# Assignment: Using Google Cloud Firestore with Python (via Google Colab)

## Step-by-Step Execution Summary

### Step 1: Install Firestore Library in Google Colab

Executed the following command in the first code cell:

!pip install google-cloud-firestore

### Step 2: Upload Service Account Key

Uploaded the downloaded JSON key file ("calcium-field-455700-p2-0523dc139e08.json") to Google Colab using the left sidebar.

### Step 3: Set the Environment Variable

Set the GOOGLE\_APPLICATION\_CREDENTIALS environment variable to point to the uploaded JSON key file:

import os  
os.environ["GOOGLE\_APPLICATION\_CREDENTIALS"] = "/content/calcium-field-455700-p2-0523dc139e08.json"

### Step 4: Initialize Firestore and Write a Document

Ran the following code to connect to Firestore and write a document:

from google.cloud import firestore  
  
db = firestore.Client()  
  
doc\_ref = db.collection("users").document("user\_123")  
doc\_ref.set({  
 "name": "Alice",  
 "email": "alice@example.com",  
 "age": 30  
})

### Step 5: Add Document with Auto-Generated ID

db.collection("users").add({  
 "name": "Bob",  
 "email": "bob@example.com",  
 "age": 25  
})

### Step 6: Read a Specific Document

doc = db.collection("users").document("user\_123").get()  
if doc.exists:  
 print(f"Document data: {doc.to\_dict()}")  
else:  
 print("No such document!")

### Step 7: Read All Documents in the Collection

users\_ref = db.collection("users")  
docs = users\_ref.stream()  
  
for doc in docs:  
 print(f"{doc.id} => {doc.to\_dict()}")

### Step 8: Query Documents (age >= 25)

query = db.collection("users").where("age", ">=", 25)  
results = query.stream()  
  
for doc in results:  
 print(doc.id, doc.to\_dict())

## Conclusion

Successfully connected Google Colab to Firestore using a service account key, performed write, read, and query operations on the "users" collection, and verified the outputs in both Colab and the Firestore console.

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