

TABLEAU INTRO

Introducing Tableau

Tableau is one of the fastest growing data visualization tools.

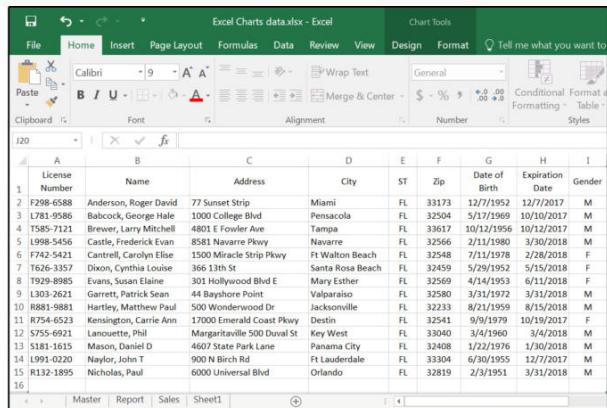
- It simplifies analyzing raw data.
- The visualizations allow for ease of understanding.
- Create Charts, Graphs, Reports, Dashboards, and more
- Better understanding of the data assists in better business decisions
- Viz of the Day or Week

What Products Does Tableau Have?

- Create Data Visualizations and Reports with:
 - Tableau Desktop Professional or Personal Edition (14 day Free Trial)
 - Tableau Online (Annual Subscription)
- Publish Reports for Audiences with:
 - Tableau Server (14 day Free Trial)
 - Tableau Reader (Free Resource)
 - Tableau Public (Free Resource)
- Facilitates data cleaning with:
 - Tableau Prep (14 day Free Trial)

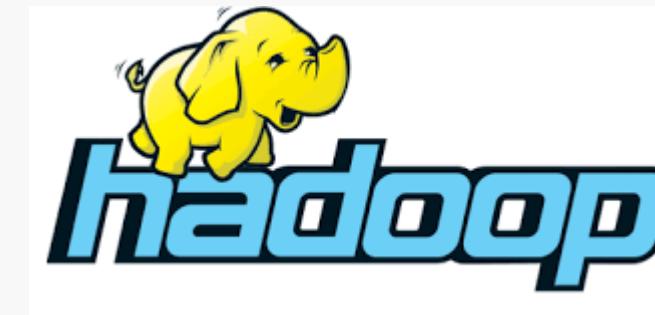
Some Databases Supported by Tableau

- “Connect to hundreds of data sources” :
<https://www.tableau.com/products/techspecs>



A screenshot of Microsoft Excel showing a data table titled "Excel Charts data.xlsx". The table contains 16 rows of data with columns labeled License Number, Name, Address, City, ST, Zip, Date of Birth, Expiration Date, and Gender. The data includes various names, addresses in Florida, and gender codes (M or F).

	License Number	Name	Address	City	ST	Zip	Date of Birth	Expiration Date	Gender
2	I29B-6588	Anderson, Roger David	77 Sunset Strip	Miami	FL	33173	12/7/1952	12/7/2017	M
3	L781-9586	Babcock, George Hale	1000 College Blvd	Pensacola	FL	32504	5/17/1969	10/10/2017	M
4	T585-7121	Brewer, Larry Mitchell	4801 E Fowler Ave	Tampa	FL	33617	10/12/1956	10/12/2017	M
5	L998-5456	Castle, Frederick Evan	8581 Navarre Pkwy	Navarre	FL	32566	2/11/1980	3/30/2018	M
6	F742-5421	Cantrell, Carolyn Elise	1500 Miracle Strip Pkwy	Ft Walton Beach	FL	32548	7/11/1978	2/28/2018	F
7	T626-3357	Dixon, Cynthia Louise	366 13th St	Santa Rosa Beach	FL	32459	5/29/1952	5/15/2018	F
8	T929-8985	Evans, Susan Elaine	301 Hollywood Blvd E	Mary Esther	FL	32569	4/14/1953	6/1/2018	F
9	L303-2621	Garrett, Patrick Sean	44 Bayshore Point	Valparaiso	FL	32580	3/1/1972	3/1/2018	M
10	I303-2622	Hartley, Michael Paul	1000 Margaritaville	Miramar	FL	33026	9/2/1972	9/2/2017	M
11	8754-6523	Henderson, Carie Ann	17000 Emerald Coast Pkwy	Destin	FL	32541	9/9/1979	10/19/2017	F
12	6755-6921	Lanouette, Phil	Margaritaville 500 Doval St	Key West	FL	33040	3/4/1960	3/4/2018	M
13	S818-1615	Mason, Daniel D	4607 State Park Lane	Panama City	FL	32408	1/21/1976	1/30/2018	M
14	W991-0220	Naylor, John T	900 N Birch Rd	Ft Lauderdale	FL	33304	6/30/1955	12/7/2017	M
15	R132-1895	Nicholes, Paul	6000 Universal Blvd	Orlando	FL	32819	2/3/1951	3/31/2018	M
16									



