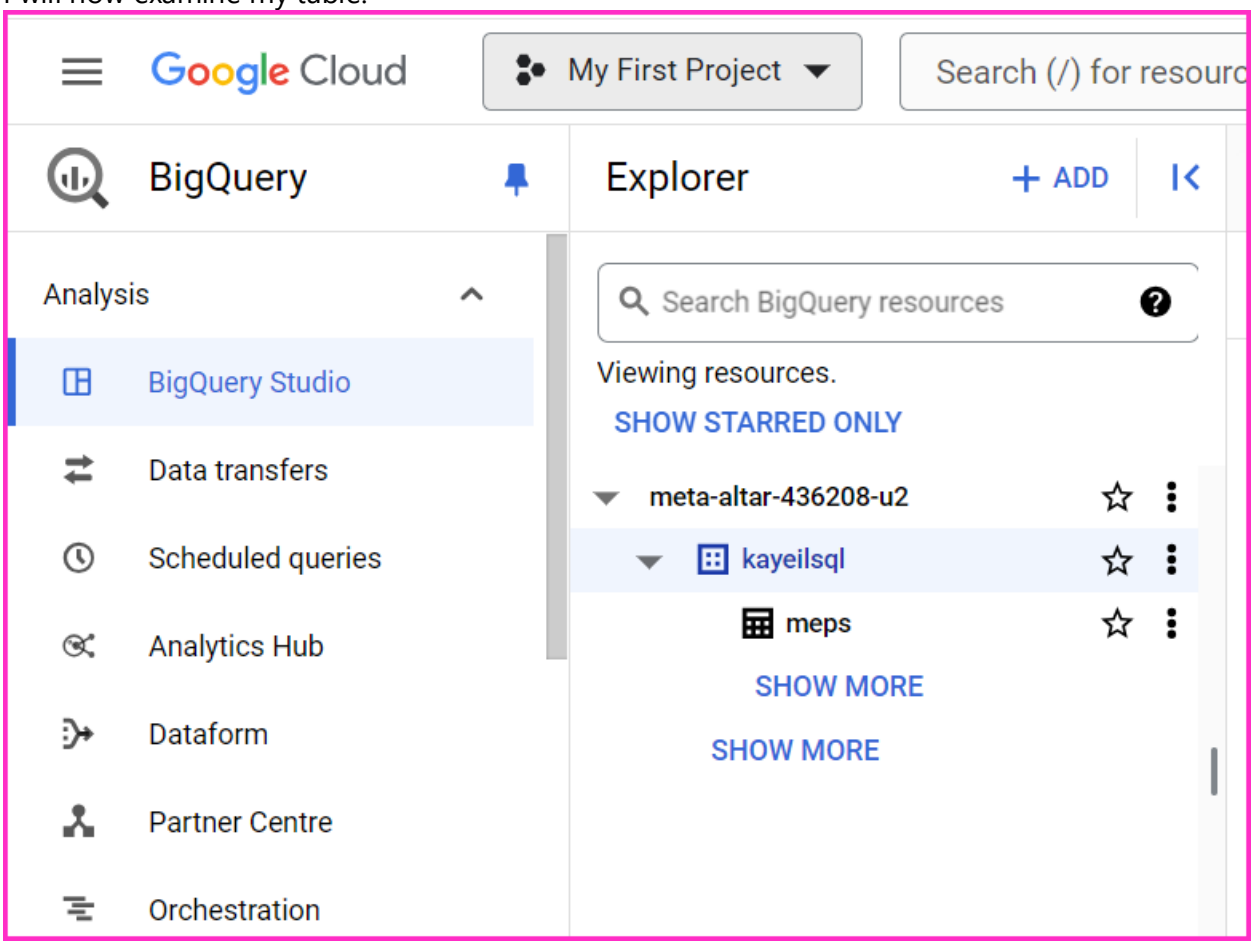


My Table is Created

A message is displayed which says that **the table is created**, after the **Load Job created** message.
I can also see my table under my Dataset.
I close the message by clicking on the X.

