Getting Started with LookML in Looker and Challenge Lab

Overview

Looker is a modern data platform within Google Cloud that enables interactive data analysis and visualization. It allows users to integrate insights from multiple data sources, build data-driven workflows, and create customized analytical applications. Looker's modeling layer, **LookML (Looker Modeling Language)**, abstracts SQL complexity, enabling analysts and business users to interact with data efficiently.

What is LookML?

LookML (Looker Modeling Language) is a proprietary modeling language developed by Looker that defines how data is structured and queried. It provides an abstraction layer over SQL databases by describing:

- Dimensions
- Aggregates and calculations
- Relationships between datasets

LookML allows users to define data logic such as joins, field definitions, and derived calculations. Once defined, Looker automatically generates optimized SQL queries for analysis.

Lab Objectives

In this lab, the following tasks were performed:

1. **Create a new view** in LookML and define dimensions and measures.
2. **Join the newly created view** to an existing Explore.

Setup and Requirements

Before starting the lab:

- Access was provided through **Google Cloud Skills Boost**.
- A temporary Looker instance was launched using provided credentials.
- The lab was completed in **Incognito mode** to avoid conflicts with personal accounts.
- Chrome browser was recommended for best compatibility.

LookML Structure Overview

LookML follows a hierarchical structure that consists of the following key components:

1. **Projects:**

   The highest-level structure containing all LookML files. Each project typically maps 1:1 with a Git repository.

2. **Models:**

   Define the database connections, accessible views, and Explore definitions.

3. **Explores:**

   Serve as a predefined set of joined views that answer specific business questions. They form the base for end-user analysis.

4. **Views:**

Represent database tables or logical entities. They define **dimensions** (attributes or columns) and **measures** (aggregated calculations).

5. **Dimensions and Measures:**

   - **Dimensions** appear in SQL `SELECT` and `GROUP BY` clauses.

   - **Measures** represent aggregations such as `SUM`, `COUNT`, or `AVERAGE`.

Task 1: Creating a View

Steps Performed:

1. Entered **Development Mode** in Looker.

2. Opened the **qwiklabs-ecommerce** project from the Develop tab.

3. Created a new view file named `users_limited.view`.

4. Moved the file into the `views` folder for better organization.

5. Added the following configuration and fields:

View Definition:

```
view: users_limited {
  sql_table_name: `cloud-training-demos.looker_ecomm.users` ;;
}
```

Dimensions:

```
dimension: id {
  primary_key: yes
  type: number
  sql: ${TABLE}.id ;;
}

dimension: country {
  type: string
  map_layer_name: countries
  sql: ${TABLE}.country ;;
}

dimension: email {
  type: string
  sql: ${TABLE}.email ;;
}

dimension: first_name {
  type: string
  sql: ${TABLE}.first_name ;;
}

dimension: last_name {
  type: string
  sql: ${TABLE}.last_name ;;
}
```

Measure:

```
measure: count {
  type: count
  drill_fields: [id, last_name, first_name]
}
```

1. Saved changes, validated LookML, and committed the modifications with a message.

2. Deployed the project to production.

Outcome:

A new view named `users_limited` was successfully created and linked to the users table.

Task 2: Joining the View to an Existing Explore

Steps Performed:

1. Opened the `training_ecommerce.model` file from the models folder.

2. Added a join statement to connect the `users_limited` view to the existing `events` Explore:

```
join: users_limited {
  type: left_outer
  sql_on: ${events.user_id} = ${users_limited.id} ;;
  relationship: many_to_one
}
```

1. Saved and validated the LookML model.

2. Committed and deployed the changes to production.

Verification:

- Navigated to **Explore → Events → Users Limited**.

- Selected **First Name** (dimension) and **Count** (measure).

- Executed the query to generate a two-column visualization showing the first names and their counts.

Result:

The join between the `events` Explore and the `users_limited` view worked as expected, displaying accurate aggregated user data.

Key Learnings

- LookML provides a structured and reusable way to model database relationships and calculations.

- Views encapsulate field definitions and can be easily reused across multiple models.

- The use of **Development Mode** and **Git integration** in Looker ensures version control and safe deployment practices.

- Joining views effectively allows deeper data exploration and cross-table analysis.

Conclusion

This lab demonstrated the core concepts of LookML and its role in data modeling within Looker.

By creating and joining views, validating and deploying LookML code, and exploring data interactively, the lab reinforced practical understanding of Looker's modeling framework and version-controlled workflow.

Lab Title:

Looker Final Challenge Lab — Online Sales Data Analysis

Overview

This final challenge lab tested the practical application of Looker and Looker Studio skills acquired throughout the course. The tasks simulated a real-world data analyst scenario involving data modeling, visualization, and dashboard creation.

