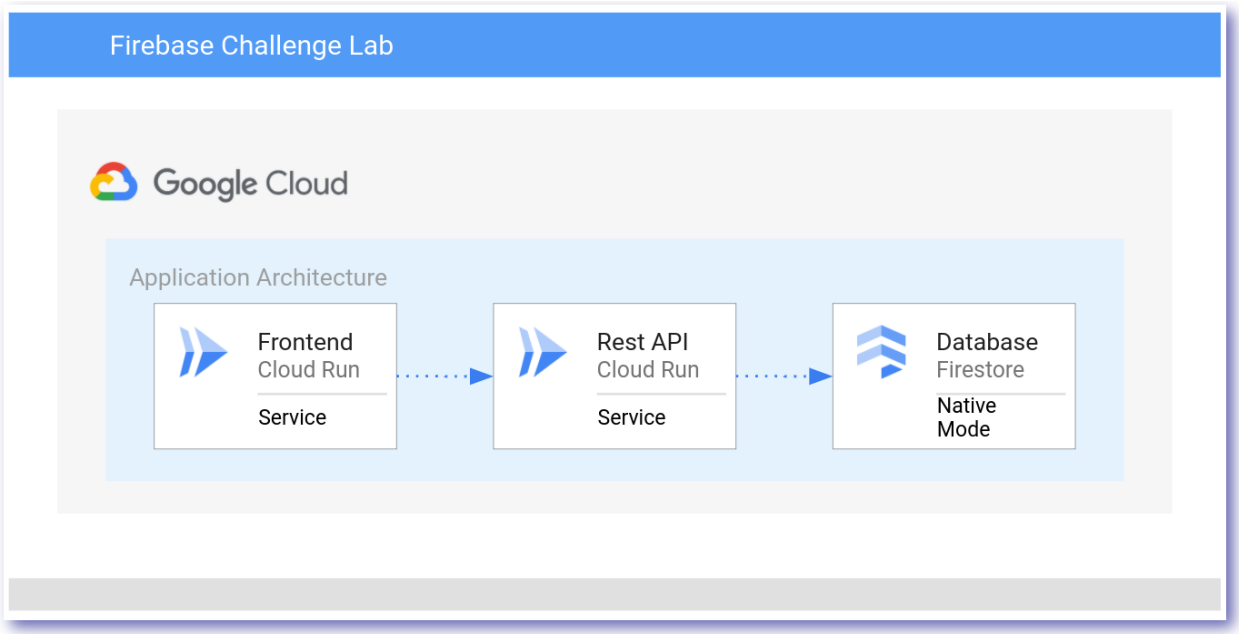
Develop Serverless Apps with Firebase: Challenge Lab

Challenge scenario

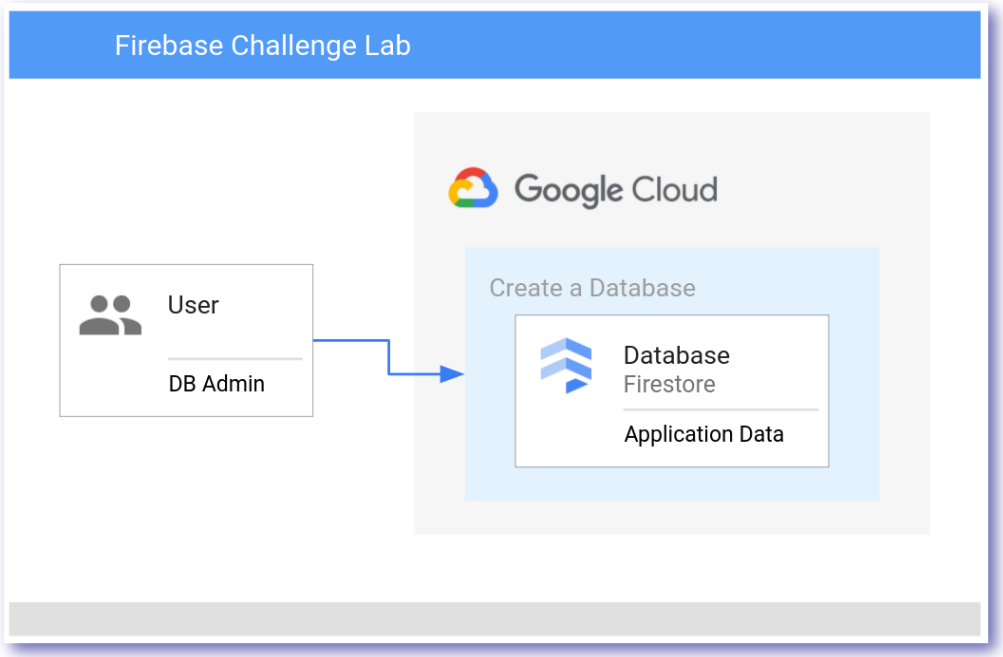
In this lab you will create a frontend solution using a Rest API and Firestore database. Cloud Firestore is a NoSQL document database that is part of the Firebase platform where you can store, sync, and query data for your mobile and web apps at scale. Lab content is based on resolving a real world scenario through the use of Google Cloud serverless infrastructure.