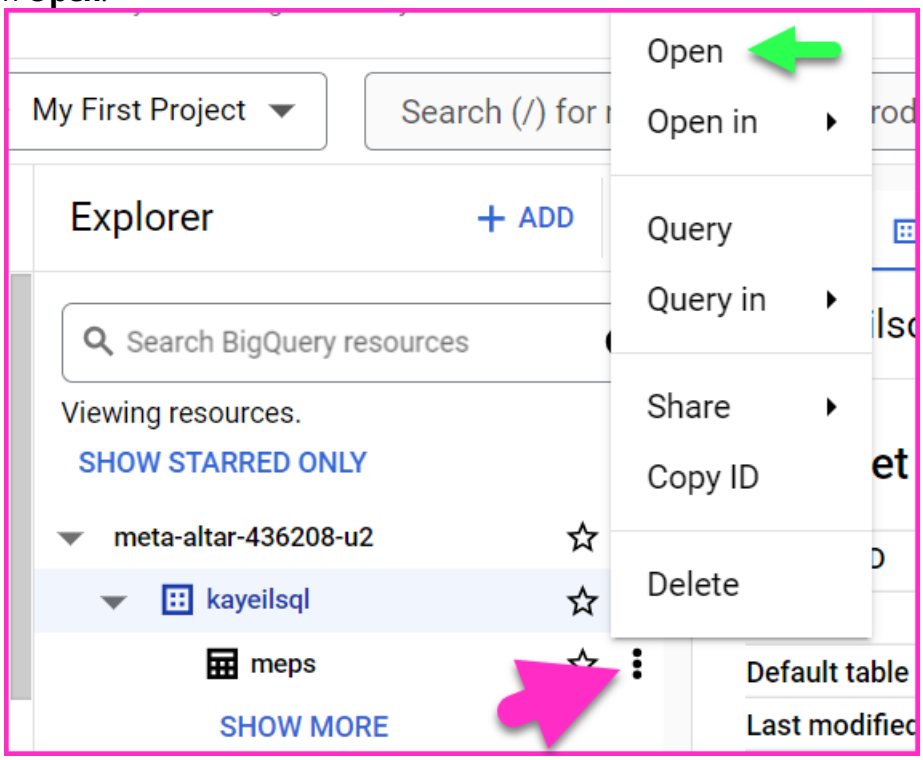


I will now examine my table.



Step 6. Examine the Table

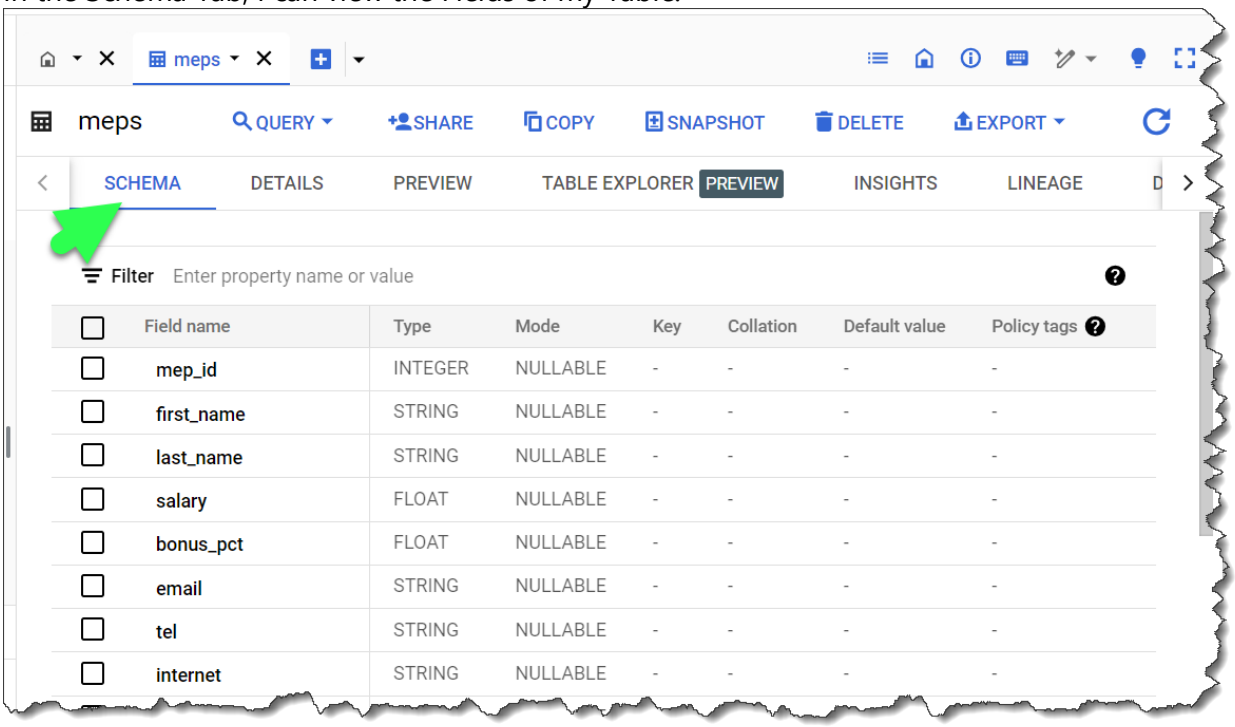
Just like in other objects, I click on the **three vertical dots (View Actions)** next to my table name.
I then click on **Open**.



