Lab 7: Exploring a Dataset in Google Data Studio

Overview

In this lab, you will visually explore Google BigQuery data tables inside of Google Data Studio. You will look for relationships and insights between fields in your dataset.

Objectives

- Connect Google Data Studio to Google BigQuery data tables
- Create a bar chart, data table, and scatter chart
- Explore the relationships between dimensions and measures

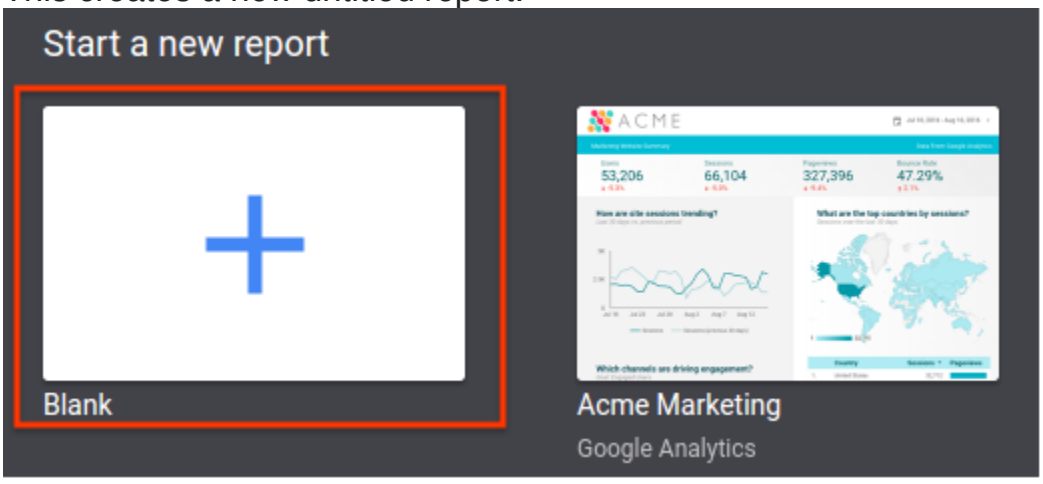
Create a Blank Report

Step 1

Open datastudio.google.com

Step 2

On the Reports page, in the Start a new report section, click the Blank template. This creates a new untitled report.



Step 3

If prompted, click "I accept the terms and conditions" and then click Accept. You may need to click the Blank template again after agreeing to the terms and conditions.

Step 4

In the Add a data source window, click Create new data source.

Step 5

For Connectors, click BigQuery.

Step 6

For Authorization, click Authorize. This allows Data Studio access to your GCP project.

Step 7

In the Request for permission dialog, click Allow to give Data Studio the ability to view data in BigQuery. You may not receive this prompt if you previously used Data Studio.