You will build the following architecture:



Task 1. Create a Firestore database

In this scenario you create a Firestore Database in Google Cloud. The high level architecture diagram below summarizes the general architecture.



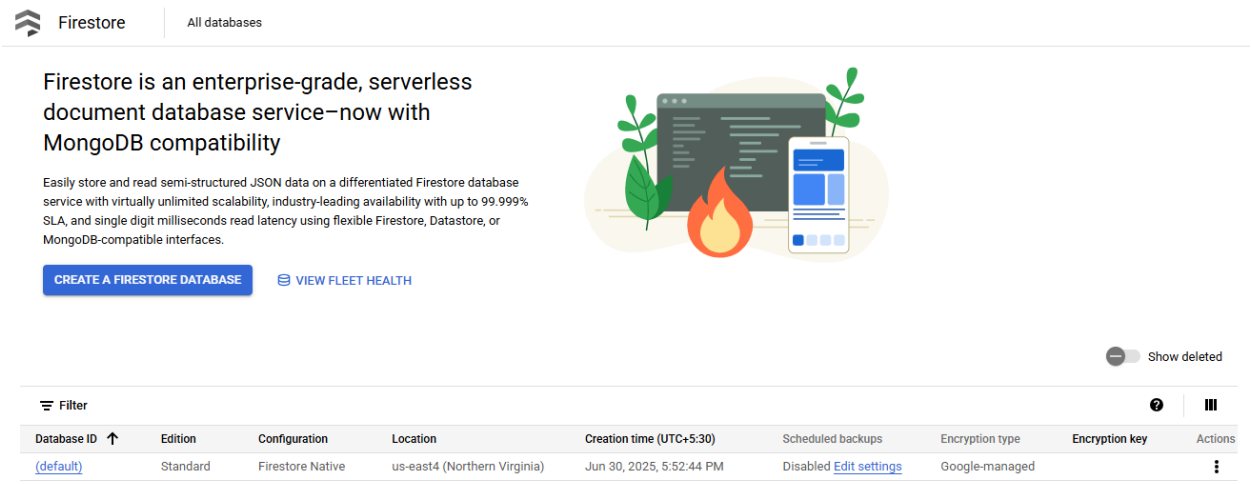
Requirements:

Field	Value
Cloud Firestore	Native Mode
Location	Lab Region

Create a Firestore database

To complete this section successfully, you are required to implement the following:

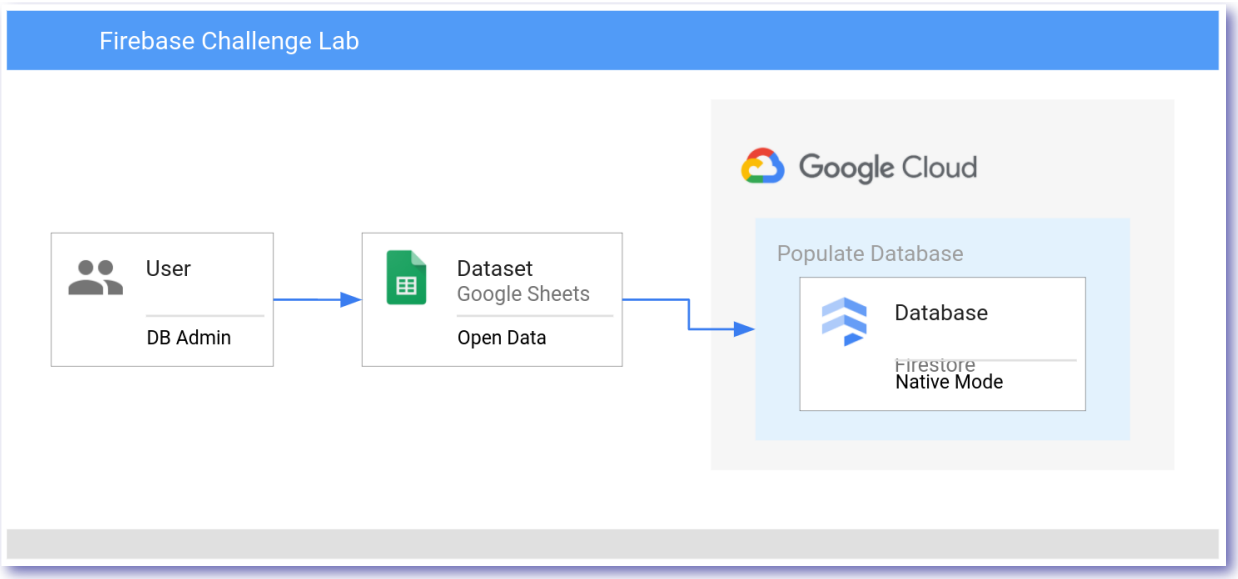
- Cloud Firestore Database
- Use Firestore Native Mode
- Add location Lab Region



Task 2. Populate the database

In this scenario, populate the database using test data.

A high level architecture diagram below summarizes the general architecture.



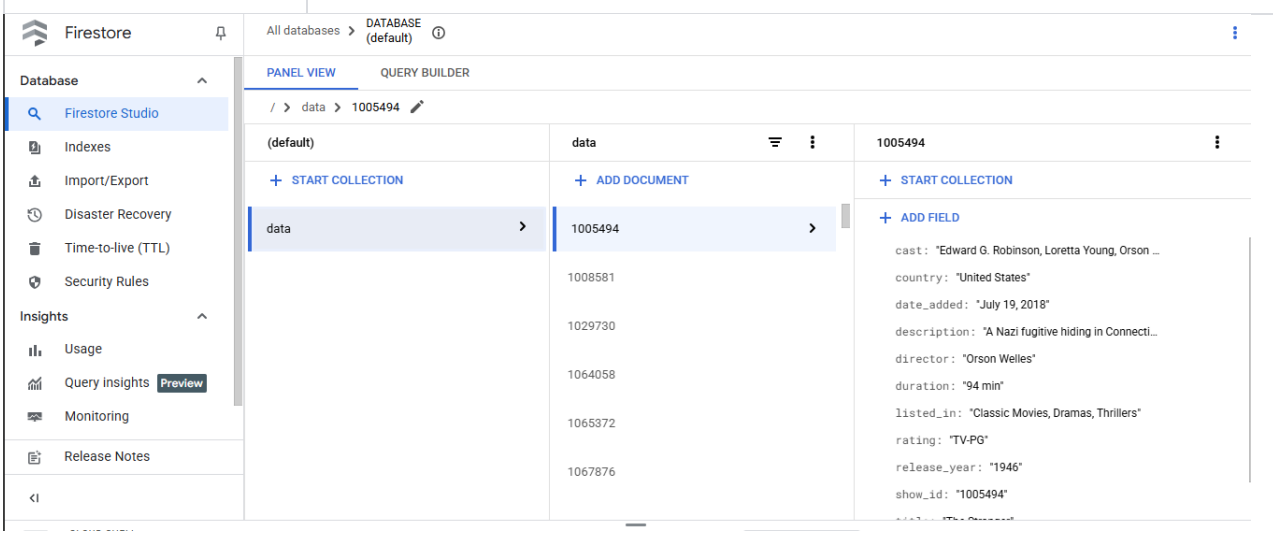
Populate the database

Example Firestore schema:

Collection	Document	Field
data	70234439	[dataset]

The Netflix Shows Dataset includes the following information:

Field	Description
show_id:	Unique ID for every Movie / Tv Show
type:	Identifier - A Movie or TV Show
title:	Title of the Movie / Tv Show
director:	Director of the Movie
cast:	Actors involved in the movie / show
country:	Country where the movie / show was produced
date_added:	Date it was added on Netflix
release_year:	Actual Release year of the move / show
rating:	TV Rating of the movie / show
duration:	Total Duration - in minutes or number of seasons



1. Use the sample code from pet-theory/lab06/firebase-import-csv/solution:

npm install

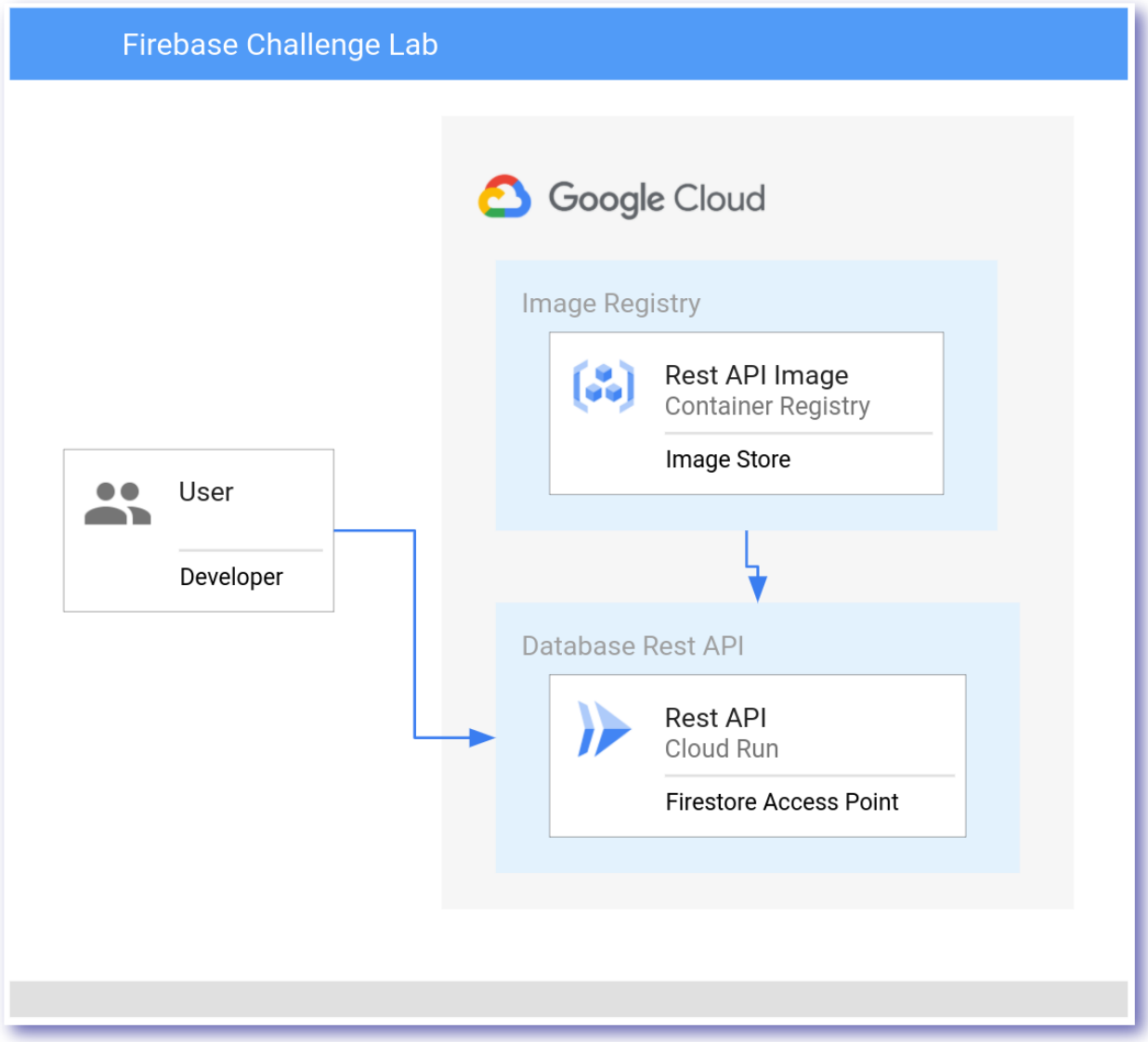
2. To import CSV use the node pet-theory/lab06/firebase-import-csv/solution/index.js:

node index.js netflix_titles_original.csv

Task 3. Create a REST API

In this scenario, create an example REST API.