Common Data Visualizations

- *Using the right pictures to tell the right story.*
- Here is a general guide for when you need to:
 - Compare categories – Use a bar chart
 - Make comparisons over time or to study trends – use a line chart
 - Show proportion or part-to-whole relationships – use stacked bar charts
 - Understand the relationship between variables – use a scatterplot
 - See the frequency of values - use a histogram or box and whisker plot
 - Location – Use a map



CONNECTING TO DATA SOURCES

Connecting to an Excel Data Source

Tableau - Book1

File Data Server Help

Connect

To a File

- Microsoft Excel
- Text file
- JSON file
- Microsoft Access
- PDF file
- Spatial file
- Statistical file
- More...

To a Server

- Tableau Server
- Microsoft SQL Server
- MySQL
- Oracle
- Amazon Redshift
- More...

Saved Data Sources

- Sample - EU Superstore
- Sample - Superstore
- World Indicators

Open

10_01_BarCharts

forecasting

Freshman_Retakes...

XFER_FOSH_Single...

FROSH_2008_201...

XFER_FOSH_Single...

XFER_FOSH_Separ...

XFER 1st year 2019...

FROSH_2008_201...

Staff_Equity_Stud...

Staff_Equity_FRW...

Summer_Courses....

Summer_Students...

Staff_Salary_Equity...

Summer_Students...

Discover

Training

- Getting Started
- Connecting to Data
- Visual Analytics
- Understanding Tableau
- More training videos...

Resources

- Get Tableau Prep
- Blog - Tableau Conference Europe customer speaker applications are now open
- Forums

VIZ OF THE WEEK

Are states financially healthy? →

Update to 2019.1.2 Now

What If You Need to Work With More Than One Data File?

- Pull in multiple data sources and or Join Your Data
- **For Joins:**
- The tables must have related column fields
- Perform Left, Right, Inner Joins on the common column fields
- For more information on how to perform joins in tableau go to:
- https://onlinehelp.tableau.com/current/pro/desktop/en-us/joining_tables.htm

Double click on or drag in the sheet(s)
you want to work with.

The screenshot shows the Tableau software interface. At the top, the title bar reads "Tableau - Book1". Below it is a menu bar with "File", "Data", "Server", "Window", and "Help". To the right of the menu is a toolbar with icons for back, forward, refresh, and search. The main workspace is divided into two sections: "Connections" on the left and "Sheets" on the right. In the "Connections" section, there is one entry: "Company Orders Microsoft Excel". In the "Sheets" section, there is one entry: "Customers". Below the "Sheets" section, there is a note about using the Data Interpreter, which suggests it might be able to clean the Microsoft Excel workbook. At the bottom of the screen, there is a table preview showing columns for "#", "Customer Name", "Customer First Name", and "Customer Last Name". The table has three rows, each corresponding to a customer record. A "Sort fields" button and a "Data source order" dropdown are also visible at the bottom.

THE DATA SOURCE TAB

Viewing the Data

Tableau - Barcharts

File Data Server Window Help

Add

Connections

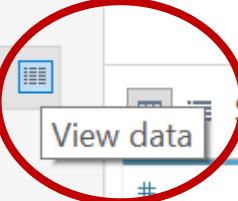
- Company Orders Microsoft Excel

Sheets

Use Data Interpreter
Data Interpreter might be able to clean your Microsoft Excel workbook.

