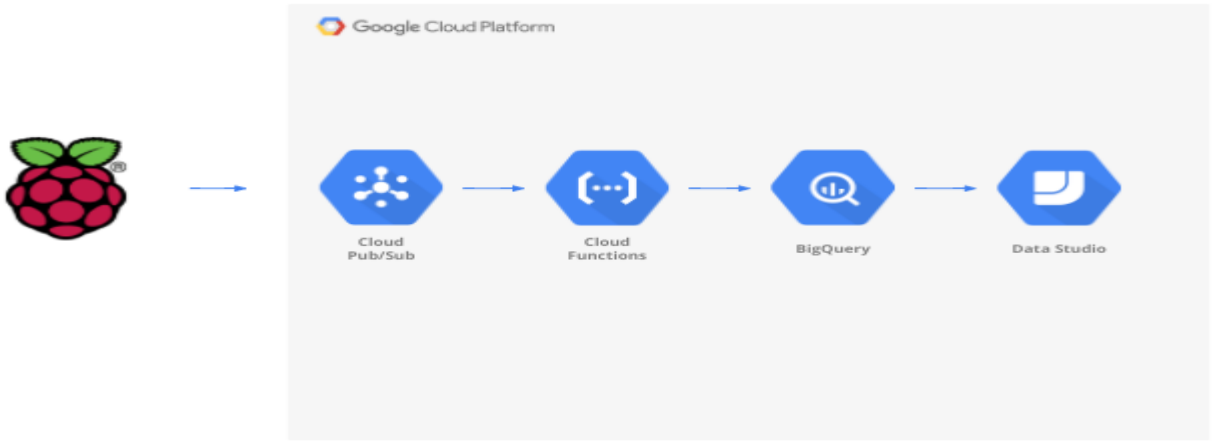
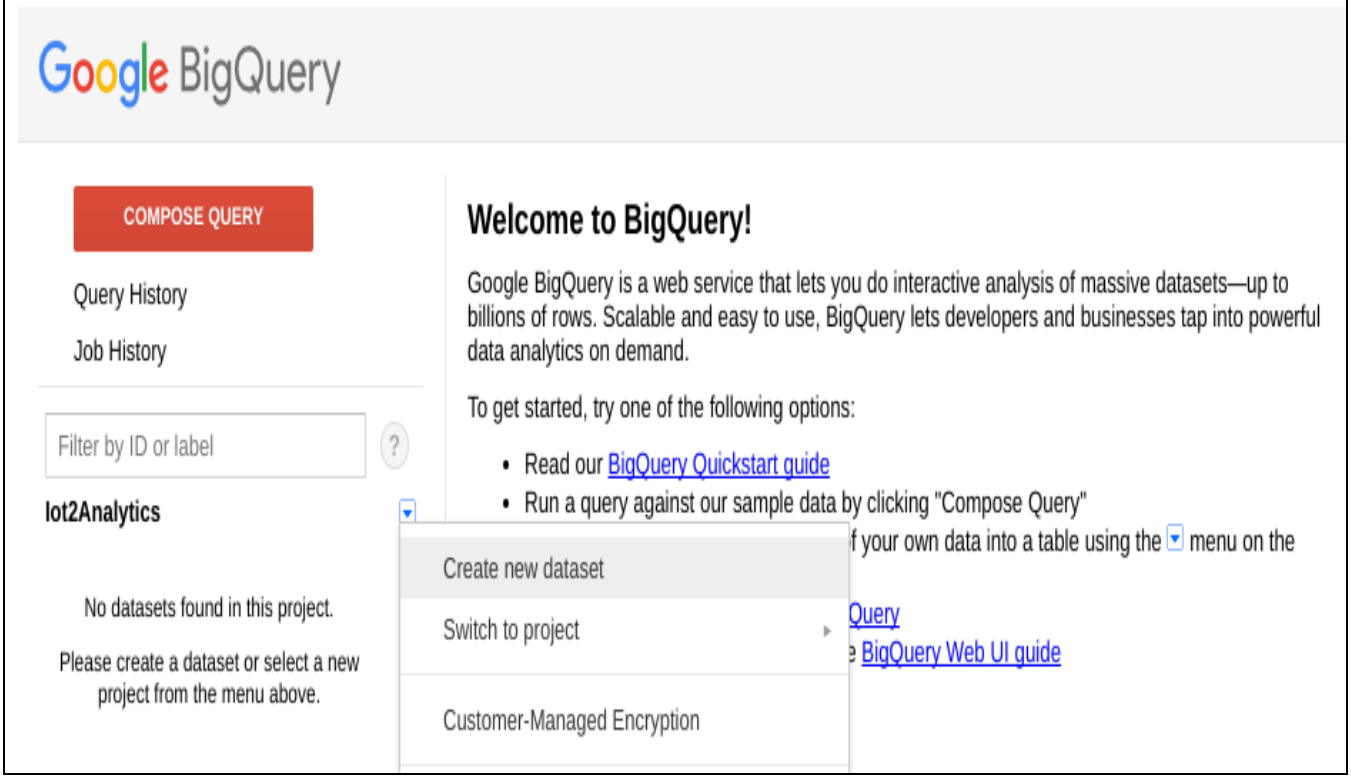
DAILY ASSESSMENT FORMAT