The lab required completing three main objectives using **BigQuery**, **Looker Studio**, and **Looker**, without step-by-step guidance. Success in this challenge demonstrated the ability to independently analyze, model, and visualize online sales data for the Sales team.

Challenge Scenario

You have recently joined as a **Junior Data Analyst** and are tasked with assisting the Sales team in analyzing and visualizing online sales data.

Your responsibility was to perform the following tasks:

1. Create a **Looker Studio report** using BigQuery public data.

2. Build a **Looker view** and join it to an existing Explore.

3. Design a **Looker dashboard** using the newly created view.

The challenge tested understanding of Looker's data modeling concepts, SQL abstraction using LookML, and visualization creation within both Looker and Looker Studio.

Setup and Environment

- **Platform Used:** Google Cloud Skills Boost (Temporary Lab Environment)

- **Browser Recommended:** Google Chrome (Incognito Mode)

- **Access Mode:** Temporary student credentials

- **Database Source:** BigQuery public dataset `thelook_ecommerce`

- **Duration:** Fixed lab time with automated scoring system

The lab operated within a real cloud environment — not a simulation — requiring students to independently troubleshoot and research any errors.

Tasks and Implementation

Task 1: Create a New Report in Looker Studio

Objective:

Build a report named **Online Sales** by connecting to a BigQuery public dataset and visualizing order data over time.

Steps Performed:

1. Opened **Looker Studio** using the provided lab credentials.

2. Created a new report titled **Online Sales**.

3. Connected the report to the dataset:

   `Public Datasets → qwiklabs-gcp-03-975d0ef4067e → thelook_ecommerce → orders` .

4. Added a **Time Series Chart** visualizing order trends over time.

5. Applied a theme and a title for presentation consistency.

6. Verified the connection to BigQuery and saved the report.

Result:

A Looker Studio report was successfully created, connecting to BigQuery and visualizing online order trends over time.

✅ *Assessment Completed — "Create a new BigQuery data source in Looker Studio"*

Task 2: Create a New View and Join It to a Looker Explore

Objective:

Develop a new LookML view named **users_region**, define dimensions and measures, and join it to the existing **Events Explore**.

Steps Performed:

1. Accessed **Development Mode** in Looker.

2. Opened the **qwiklabs-ecommerce** project and created a new view file named `users_region.view` .

3. Added the following LookML definitions:

View Definition:

```
view: users_region {
  sql_table_name: `cloud-training-demos.looker_ecomm.users` ;;

  dimension: id {
    primary_key: yes
    type: number
    sql: ${TABLE}.id ;;
  }

  dimension: state {
    type: string
    sql: ${TABLE}.state ;;
  }

  dimension: country {
    type: string
    sql: ${TABLE}.country ;;
  }

  measure: count {
    type: count
    drill_fields: [id, state, country]
  }
}
```

1. Saved and validated the LookML code.

2. Opened the **training_ecommerce.model** file and joined the new view with the **Events Explore**:

```
join: users_region {
  type: left_outer
  sql_on: ${events.user_id} = ${users_region.id} ;;
  relationship: many_to_one
}
```

1. Committed the changes and deployed to production.

Result:

The `users_region` view was successfully created, joined to the **Events Explore**, and deployed.

✅ *Assessment Completed — "Create a new view and join it to a Looker Explore"*

Task 3: Create a New Dashboard in Looker

Objective:

Use the `users_region` view to create a visual dashboard showing the top three event types based on user count.

Steps Performed:

1. Navigated to the **Explore Events** section in Looker.

2. Selected the `users_region` view fields for analysis.

3. Created a **Bar Chart** displaying the top 3 event types with the highest user counts.

4. Customized the visualization by adjusting colors, titles, and axis labels for better readability.

5. Saved the visualization to a new **Looker Dashboard** titled **User Events**.

6. Validated and finalized the dashboard layout.

Result:

A dashboard named **User Events** was created, presenting a clear visualization of user engagement by event type.

✅ *Assessment Completed — "Create a new dashboard in Looker"*

Key Learnings

- **Looker Studio** enables seamless integration with BigQuery datasets for interactive visualization and trend analysis.

- **LookML** provides a structured and reusable way to define data models, including dimensions, measures, and joins.

- **Explores** in Looker simplify user-driven data analysis by predefining relationships and data access paths.

- **Dashboards** enhance the ability to communicate insights visually and support business decision-making.

Conclusion

This challenge lab consolidated the practical understanding of data modeling and visualization using Google Cloud's Looker ecosystem. By completing all three tasks independently, the following key skills were demonstrated:

- Building data reports using Looker Studio and BigQuery connections.

- Creating and deploying LookML models with dimensions, measures, and relationships.

- Developing analytical dashboards for business insights and decision support.

Successfully completing the lab validated comprehensive proficiency in **Looker data modeling**, **BigQuery data integration**, and **data visualization** within Google Cloud's analytics environment.