- Customers
- Orders
- Products
- New Union

View data



View Data: Customers

100 rows

Address	City	CustFirstName	CustFullName	CustLastName
556 Lakewood Park	Bismarck	Cally	Cally Reynolds	Reynolds
4829 Badeau Parkway	Chattanooga	Sydney	Sydney Bartlett	Bartlett
2 Rockefeller Avenue	Waco	Hunter	Hunter Newton	Newton
87 Brentwood Park	Dallas	Brooke	Brooke Perkins	Perkins
99 Sage Street	Reno	Nolan	Nolan Slater	Slater
6 Jana Park	San Antonio	Germaine	Germaine Green	Green
75 Erie Terrace	Dayton	Medge	Medge Ratliff	Ratliff
39464 Debra Lane	Young America	Nash	Nash Vasquez	Vasquez
8231 Crowley Crossing	Cincinnati	Michael	Michael Rutledge	Rutledge
92483 Doe Crossing Drive	Lansing	Guy	Guy Ochoa	Ochoa
7316 Dryden Road	Memphis	Coby	Coby Lucas	Lucas
7746 Mitchell Point	New Haven	Merrill	Merrill Freeman	Freeman
181 Packers Way	Boston	Rae	Rae Hawkins	Hawkins
2 Farragut Crossing	Anchorage	Sade	Sade Santiago	Santiago
2 Namekagon Trail	Trenton	Judith	Judith Leonard	Leonard
8 Gerald Point	Orlando	Malik	Malik Faulkner	Faulkner
9 Blaine	Ashley	Blaine Ashley	(261) 759-5806	561 Basil Court
				Greensbor

Data Types

Sometimes you have to change the data type if Tableau does not read the data correctly.

For example, when you have product ID's or customer numbers.

The screenshot shows the Tableau Data Source editor interface. On the left, there are three data sources listed: Customers, Orders, and Products. Below them is a 'New Union' section. At the top right, there are buttons for 'Sort fields' and 'Data source order'. A dropdown menu is open over a specific column header, showing options: Number (decimal), Number (whole) (which is selected and highlighted in blue), Date & Time, Date, String, Boolean, Default (which has a checkmark), and Geographic Role. The main table area displays data from the 'Customers' source, with columns for Name and Cust Last Name. The first row shows 'Reynolds' and 'Bartlett'.

Name	Cust Last Name
Reynolds	Bartlett
Newton	
Perkins	
Slater	

Joining Tables

- Here are four of the different join types used in Tableau:
 - Join (Inner) – Returns records that have matching values in both tables
 - Left (Outer) Join – Return all records from the left table, and the matched records from the right table
 - Right (Outer) Join – Return all records from the right table, and the matched records from the left table
 - Full (Outer) Join – Return all records when there is a match in either left or right table

Customer Number is the common field between the Customers and Orders Sheets

The screenshot shows the Power BI Data Flow interface. On the left, under 'Connections', 'Company Orders (Microsoft Excel)' is selected. Under 'Sheets', 'Customers' and 'Orders' are listed. A 'New Union' option is also present. On the right, the 'Customers+ (Company Orders)' query is displayed. It shows a 'Join' dialog with four options: Inner, Left, Right, and Full Outer. The 'Inner' option is selected, and the condition 'Cust Num = CustNum (Orders)' is shown. Below the dialog is a preview of the joined data, which includes columns from both the 'Customers' and 'Orders' tables, such as 'Cust Num', 'Cust First Name', 'Cust Last Name', 'Cust Full Name', and 'Phone'.

#	Abc Customers	Abc Customers	Abc Customers	Abc Customers	Abc Customers
Cust Num	Cust First Name	Cust Last Name	Cust Full Name	Phone	
77	Graham	Frederick	Graham Frederick	(70)	
42	Jael	Rice	Jael Rice	(39)	

Joining Sheets with the same field items, but different column names.

The screenshot shows the Power BI Data Flow interface. On the left, the 'Connections' pane lists a connection to 'Company Orders Microsoft Excel'. The 'Sheets' pane shows three sheets: 'Customers', 'Orders', and 'Products'. A checkbox for 'Use Data Interpreter' is checked, with a note explaining it might clean the Microsoft Excel workbook. Below these are buttons for 'Customers', 'Orders', 'Products', and 'New Union'.

The main area displays a data flow diagram with three tables: 'Customers', 'Orders', and 'Products'. 'Customers' is connected to both 'Orders' and 'Products'. A 'Join' dialog box is open, showing four join types: Inner, Left, Right, and Full Outer. The 'Data Source' dropdown is set to 'Enter search text'. The 'Customers' table is expanded, showing fields like Address, City, Cust First Name, Cust Full Name, Cust Last Name, Cust Num, Phone, State, ZIP Code. The 'Orders' table is also expanded, showing fields like CustNum (Orders), Date of Purchase, Order Num, Quantity, SKU. At the bottom of the join dialog, there is a 'Create Join Calculation...' button.