And … here comes **my beautiful table** in beautiful **Google Cloud BigQuery**.

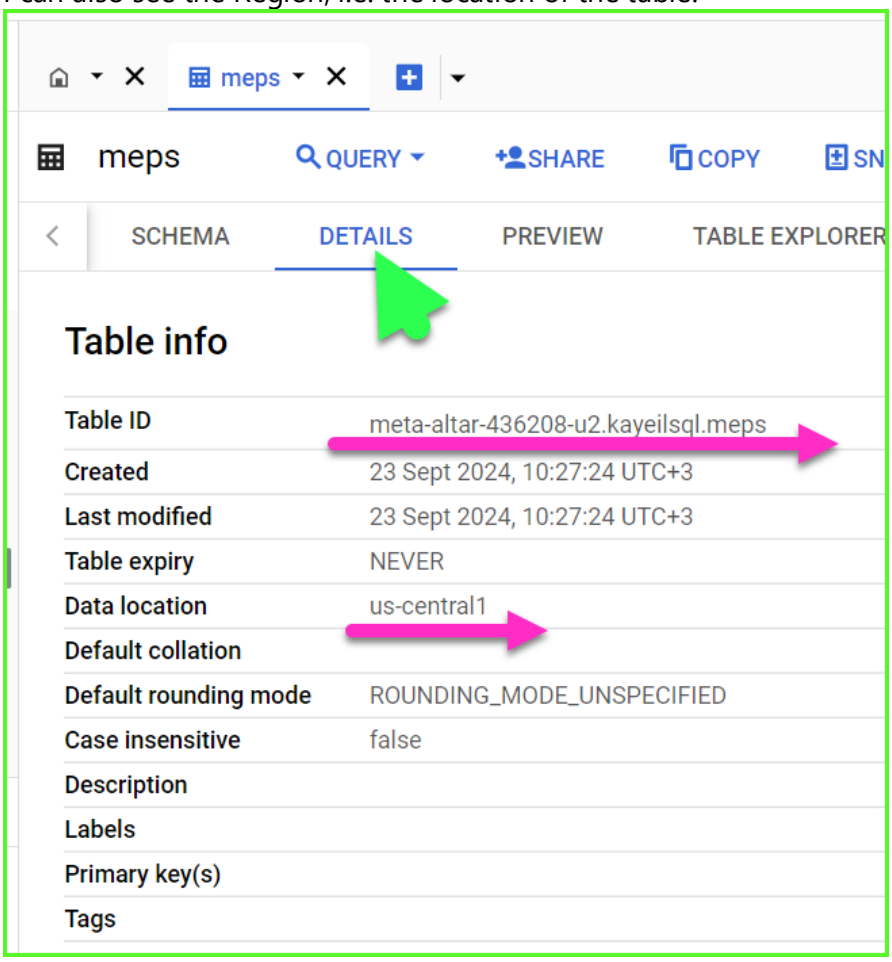
SCHEMA Tab

In the Schema Tab, I can view the Fields of my Table.

