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Tableau

- Tableau is a commercial reporting package that can connect to various data sources.
  - Similar to PowerPivot, but also able to manage multiple tables and charts on a dashboard
- Tableau can use geolocations to display data, perform calculations, and filter data.

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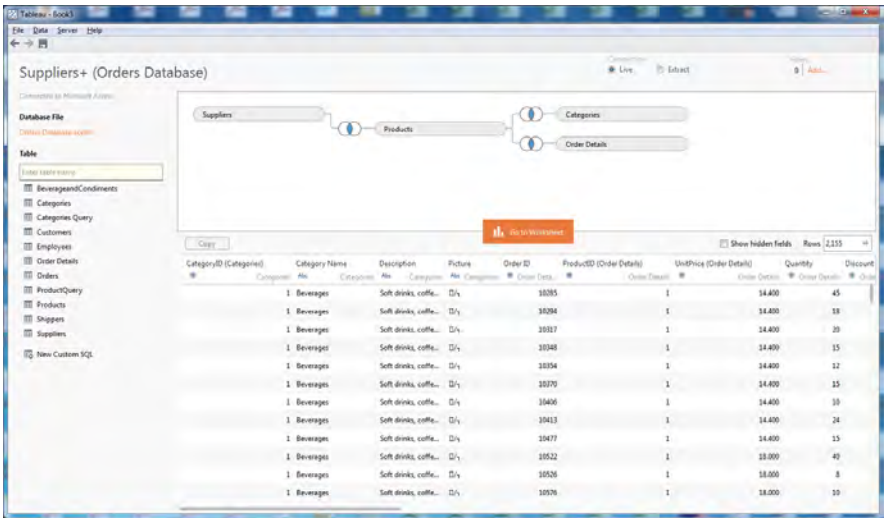
Tableau Data and Relationships



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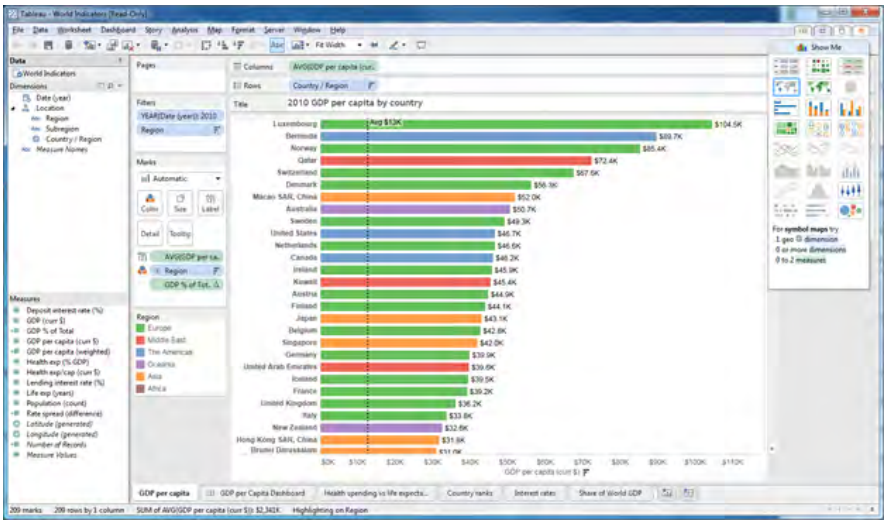
Sample Workbook



- Workbooks can represent data graphically.

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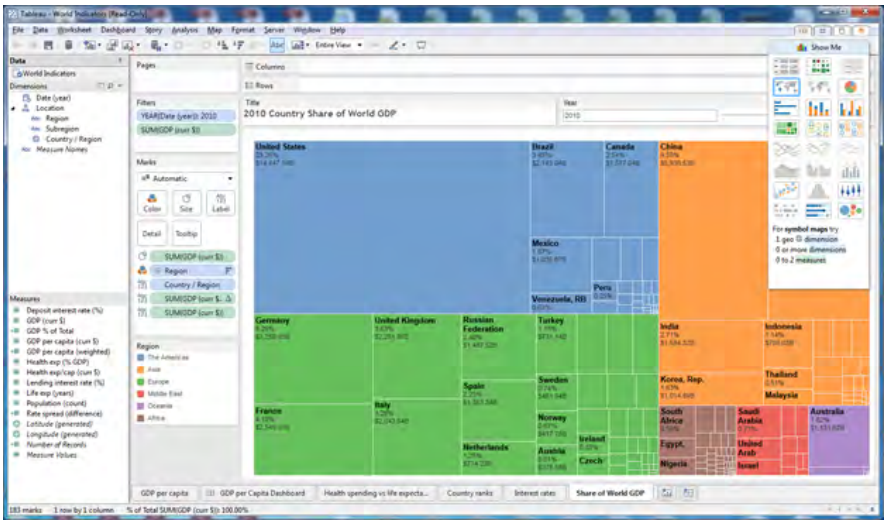
Multiple Views

