# Assignment 2 Explanation: Firestore with Python in Google Colab

## 📌 Objective:

The goal of this assignment was to learn how to connect to Google Cloud Firestore using Python and Google Colab. You practiced how to securely connect, add data, read data, and query a NoSQL database (Firestore) in a cloud environment.

## ✅ What You Did (Step-by-Step):

### 1. Installed the Firestore Python Library

* You installed the "google-cloud-firestore" library to enable Firestore interactions using Python.

### 2. Uploaded Service Account Key

* You uploaded the JSON key file from Google Cloud, which allows your Python code to authenticate with Firestore securely.

### 3. Set Environment Variable in Colab

* You used os.environ to point to your key file so Python knows how to access your Google Cloud resources.

### 4. Initialized Firestore

* You initialized the Firestore client in Python using firestore.Client(). This starts the connection to the Firestore database.

### 5. Added User Data

* You created a document in the "users" collection with fields like name, email, and age. This simulates saving user information.

### 6. Read a Specific User Document

* You retrieved and printed data for a specific document (e.g., user\_123) to simulate reading from the database.

### 7. Read All Documents

* You listed all the documents inside the "users" collection, similar to fetching all records from a table.

### 8. Ran a Filtered Query

* You ran a query to find all users whose age is 25 or older, simulating real-world filtering based on conditions.

## 📚 Why It’s Important:

* - Teaches you how real apps interact with cloud databases  
  - Helps you practice cloud development without managing servers  
  - Gives you hands-on experience with Python, Firestore, and Colab  
  - Strengthens skills needed for backend, data, and cloud engineering roles

## 📝 Summary:

You built a mini Firestore backend using Python and Google Colab. You securely connected to Firestore, wrote and read data, and ran queries. This assignment simulates what real applications do when they work with cloud-based NoSQL databases like Firestore.