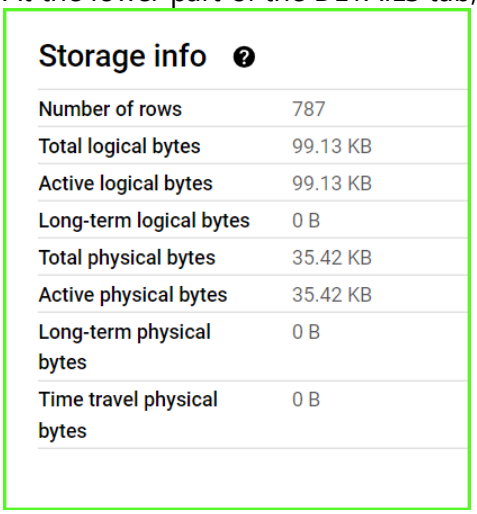


DETAILS Tab

In the DETAILS Tab, I can view the ID of my table.
I can also see the Region, i.e. the location of the table.

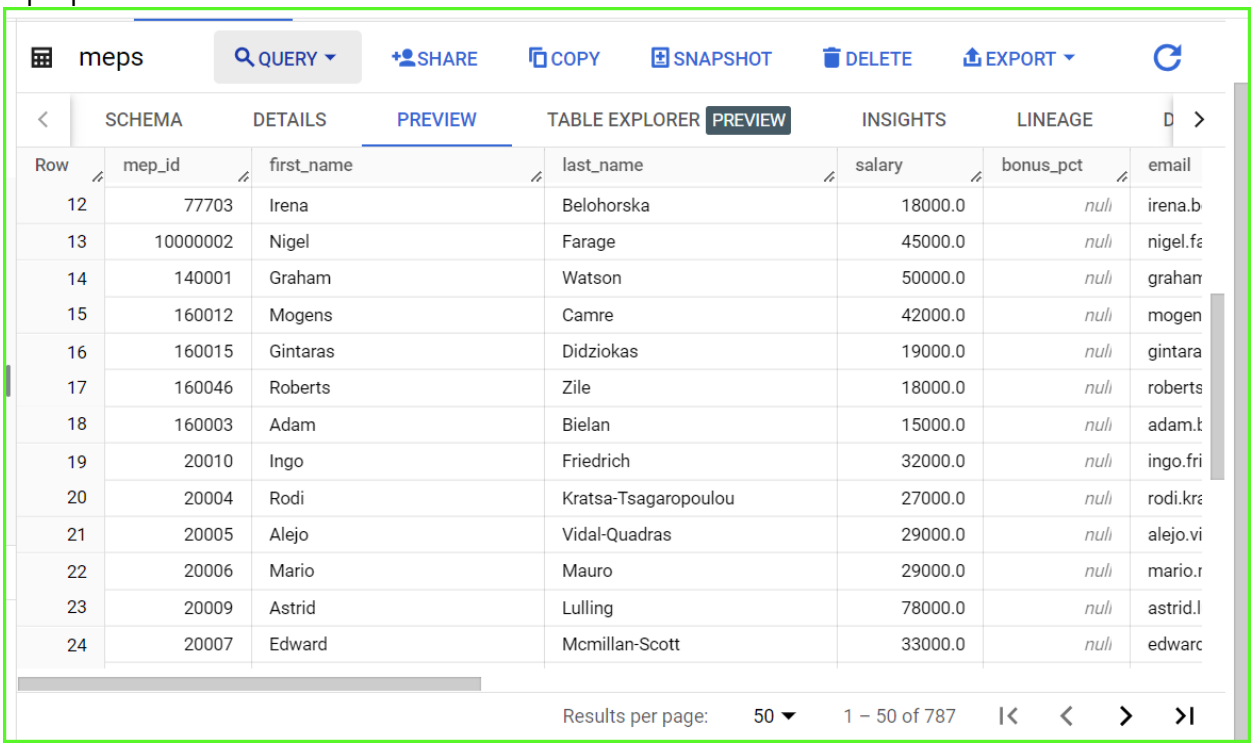


At the lower part of the DETAILS tab, I can see the number of rows in my table.