- Multiple views of the data can be presented simultaneously.
- In this example, trends appear at the top, and status appears at the bottom.

Variety of Representations



- Box sizes, colors, groupings, and other representation methods can also convey information.

View All View Keyframes

Tableau Data Connections

- Like PowerPivot and Access, Tableau can connect to remote databases.
- Tableau can take data from database tables, spreadsheets, text files, and other media and bring it into its own dashboards.
    - Tableau can integrate data that would otherwise be difficult to pull together.
- Data is automatically refreshed from sources, as needed.

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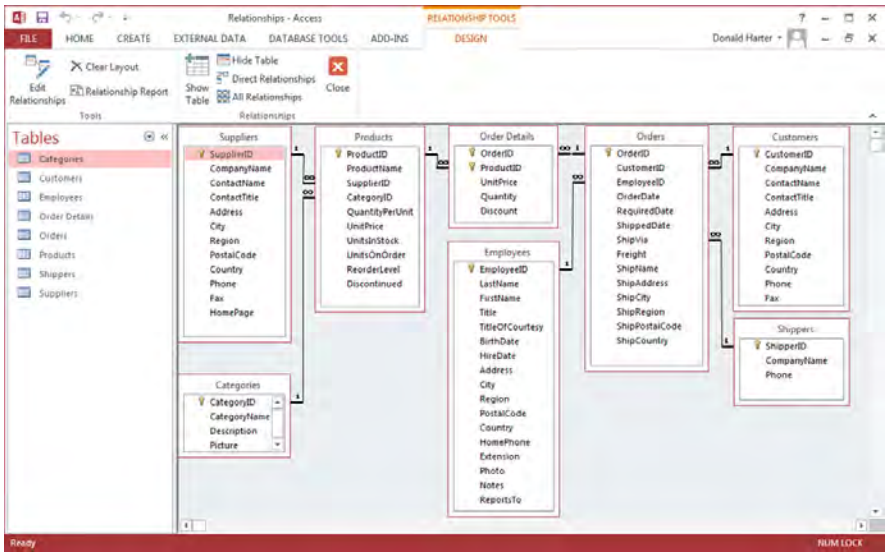
Tableau Data Connections: Access Database



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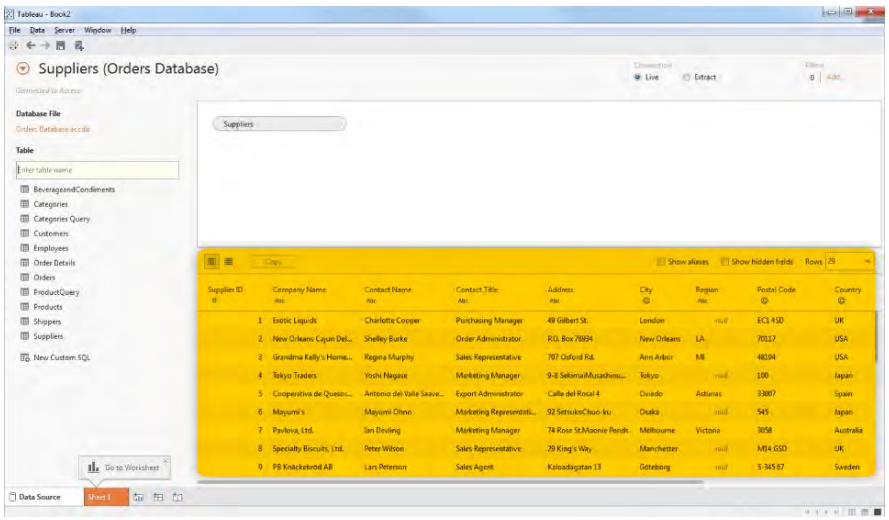
Convert Data to Tableau



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View All View Keyframes

Tableau Relationships

- Relationships can be automatically built from preexisting relationships in the source databases.
  - Relationships can also be constructed manually.
- Common fields between tables join the tables into a relationship.