Tableau File Types

- .twb -Tableau workbook most common file type stores a visualization, but not the source data.
- .tbtm -Tableau bookmark provides a connection to a worksheet it allows you to reference another workbook from within a file so you don't need to recreate the visualization in the current file.
- .twbx - packaged workbook stores extracted data and visualizations, a consumer can view them in Tableau or Tableau Reader.
- .tde (older versions) or .hyper (current) - Tableau data extract stores Tableau data as a filtered and aggregated extract – a subset of the original data.
- .tds files - store the server address, password, and whatever else you need to get access to a data source.
- .tdsx files packaged data source in a zip file contains .tds (Tableau data source file) and Excel, text, or other files used to create the data set.
- Check: https://help.tableau.com/current/pro/desktop/en-us/environment_filesandfolders.htm

Discrete (counts) data are represented by **blue pills** continuous data is represented by **green pills**.

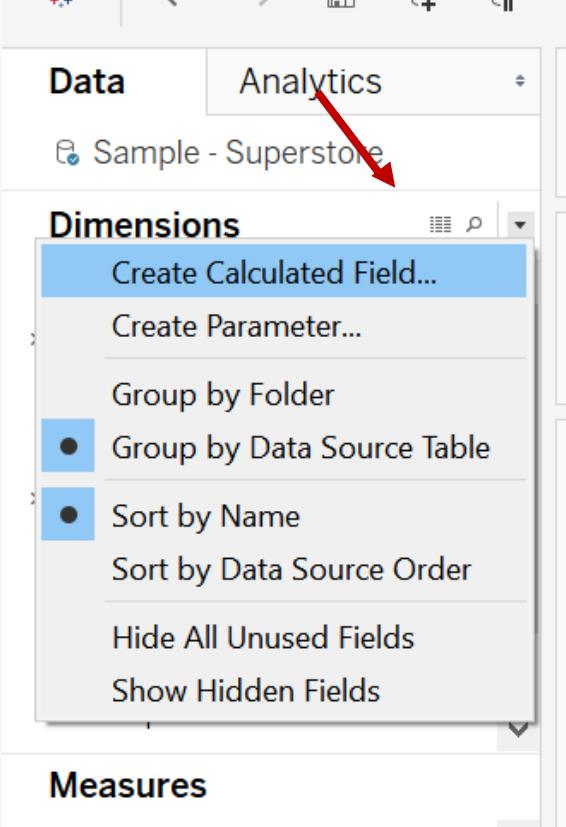
Shelves are the rows and columns slots that you drag your dimensions and or measures into to create the visualizations or charts.



- Blue things group your data
- Green things count your data
- Dimensions split up the view
- Measures fill the view

https://help.tableau.com/current/pro/desktop/en-us/datafields_typesandroles.htm

Calculated Field



The screenshot shows the Tableau interface with the 'Data' pane open. A red arrow points to the 'Create Calculated Field...' option in the 'Dimensions' section of the context menu.

Data Analytics
Sample - Superstore

Dimensions

- Create Calculated Field... **Selected**
- Create Parameter...
- Group by Folder
- Group by Data Source Table **Selected**
- Sort by Name **Selected**
- Sort by Data Source Order
- Hide All Unused Fields
- Show Hidden Fields

Measures

Pages Columns
Rows

Calculated Production Cost
\$2,297,201

Calculation1

Marks

- Automatic
- Color
- Size
- Text
- Detail
- Tooltip

SUM(Sales)
SUM(Profit)