PREVIEW Tab

In the PREVIEW Tab, I can see my data.
The data, which was in the csv table, and uploaded into Google Cloud BigQuery, from my laptop.



Row	mep_id	first_name	last_name	salary	bonus_pct	email
12	77703	Irena	Belohorska	18000.0	null	irena.b
13	10000002	Nigel	Farage	45000.0	null	nigel.fa
14	140001	Graham	Watson	50000.0	null	graham
15	160012	Mogens	Camre	42000.0	null	mogen
16	160015	Gintaras	Didziokas	19000.0	null	gintara
17	160046	Roberts	Zile	18000.0	null	roberts
18	160003	Adam	Bielan	15000.0	null	adam.b
19	20010	Ingo	Friedrich	32000.0	null	ingo.fri
20	20004	Rodi	Kratsa-Tsagaropoulou	27000.0	null	rodi.kra
21	20005	Alejo	Vidal-Quadras	29000.0	null	alejo.vi
22	20006	Mario	Mauro	29000.0	null	mario.r
23	20009	Astrid	Lulling	78000.0	null	astrid.l
24	20007	Edward	Mcmillan-Scott	33000.0	null	edwarc

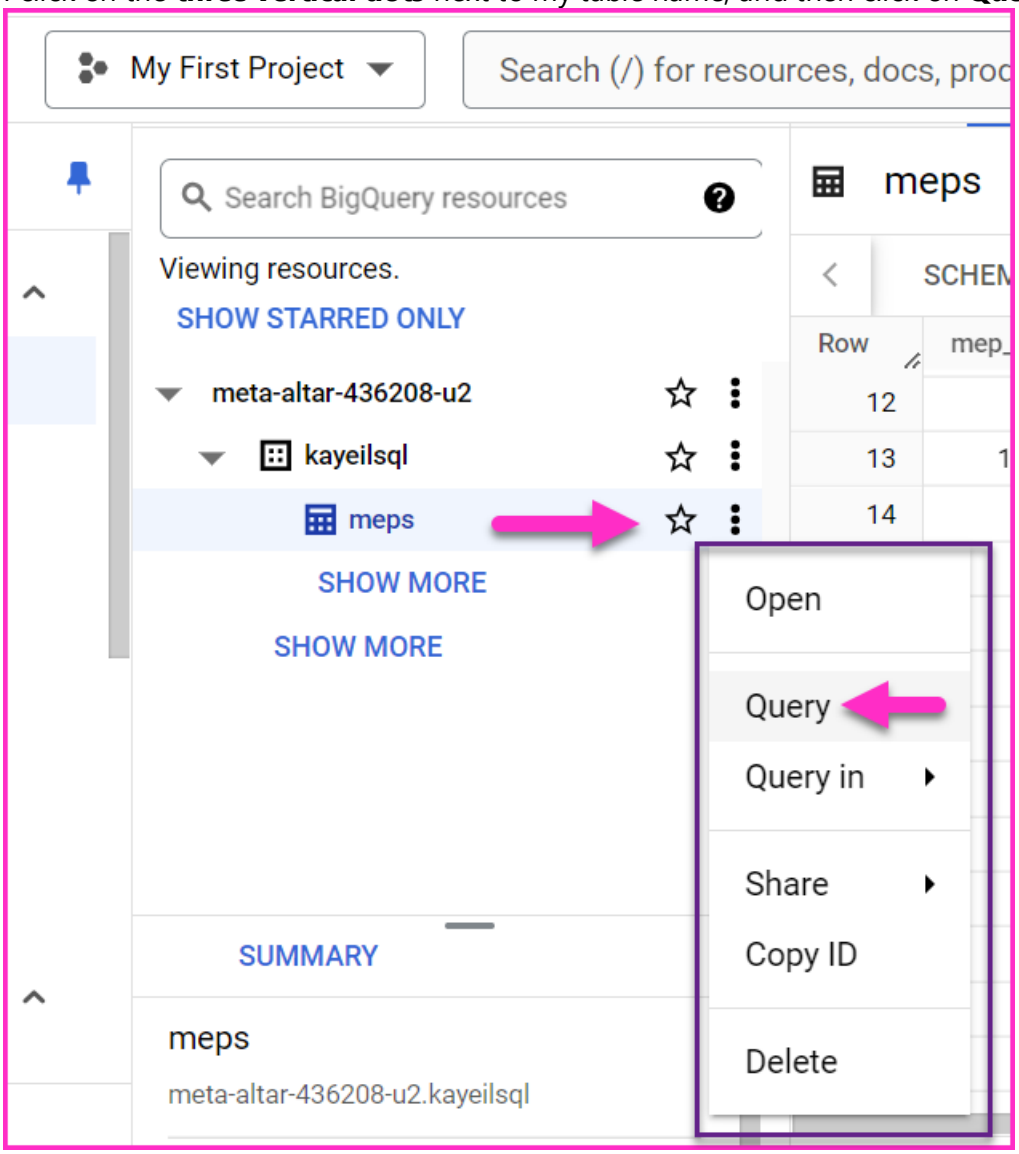
This is the easiest and quickest way to create a table, and insert data in it, that I have come across so far ✨