Step 8

Click on My Projects

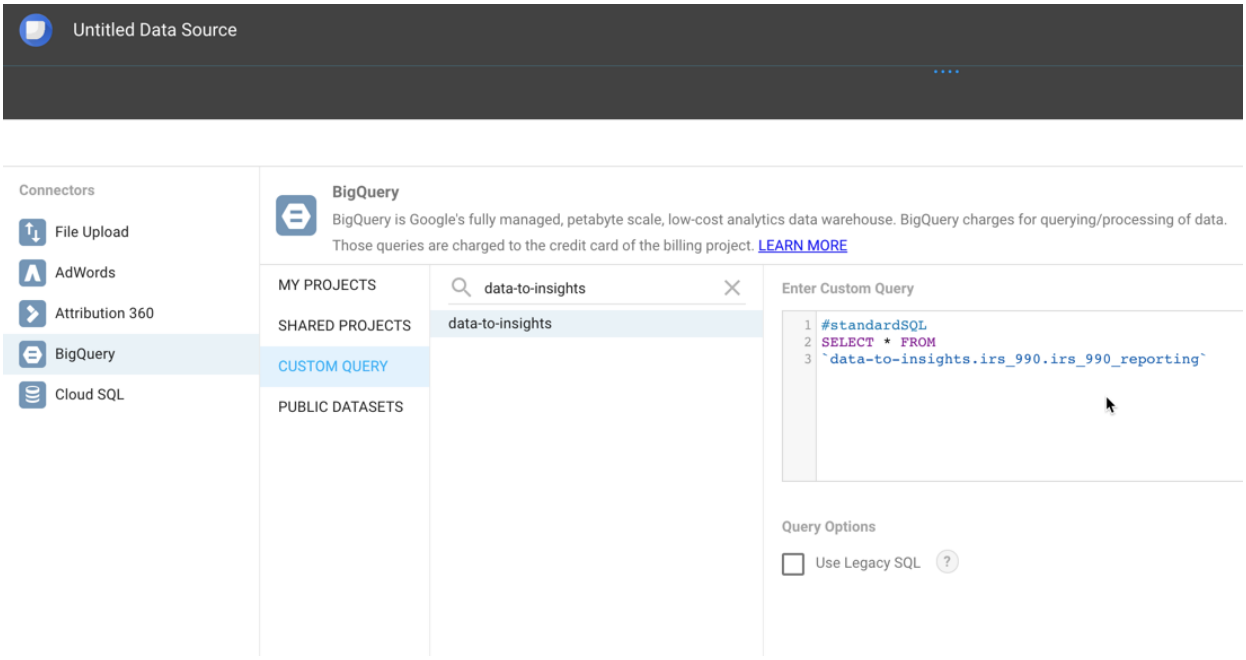
Step 9

Find your project name and the irs_990 dataset you created in an earlier labNote: ***If you do not have a dataset already created***, use the below public table:

- Click BigQuery
- Select Custom Query
- Choose your project
- Paste in the below query

```
#standardSQL
SELECT * FROM
`data-to-insights.irs_990.irs_990_reporting`
```

- Uncheck Use Legacy SQL



Step 10

For table, click `irs_990_2015_reporting` (or if you did not create this table earlier, use the above steps to query from the public data table)

Step 11

In the upper right corner of the window, click **Connect**.

Step 12

Once Data Studio has connected to the BigQuery data source, the table's fields are displayed. You can use this page to adjust the field properties or to create new calculated fields. Click Add to report.

Step 13

When prompted, click Add to report.

Step 14

In the Request for permission dialog, click Allow to give Data Studio the ability to view and manage files in Google Drive. You may not receive this prompt if you previously used Data Studio.

Create a Bar Chart to Compare Revenue and Expenses

Step 1

At the top of the page, click Untitled Report to change the report name. For example, type "Exploring U.S. 2015 Non-Profit Data"

Step 2

When the report editor loads, click Insert > Bar chart.

Step 3

Using the handle, draw a rectangle on the report to display the chart.

Step 4

In the Bar chart properties window, on the Data tab, notice the value for Data Source (IRS_990_2015_reporting) and the default values for Dimension and Metric.

Step 5

Change the Dimension metric to name

Step 6

Change the Measure metric to total_revenue

Step 7

Add a second Measure metric for total_functional_expenses

Step 8

Resize and reposition the bar chart on the page to your liking

Step 9

Click View in the upper right corner to preview what the Published dashboard will look like