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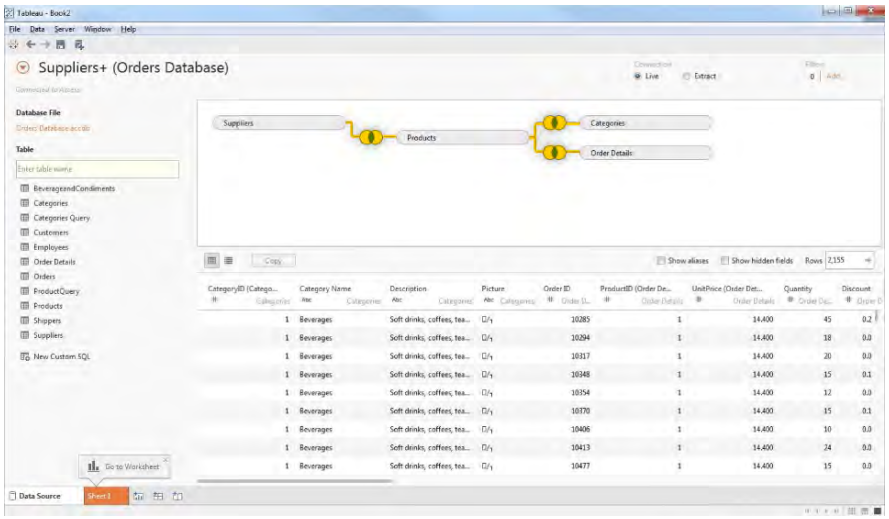
Tableau Relationships (cont.)



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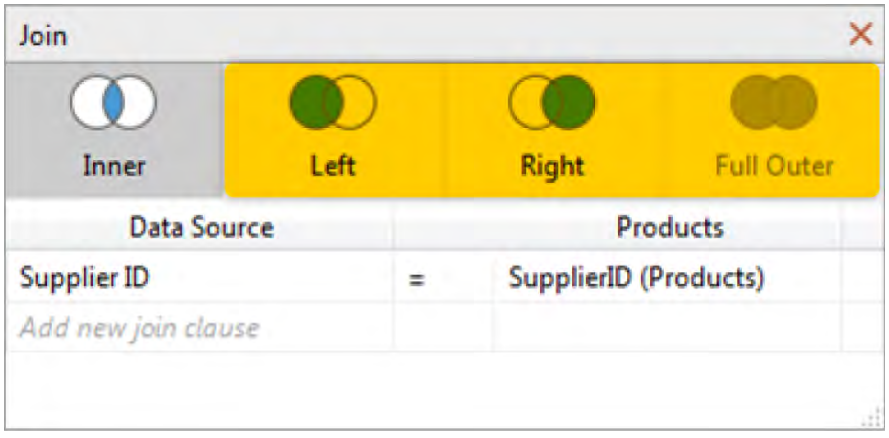
Option to Select Type of Join



- The inner join is the type we have used most frequently.
- The left join, right join, and outer join are other options.

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View All View Keyframes

Building Tableau Worksheets

- Worksheets are the basic unit of Tableau.
- Worksheets can include tabular data or graphical representations of data.
- Data can be drawn from any data source connected to Tableau.