Well done Google BigQuery 🏆

Step 7. Query the Table

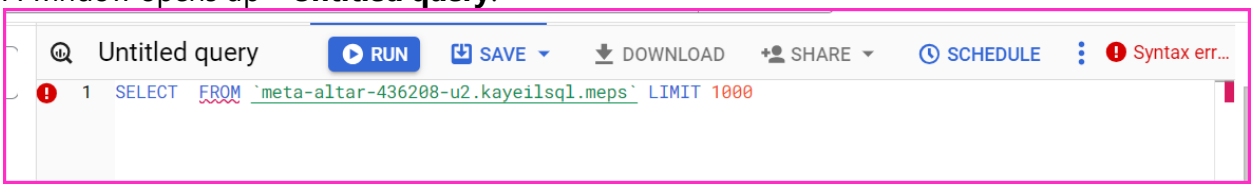
I can now query my Table in Google Cloud BigQuery.

I click on the **three vertical dots** next to my table name, and then click on **Query**.



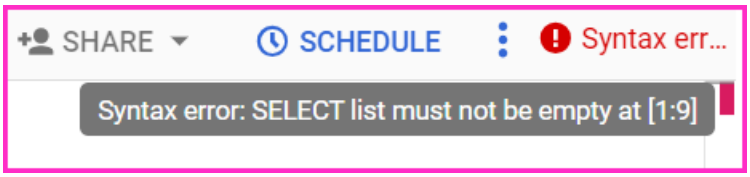
Query Window

A window opens up – **Untitled query**.



Query Syntax

I can see an incomplete SQL query – no columns.
There is even a Syntax error on the top right, which signifies that there are no columns to SELECT.



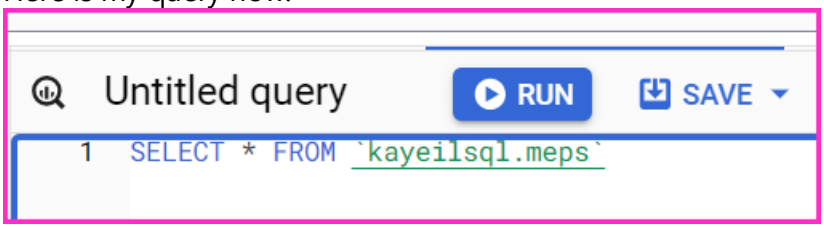
Nevertheless, BigQuery gave me the full syntax to query a table.
project_name.dataset_name.table_name

We will not use this full syntax in our queries.
We will only specify dataset_name.table_name.