Date:	15th July2020	**Name:**	Soundarya NA
Course:	Coursera	**USN:**	4AL16EC077
Topic:	Industrial IOT on Google Cloud Platform	**Semester & Section:**	8th - B
Github Repository:	Soundaryana-courses		

FORENOON SESSION DETAILS

Image of session





Report:

Big query:

While multi-tier applications consisting of web, application server and database are foundational to web development and are the starting point for many websites, success will often bring challenges around scalability, integration and agility. For example, how can data be handled in real-time and how can it be distributed to multiple key business systems? These issues coupled with the demands of internet-scale applications drove the need for a distributed messaging system and gave rise to an architectural pattern of using data pipelines to achieve resilient, real-time systems. As a result, understanding how to publish real-time data to a distributed messaging system and then how to build a data pipeline are crucial skills for developer and architect alike.

In this codelab, you are going to build a weather data pipeline that starts with an Internet of Things (IoT) device, utilizes a message queue to receive and deliver data, leverages a serverless function to move the data to a data warehouse and then create a dashboard that displays the information. A Raspberry Pi with a weather sensor will be used for the IoT device and several components of the Google Cloud Platform will form the data pipeline. Building out the Raspberry Pi, while beneficial, is an optional portion of this codelab and the streaming weather data can be replaced with a script.

BigQuery Omni (private alpha):

BigQuery Omni is a flexible, multi-cloud analytics solution, powered by Anthos, that allows you to analyze data across clouds. Use standard SQL and BigQuery's familiar interface to quickly answer questions and share results from a single pane of glass across your datasets.

BigQuery ML:

BigQuery ML enables data scientists and data analysts to build and operationalize ML models on planet-scale structured or semi-structured data, directly inside BigQuery, using simple SQL—in a fraction of the time. Export BigQuery ML models for online prediction into Cloud AI Platform or your own serving layer.

BigQuery BI Engine:

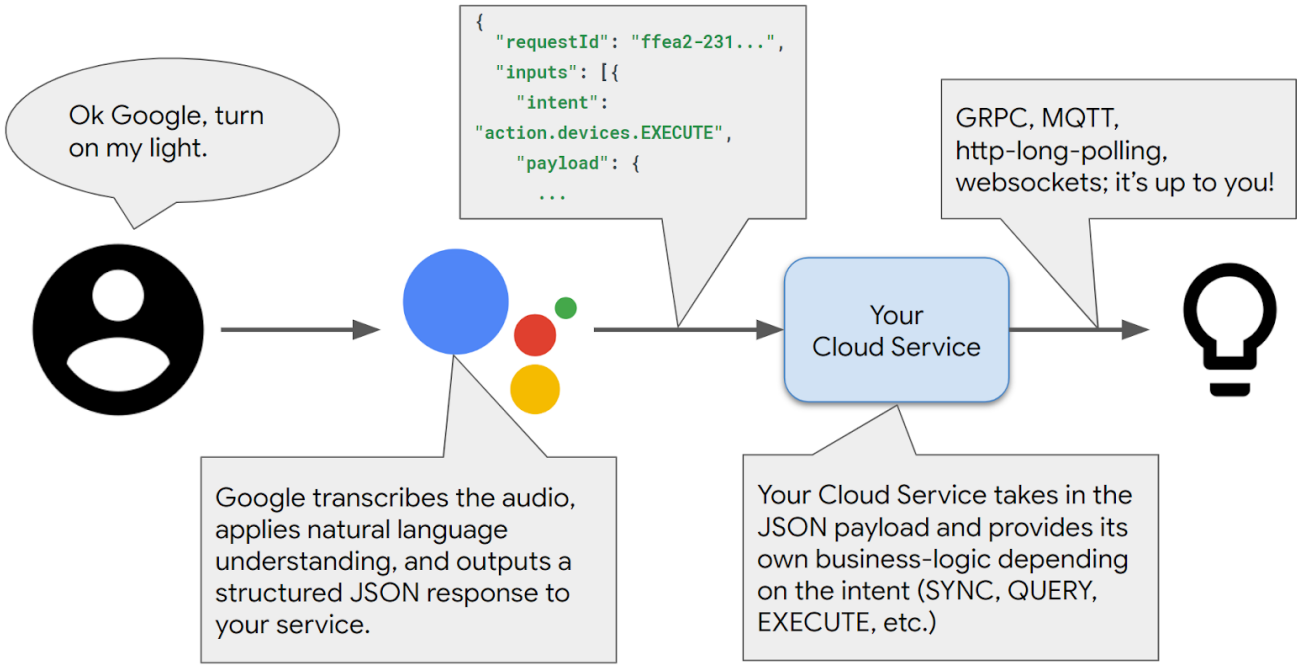
BigQuery BI Engine is a blazing-fast in-memory analysis service for BigQuery that allows users to analyze large and complex datasets interactively with sub-second query response time and high concurrency. BigQuery BI Engine seamlessly integrates with familiar tools like Data Studio and will help accelerate data exploration and analysis for Looker, Sheets, and our BI partners in the coming months.

BigQuery GIS:

BigQuery GIS uniquely combines the serverless architecture of BigQuery with native support for geospatial analysis, so you can augment your analytics workflows with location intelligence. Simplify your analyses, see spatial data in fresh ways, and unlock entirely new lines of business with support for arbitrary points, lines, polygons, and multi-polygons in common geospatial data formats.

API communication flow:

A critical point of understanding when developing IoT for the Assistant is that Google does not communicate directly with your device. Instead, Google sends device commands and queries to your cloud service, which then handles the direct IoT device communication. The idea here is that you, as the device creator, develop your own cloud service, which includes its own dashboard, device registration, and device management that functions independently of the Assistant. The Assistant interfaces with and augments your cloud service to provide a new voice interface for the user's devices. This provides you with the freedom and flexibility to implement or re-use your own dashboard UI, device-to-cloud control logic, protocols, and software stacks.



API communication flow. Click to enlarge

Device Types:

Every device is given a device type. Device types are used as suggestions for Google's NLU engine, provide context for Google to use a specific icon within the Google Home app (for example, a lightbulb for a light device type), and give the developer a list of suggested device traits that Google can control.

Device traits:

Device traits define the actual capabilities of your device, and these traits are what users can actually control. A light can turn on and off (action.devices.traits.OnOff) and a fan can change speed.