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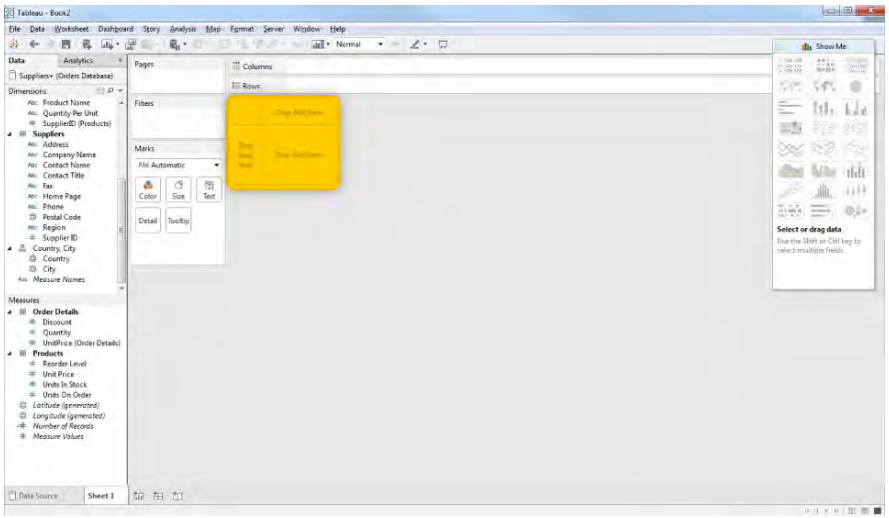
Tableau Worksheet



- Data sources are shown on the left, including in this example: the product category, order detail, product, and supplier databases.
- From the data sources on the left, we drag and drop items into the middle area to create the worksheet.

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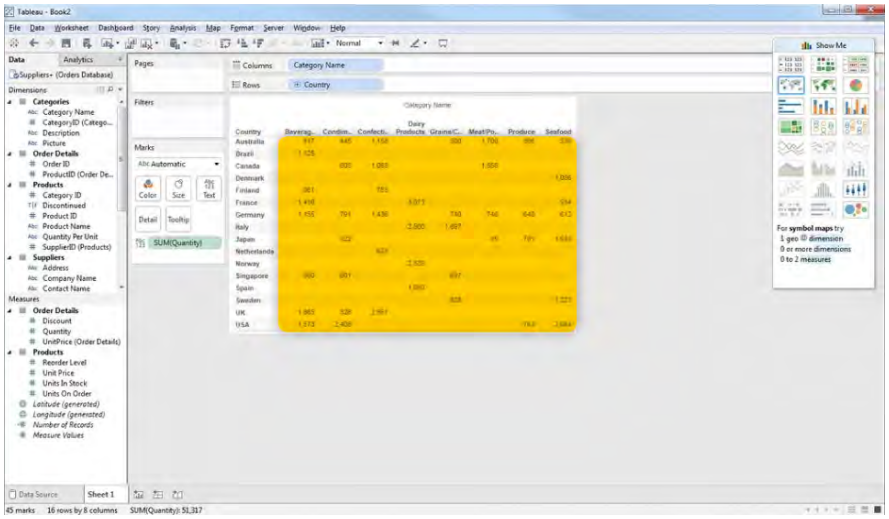
Tabular Data Example



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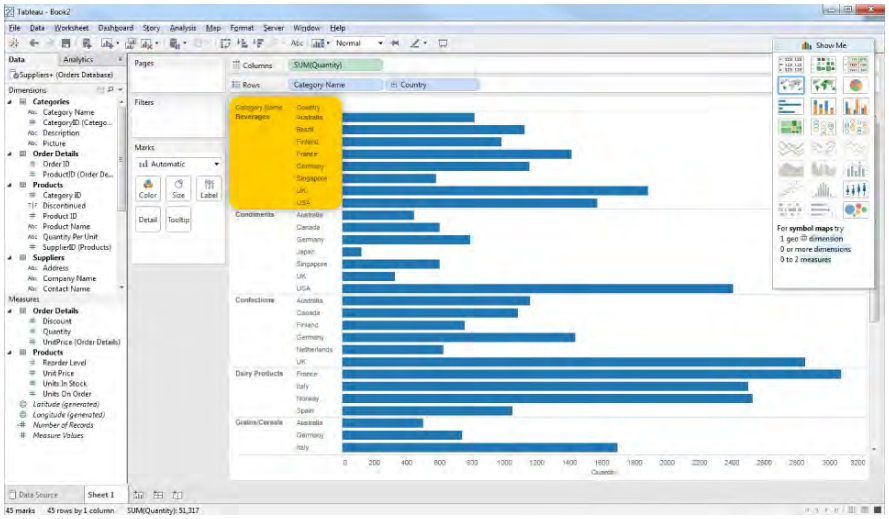
Horizontal Bar Example