I change this SELECT Statement slightly.

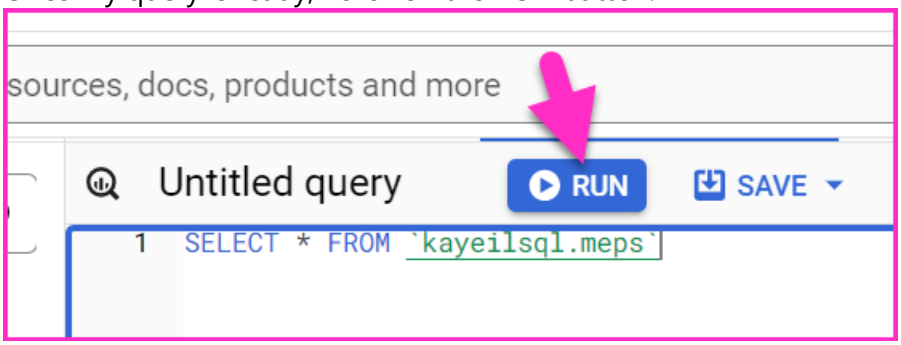
- I input a * meaning, display all the columns of the table.
- I get rid of the project name.
- I clear the LIMIT clause.

Here is my query now.

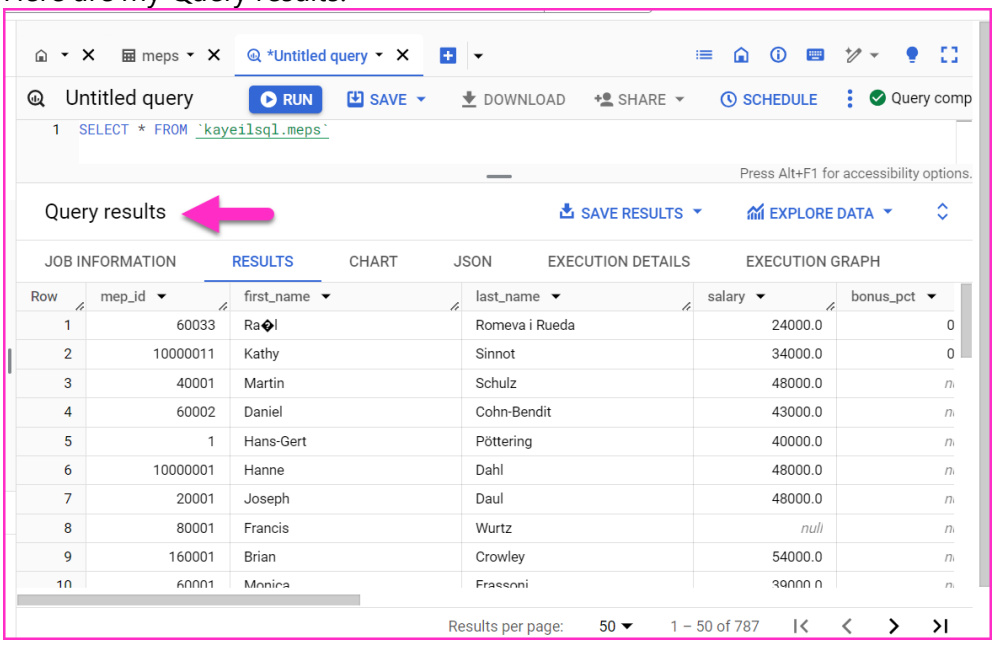


Run the Query

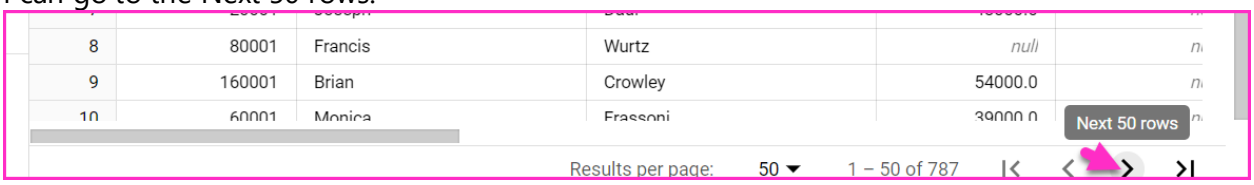
Once my query is ready, I click on the RUN button.



