

Learning Tableau- Step by step guide

Venkat Reddy Konasani

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- Step-2 Connecting to Data
- Step-3 Building basic views
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- Step-7 Advanced graph Options

Prerequisites

- Bit of data base knowledge
- Basic idea on visualizations and dash boards
- Windows OS with minimum 2 GB RAM
- Latest version of Tableau public or Tableau Trail

Step-1 Tableau Introduction

Contents

- Why Tableau
- Introduction to Tableau
- Tableau workspace and various options
- Navigating in tableau
- Tableau Repository

Oil Consumption Data

View Data: Data3-Tableau (Total_Oil_Supply_(Thousand_Barsel_Per_Day).xls)

2,100 rows Show Aliases

Country	Production\$_Country	Region	Reserves\$_Year	Year Shown	Year	Importer/Exporter	Absolute Balance	Consumption per Population	Exported Crude Bar	Exports (Crude)	Exports (Refined)	Imported Re
Algeria	Algeria	Africa	2000.00	Null	2000	Net Exporter	803.30	6.78 Null	809.46	523.51	Null	
Angola	Angola	Africa	2000.00	Null	2000	Net Exporter	694.53	2.82 Null	694.53	12.14	Null	
Benin	Benin	Africa	2000.00	Null	2000	Net Exporter	0.69	1.72 Null	0.69	0.56	Null	
Botswana	Botswana	Africa	2000.00	Null	2000	Net Exporter	0.00	8.31 Null	0.00	0.00	Null	
Burkina Faso	Burkina Faso	Africa	2000.00	Null	2000	Net Exporter	0.00	0.65 Null	0.00	0.00	Null	
Burundi	Burundi	Africa	2000.00	Null	2000	Net Exporter	0.00	0.39 Null	0.00	0.00	Null	
Cameroon	Cameroon	Africa	2000.00	Null	2000	Net Exporter	55.00	1.48 Null	55.00	14.08	Null	
Cape Verde	Cape Verde	Africa	2000.00	Null	2000	Net Exporter	0.00	3.50 Null	0.00	0.00	Null	
Central African Republic	Central African Republic	Africa	2000.00	Null	2000	Net Exporter	0.00	0.55 Null	0.00	0.00	Null	
Chad	Chad	Africa	2000.00	Null	2000	Net Exporter	0.00	0.17 Null	0.00	0.00	Null	
Comoros	Comoros	Africa	2000.00	Null	2000	Net Exporter	0.00	1.11 Null	0.00	0.00	Null	
Congo (Brazzaville)	Congo (Brazzaville)	Africa	2000.00	Null	2000	Net Exporter	272.22	1.42 Null	272.22	3.47	Null	
Congo (Kinshasa)	Congo (Kinshasa)	Africa	2000.00	Null	2000	Net Exporter	24.58	0.27 Null	26.00	0.09	Null	
Cote d'Ivoire (Ivory Coast)	Cote d'Ivoire (Ivory Coast)	Africa	2000.00	Null	2000	Net Importer	50.24	1.95 Null	8.40	38.89	Null	
Djibouti	Djibouti	Africa	2000.00	Null	2000	Net Exporter	0.00	16.74 Null	0.00	0.02	Null	
Egypt	Egypt	Africa	2000.00	Null	2000	Net Exporter	220.00	8.48 Null	220.00	85.68	Null	
Equatorial Guinea	Equatorial Guinea	Africa	2000.00	Null	2000	Net Exporter	166.00	3.12 Null	166.00	0.00	Null	
Eritrea	Eritrea	Africa	2000.00	Null	2000	Net Exporter	0.00	0.99 Null	0.00	0.00	Null	
Ethiopia	Ethiopia	Africa	2000.00	Null	2000	Net Exporter	0.00	0.35 Null	0.00	0.00	Null	
Gabon	Gabon	Africa	2000.00	Null	2000	Net Exporter	300.00	9.82 Null	300.00	6.72	Null	
Gambia, The	Gambia, The	Africa	2000.00	Null	2000	Net Exporter	0.00	1.31 Null	0.00	0.04	Null	
Ghana	Ghana	Africa	2000.00	Null	2000	Net Importer	15.00	1.87 Null	0.00	5.95	Null	