A high level architecture diagram below summarizes the general architecture



Cloud Run development

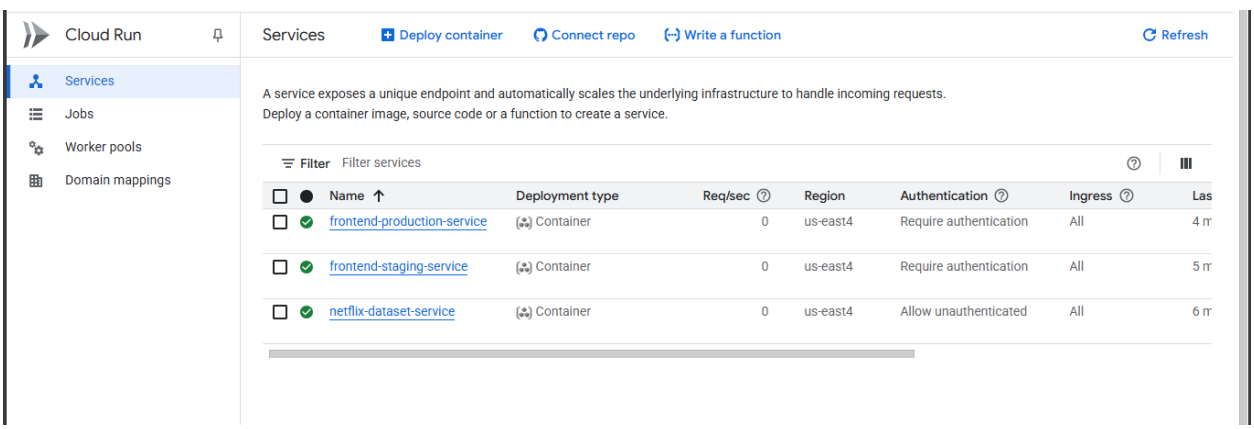
Field	Value

Container Registry Image	rest-api:0.1
Cloud Run Service	netflix-dataset-service
Permission	--allow-unauthenticated

To complete this section successfully, you are required to implement the following tasks:

1. Access pet-theory/lab06/firebase-rest-api/solution-01.
2. Build and Deploy the code to Google Container Registry.
3. Deploy the image as a Cloud Run service.
4. Go to Cloud Run and click **netflix-dataset-service** then copy the service URL:

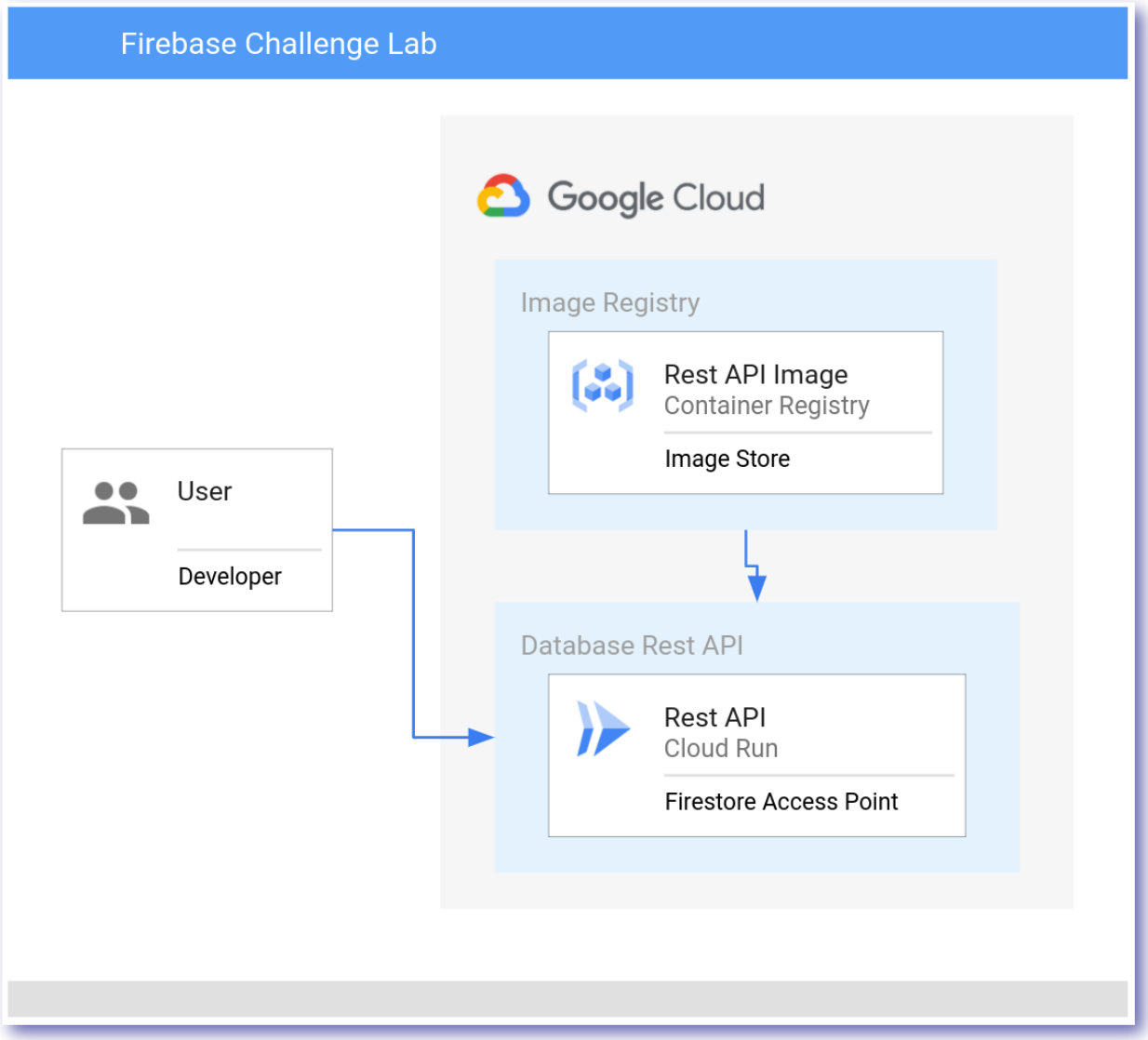
- SERVICE_URL=copy url from your netflix-dataset-service
- curl -X GET $SERVICE_URL should respond with: {"status":"Netflix Dataset! Make a query."}



Task 4. Firestore API access

In this scenario, deploy an updated revision of the code to access the Firestore DB.

A high level architecture diagram below summarizes the general architecture.



Deploy Cloud Run revision 0.2

Field	Value
Container Registry Image	rest-api:0.2
Cloud Run Service	netflix-dataset-service
Permission	--allow-unauthenticated

To complete this section successfully, you are required to implement the following tasks:

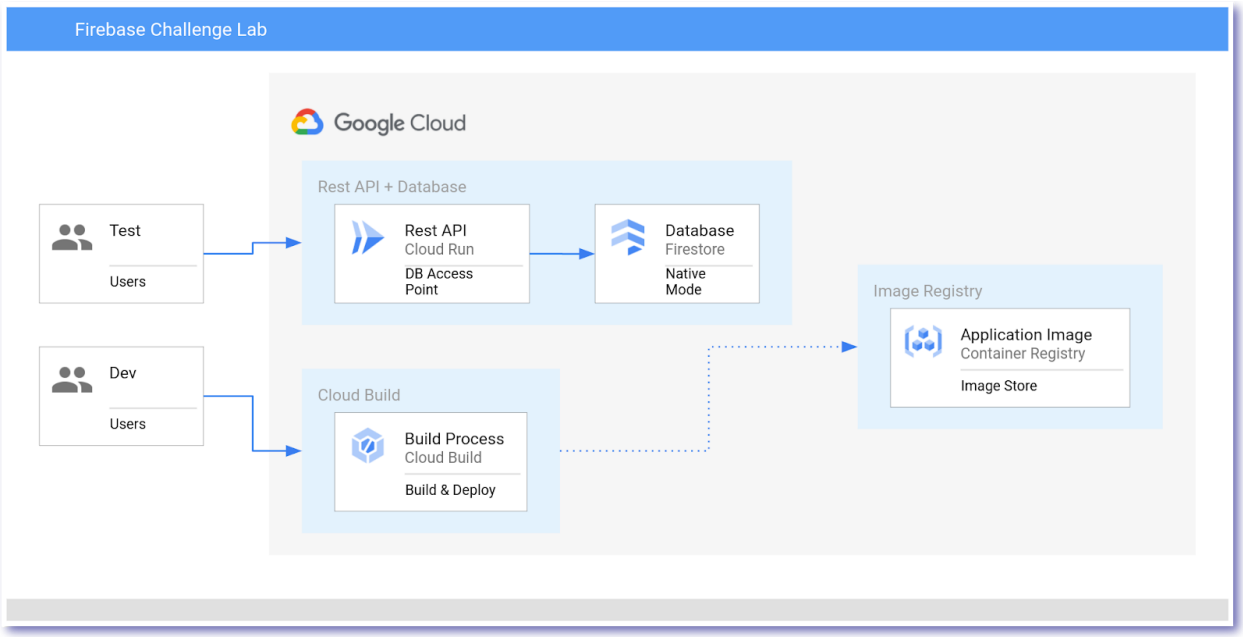
1. Access pet-theory/lab06/firebase-rest-api/solution-02.
2. Build the updated application.
3. Use Cloud Build to tag and deploy image revision to Container Registry.
4. Deploy the new image a Cloud Run service.
5. Go to Cloud Run and click **netflix-dataset-service** then copy the service URL:

- SERVICE_URL=copy url from your netflix-dataset-service
- curl -X GET $SERVICE_URL/2019 should respond with json dataset

Task 5. Deploy the Staging Frontend

In this scenario, deploy the Staging Frontend.

A high level architecture diagram below summarizes the general architecture.



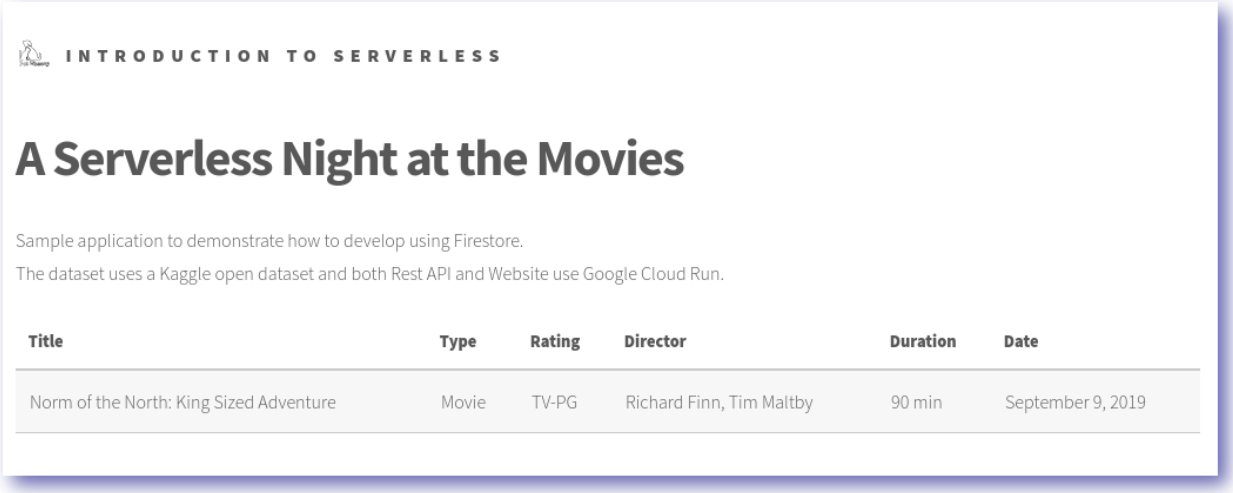
Deploy Frontend

Field	Value
REST_API_SERVICE	REST API SERVICE URL
Container Registry Image	frontend-staging:0.1