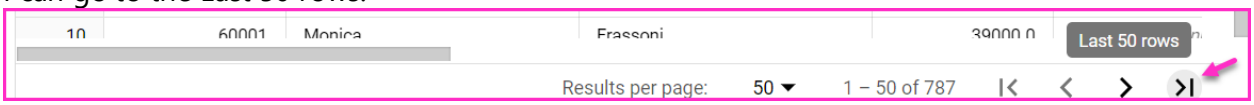
Here are my Query results.

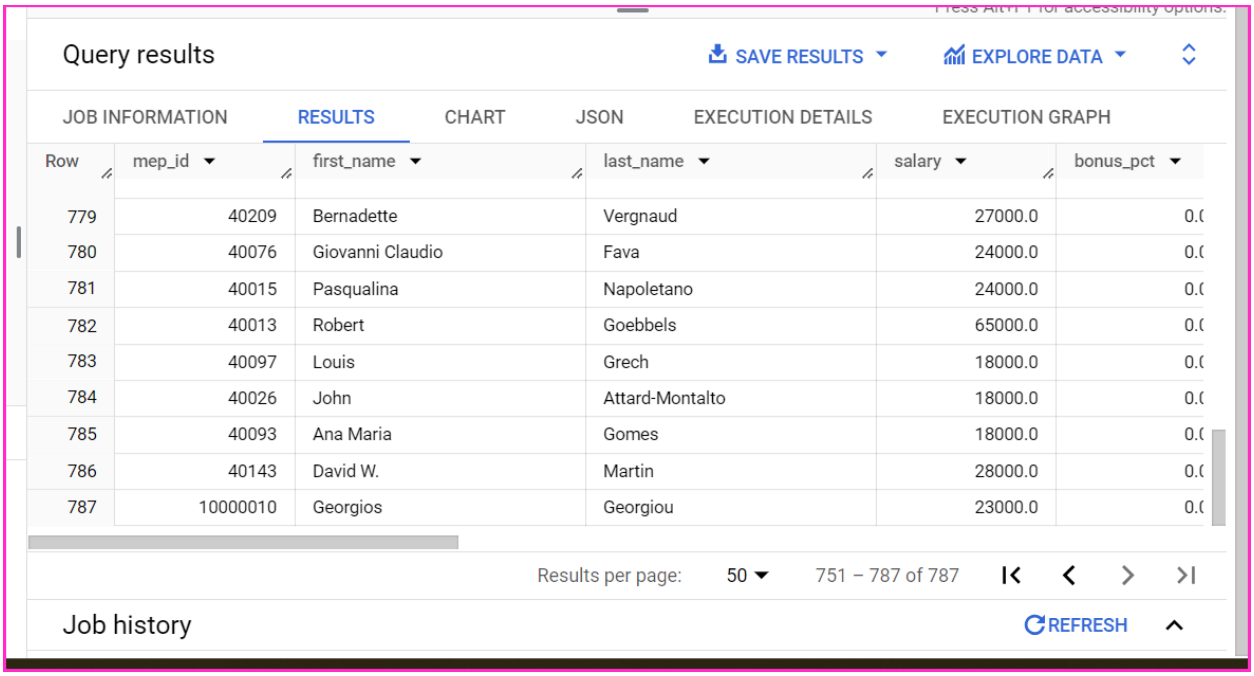


I can go to the Next 50 rows.



I can go to the Last 50 rows.





The End

This is how we create a table in Google Cloud BigQuery with full data, using a CSV file from our local computer.
I can now create all my other tables in the same way.
All my tables will be under the same Dataset "**kayeilsql**".

I can now go ahead and start working on my SQL Queries.
I can then create Looker Studio reports.

I wish you all the best, health, courage, hope, strength and the will to go after your dreams.

Dicle Ertan Ülger