

Introduction to Looker Studio

Optimizing SQL for Analytics in the Cloud

Objectives

1. Connect to a data source in Looker Studio
2. Differentiate between **dimensions** and **metrics**
3. Build basic visualizations: tables, bar charts, line charts, scorecards
4. Add simple filters and controls (dropdowns, sliders)
5. Create and apply a **calculated field**.

What is Looker Studio?

- Looker Studio is a browser-based data visualization and BI tool by Google.
- Free to use and allows for easy sharing and collaboration
- Can connect to many different data sources: csv, Google Sheets, BigQuery, Google Analytics, and more
- Uses a drag-and-drop interface

Looker Studio Workflow

- **Connect** to a dataset to create a data source.
- **Model** the data, creating calculated fields, adjusting the aggregations, or blend data from different sources
- **Visualize** by adding components to display or modify the data.
 - Charts, tables, maps
 - Controls to filter or refine
 - Text annotations, shapes, images
- **Share and collaborate**

Key Concepts

- **Data Source:** where your data lives (eg. Google Sheets, SQL, CSV)
- **Dimension:** Categories or labels (customer, product, region, order date)
- **Metric:** Measurements (Revenue, Quantity Sold, Discount)
- **Aggregation:** Performed on metrics; SUM, AVG, COUNT

Think: dimension is your grouping variable and metric is the value you aggregate by group or overall.

Key Concepts

Calculated fields are created using formulas to create new metrics or dimensions that are derived from your data.

- Price * Discount
- TODAY() - 7
- IF(FINAL GRADE > 35, "PASS", "FAIL")

Parameters act like variables in a programming language.

- Can be referenced in calculated fields.
- Can be passed back to a SQL query in a BigQuery data source

Variables hold the result of a query, and can be used to add data to a text box.

Key Concepts

Filters refine or reduce the data that is shown in a component.

Filters can apply to a chart, control, page, or the entire report.

Can do simple Include/Exclude filters, or chain multiple clauses together with AND/OR logic.

Can also use regular expressions to do more complex matches.

Additional Resources

- Looker Studio Documentation:
 - <https://cloud.google.com/looker/docs/studio>