Apply OK

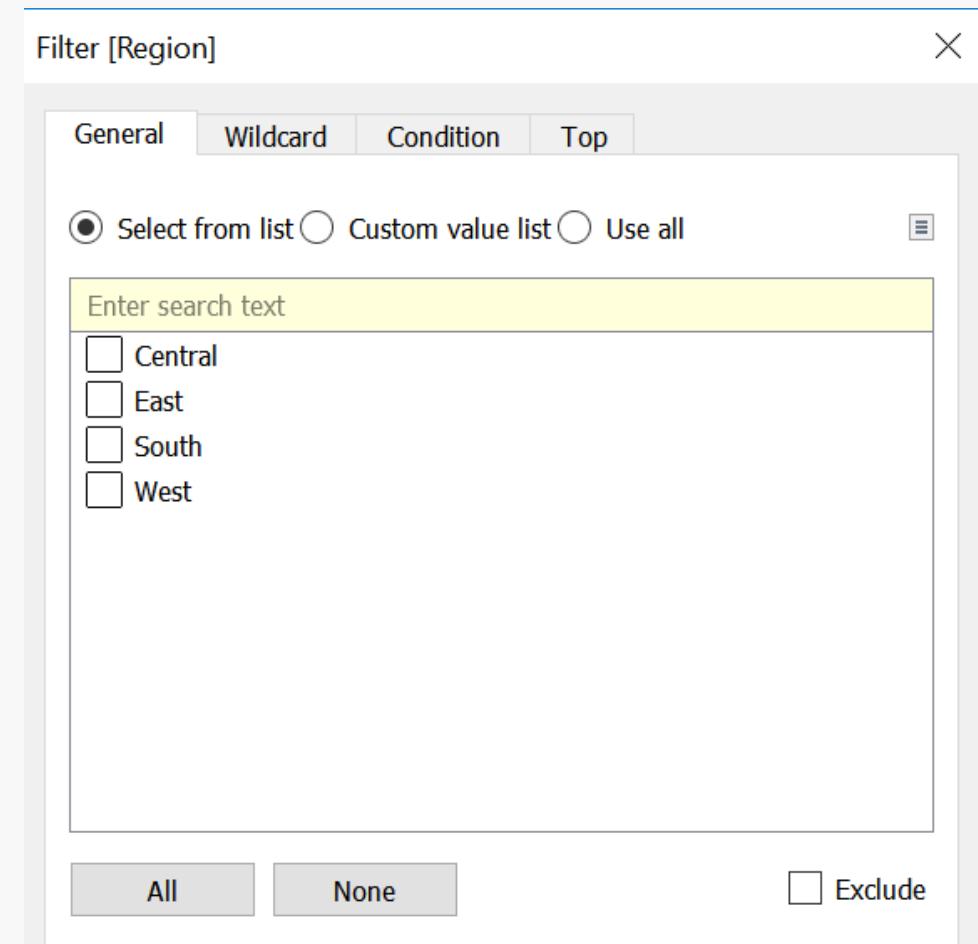
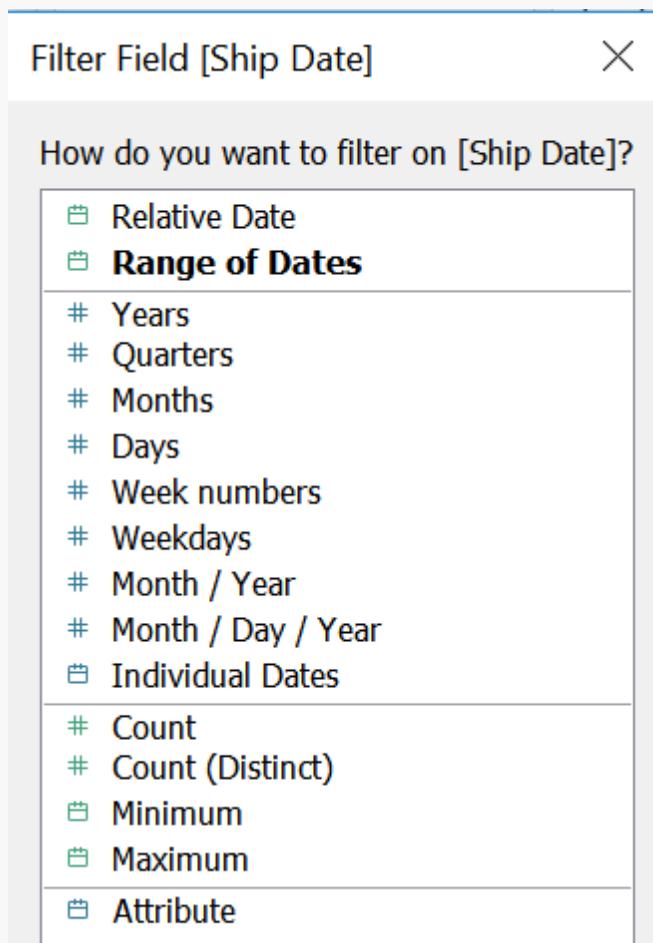
Calculated Field (Continued)



A screenshot of a sidebar or panel on the right side of the interface. It is divided into sections:

- Measures**: A list of measures including Production Cost (highlighted in green), Profit, Profit Ratio, Quantity, and Sales.
- Sets**: A list of sets including Top Customers by Profit.

Filtering Data



Dashboard Actions

- *What is a Dashboard Action?*
- Types of dashboard actions include:
 - Filter
 - Highlight
 - URL
- https://help.tableau.com/current/pro/desktop/en-us/actions_dashboards.htm