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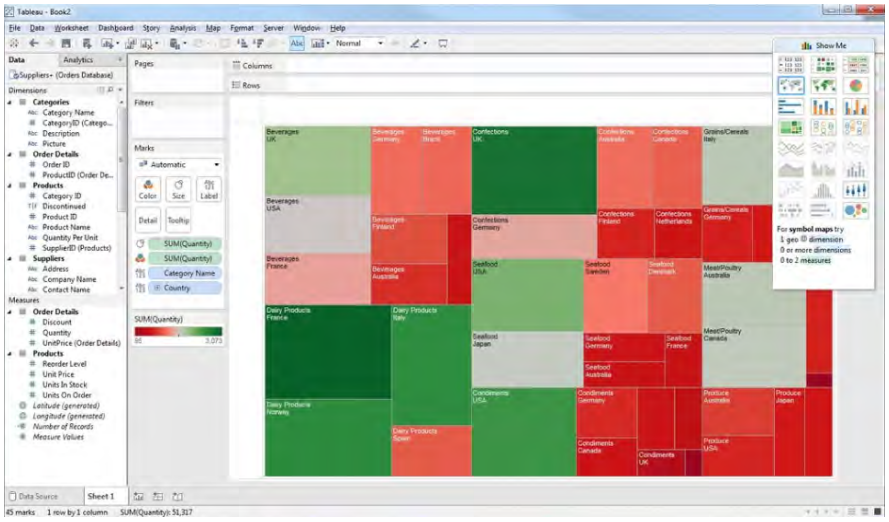
Treemap Example



- Size, color, and location represent different features.
- In this example, box size and color indicate quantity, and location indicates product category.

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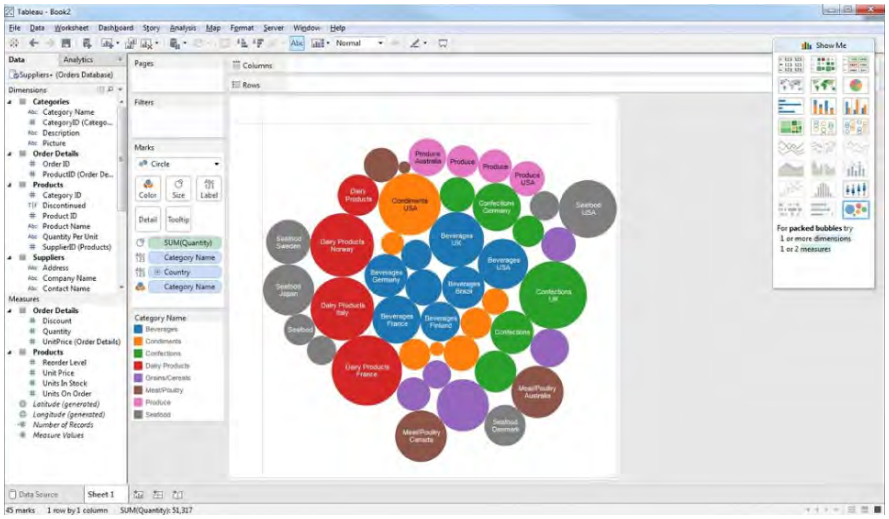
Packed Bubble Example



- Circle sizes represent sales.
- Colors represent product categories.

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View All View Keyframes

Geolocations

- Tableau uses geolocation information to merge data with a mapping representation.
- Tableau will automatically scan data to find geographic information such as postal codes, cities, countries, etc.

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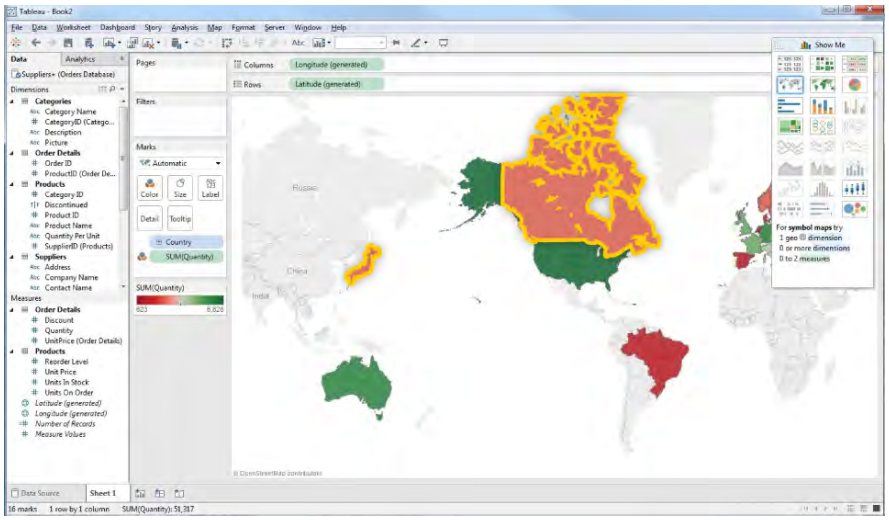
World Map Example:
Sales Data by Country