Step 10

Hover over the 2015 Non-Profit with the most Revenue for 2015

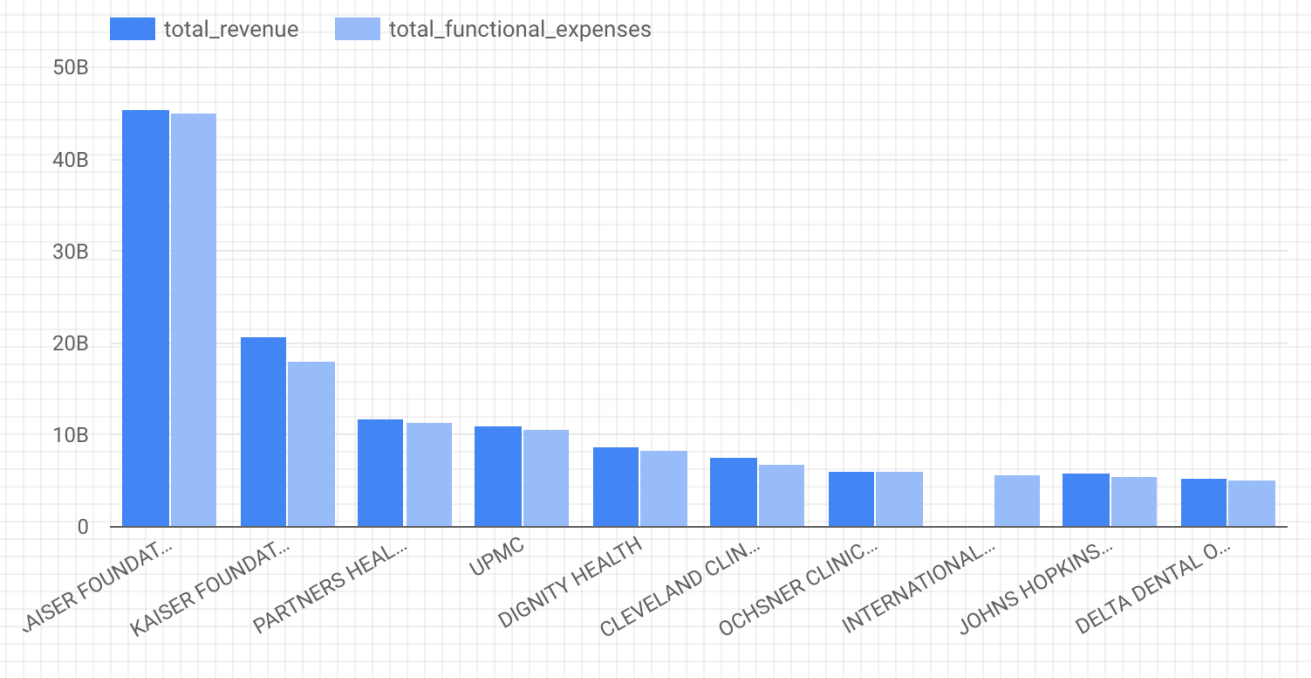
Step 11

Insights: Are there any insights you can glean from the relationship between total revenue and total functional expenses by looking at the bar chart?

Insight: Generally for these Non-Profits, Revenue matches Expenses for the year

Step 12

Return to the authoring view by clicking Edit in the upper right



Create a Data Table to show Employee Counts

Step 1

Click Insert > Table

Step 2

Using the handle, draw a rectangle on the report to display the chart.

Step 3

In the **Table Properties** window, on the **Data** tab, notice the value for Data Source (IRS_990_2015_reporting) and the default values for Dimension and Metric.

Step 4

Change the **Dimension** metric to `name`

Step 5

Change the **Measure** metric to `num_employees`

Step 6

Re-size and reposition the bar chart on the page to your liking

	name	num_employees ▼
1.	A FAMILY AFFAIR BRIDGES INC	787,050
2.	PARTNERS HEALTHCARE SYSTEM INC	70,634
3.	KAISER FOUNDATION HOSPITALS	66,570
4.	UPMC	63,204
5.	TRUSTEES OF THE UNIVERSITY OF P...	56,003
6.	CLEVELAND CLINIC FOUNDATION	51,023
7.	DIGNITY HEALTH	49,928

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Create a Scatter Chart to show financial ratios

Step 1

Click **Insert** > Scatter Chart

Step 2

Using the handle, **draw a rectangle** on the report to display the chart.

Step 3

In the **Scatter Chart Properties window**, on the Data tab, notice the value for Data Source `IRS_990_2015_reporting` and the **default values for Dimension and Metric**.

Step 4

Change the Dimension metric to `name`

Step 5

Change the Measure X metric to `total_liabilities_and_net_asset_balances`

Step 6

Change the Measure Y metric to `total_liabilities`

Step 7

Re-size and reposition the bar chart on the page to your liking

Step 8

Click **View** to preview

Step 9

Insight: Non-Profit Organizations below an imaginary diagonal line mean they have fewer liabilities relative to net assets. Scroll over a few of the outlier dots in the Scatter Chart to see this relationship.

Congratulations!

You have completed the **Google Data Studio** lab

Learning Review

Google Data Studio can source data directly from Google BigQuery
Dimensions and measures correspond to data fields in your data tables

References

- Visualizing BigQuery Data using Google Data Studio

Provide Feedback on this Lab