Cloud Run Service	frontend-staging-service

To complete this section successfully, you are required to implement the following tasks:

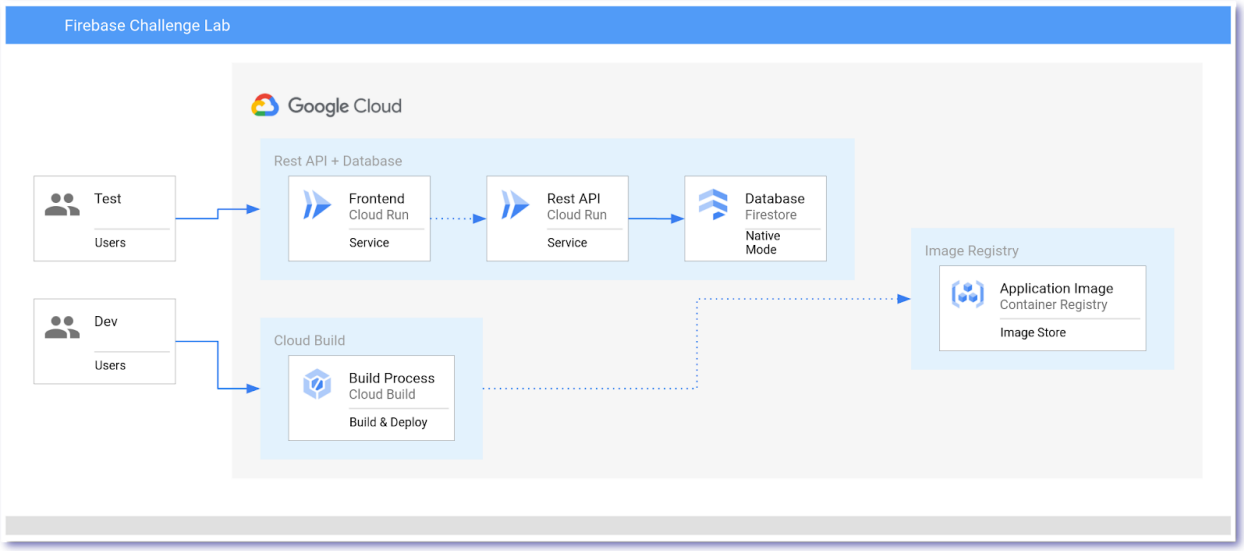
1. Access pet-theory/lab06/firebase-frontend.
2. Build the frontend staging application.
3. Use Cloud Build to tag and deploy image revision to Container Registry.
4. Deploy the new image as a Cloud Run service.
5. Frontend access to Rest API and Firestore Database.
6. Access the Frontend Service URL.



Task 6. Deploy the Production Frontend

In this scenario, update the Staging Frontend to use the Firestore database.

A high level architecture diagram below summarizes the general architecture.



1. Access pet-theory/lab06/firebase-frontend/public.
2. Update the frontend application i.e. app.js to use the REST API.
3. Don't forget to append the year to the SERVICE_URL.
4. Use Cloud Build to tag and deploy image revision to Container Registry.
5. Deploy the new image a Cloud Run service
6. Frontend access to Rest API and Firestore Database.

A Serverless Night at the Movies

Sample application to demonstrate how to develop using Firestore.
The dataset uses a Kaggle open dataset and both Rest API and Website use Google Cloud Run.

Title	Type	Rating	Director	Duration	Date
Messiah	TV Show	TV-MA		1 Season	January 1, 2020
Nisman: The Prosecutor, the President, and the Spy	TV Show	TV-MA	Justin Webster	1 Season	January 1, 2020
Spinning Out	TV Show	TV-MA		1 Season	January 1, 2020
Kipo and the Age of Wonderbeasts	TV Show	TV-Y7-FV		1 Season	January 14, 2020
Live Twice, Love Once	Movie	TV-MA	Maria Ripoll	102 min	January 7, 2020
AJ and the Queen	TV Show	TV-14		1 Season	January 10, 2020
Go! Go! Cory Carson	TV Show	TV-Y		1 Season	January 4, 2020