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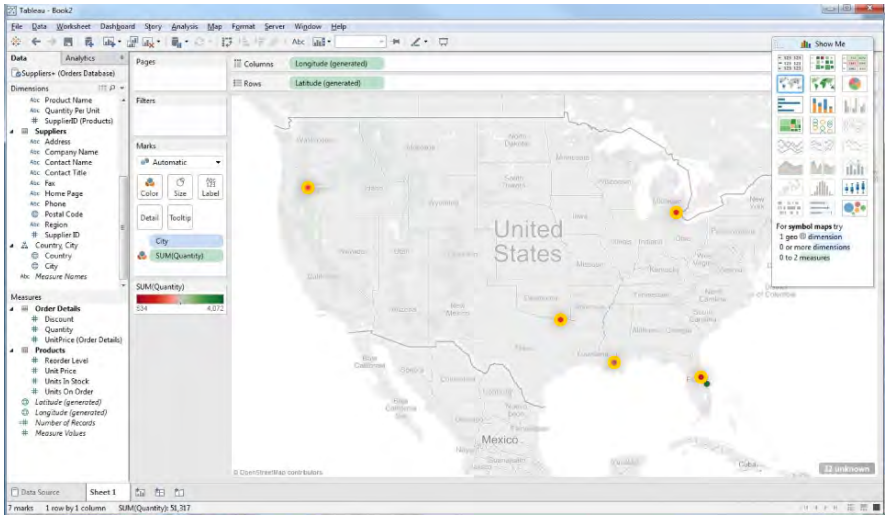
Domestic Map Example:
Sales by City



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View All View Keyframes

Calculations

- Calculations can be added when generating tabular or graphic data.
- All mathematical functions are available and can be combined for tailored calculations, such as sales revenue after accounting for discounts:

$$Quantity * Price * (1 - Discount\ Rate)$$

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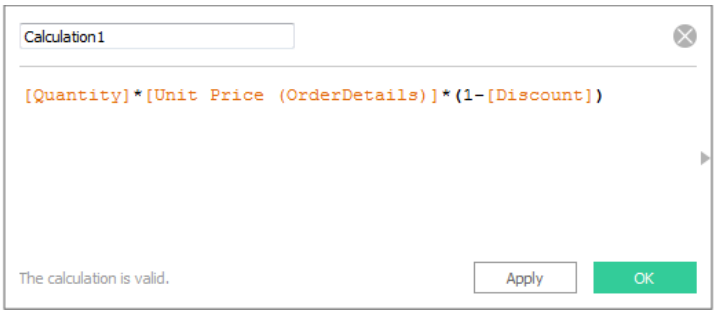
Example Calculation



- Calculations are built via point-and-click.
- The results can then drive tabular and graphic data.

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View All View Keyframes

Filters

- Tableau filters work similarly to filters in Excel and Access.
- Filters allow you to select data based on specific characteristics.
- Filters can be used in both tables and graphs.

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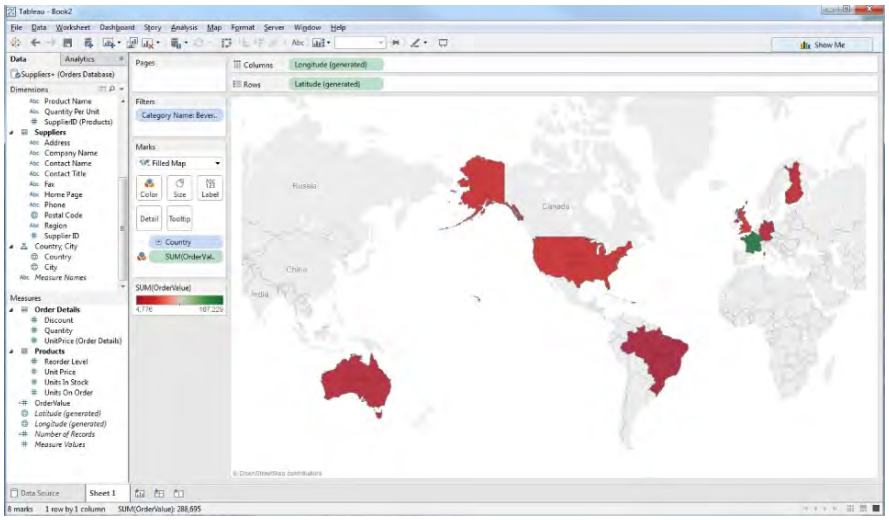
Example Filter



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View All View Keyframes

Building a Dashboard

- A dashboard is a collection of worksheets.
- The first step in building a dashboard is to build all the worksheets to be used in the dashboard.
  - These can include tables, charts, geographical representations, etc.
- The second step is to drag and drop the worksheets into the desktop (after activating Dashboard mode).

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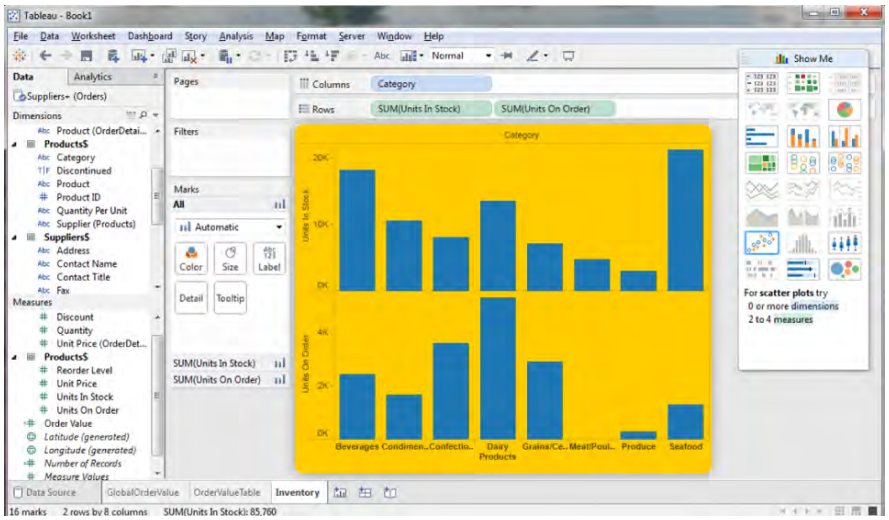
Drag and Drop First Worksheet



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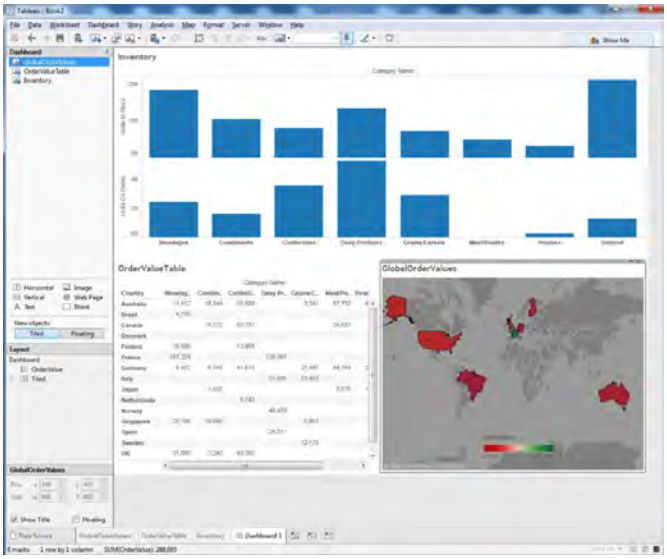
Drag and Drop Additional Worksheets



- As you position each item, Tableau will automatically reallocate space on the screen.
- The chart, table, and geographical representation will automatically update whenever the data are refreshed.

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