2,100 rows Show Aliases

Imported Crude Bar	Exported Oil (Crude or Refined)	Imported Oil (Crude or Refined)	Exported Refined Bar	Imports (Crude)	Imports (Refined)	Imports, Exports, and Balance	Number of Records	Oil Consumption	Total
Null	809.46	6.16 Null	6.16	0.12	803.30	1	206.18		
Null	694.53	0.00 Null	0.00	3.42	694.53	1	29.26		
Null	0.69	0.00 Null	0.00	11.08	0.69	1	11.37		
Null	0.00	0.00 Null	0.00	13.97	0.00	1	13.97		
Null	0.00	0.00 Null	0.00	7.48	0.00	1	7.48		
Null	0.00	0.00 Null	0.00	2.64	0.00	1	2.64		
Null	55.00	0.00 Null	0.00	3.67	55.00	1	22.73		
Null	0.00	0.00 Null	0.00	1.50	0.00	1	1.50		
Null	0.00	0.00 Null	0.00	2.20	0.00	1	2.20		
Null	0.00	0.00 Null	0.00	1.34	0.00	1	1.34		
Null	0.00	0.00 Null	0.00	0.64	0.00	1	0.64		
Null	272.22	0.00 Null	0.00	0.08	272.22	1	4.40		
Null	26.00	1.42 Null	1.42	12.81	24.58	1	14.16		
Null	8.40	58.64 Null	58.64	8.25	50.24	1	32.90		
Null	0.00	0.00 Null	0.00	11.22	0.00	1	11.21		
Null	220.00	0.00 Null	0.00	75.15	220.00	1	552.80		
Null	166.00	0.00 Null	0.00	1.53	166.00	1	1.53		

Oil Consumption Data

2,100 rows Show Aliases

Refined Oil Consumption (N)	Oil Reserves (N)	Oil Production	Population	Exports - Imports	Production\$_Year	Refining Nations	Renewable Energy Production	Reserve Years with Internal Use	Reserves (thousand barrels)	Reserves	Sh
206.18	9.200	1,483.03	30.43	803.30	2,000.00000	17.20	0.053	122.25 years	9,200,000 thousand barrels	9.200	
29.26	5.412	746.11	10.38	694.53	2,000.00000	1.17	0.903	506.77 years	5,412,000 thousand barrels	5.412	
11.37	0.008	0.69	6.62	0.69	2,000.00000	0.08	0.002	1.98 years	8,210 thousand barrels	0.008	
13.97	0.000	0.00	1.68	0.00	2,000.00000	0.00	0.000	. years	thousand barrels	0.000	
7.48	0.000	0.00	11.59	0.00	2,000.00000	0.00	0.097	. years	thousand barrels	0.000	
2.64	0.000	0.00	6.82	0.00	2,000.00000	0.00	0.098	. years	thousand barrels	0.000	
22.73	0.400	85.06	15.34	55.00	2,000.00000	0.92	3.408	48.2 years	400,000 thousand barrels	0.400	
1.50	0.000	0.00	0.43	0.00	2,000.00000	0.00	0.000	. years	thousand barrels	0.000	
2.20	0.000	0.00	3.98	0.00	2,000.00000	0.00	0.083	. years	thousand barrels	0.000	
1.34	Null	0.00	7.94	0.00	2,000.00000	0.00	0.000	Null	Null	Null	
0.64	0.000	0.00	0.58	0.00	2,000.00000	0.00	0.002	. years	thousand barrels	0.000	
4.40	1.506	291.91	3.10	272.22	2,000.00000	1.12	0.292	937.64 years	1,505,910 thousand barrels	1.506	
14.16	0.187	26.02	51.85	24.58	2,000.00000	0.00	5.939	36.19 years	187,000 thousand barrels	0.187	
32.90	0.100	12.36	16.88	-50.24	2,000.00000	2.30	1.746	8.33 years	100,000 thousand barrels	0.100	
11.21	0.000	0.00	0.67	0.00	2,000.00000	0.03	0.000	. years	thousand barrels	0.000	
552.80	2.948	793.34	65.16	220.00	2,000.00000	1.31	13.690	14.61 years	2,947,560 thousand barrels	2.948	
1.53	0.012	167.50	0.49	166.00	2,000.00000	0.00	0.002	21.47 years	12,000 thousand barrels	0.012	
4.16	0.000	0.00	4.20	0.00	2,000.00000	0.00	0.000	. years	thousand barrels	0.000	
22.73	0.000	0.00	64.16	0.00	2,000.00000	0.00	1.635	.05 years	430 thousand barrels	0.000	
12.14	2.499	314.79	1.24	300.00	2,000.00000	5.44	0.802	563.83 years	2,499,000 thousand barrels	2.499	
1.79	0.000	0.00	1.37	0.00	2,000.00000	0.03	0.000	. years	thousand barrels	0.000	
36.96	0.017	7.13	19.75	-15.00	2,000.00000	0.30	6.544	1.22 years	16,510 thousand barrels	0.017	
8.21	0.000	0.00	8.35	0.00	2,000.00000	0.00	0.406	. years	thousand barrels	0.000	
2.30	0.000	0.00	1.28	0.00	2,000.00000	0.00	0.000	. years	thousand barrels	0.000	
56.80	0.000	-0.05	30.51	-41.00	2,000.00000	0.16	1.929	. years	thousand barrels	0.000	
1.40	0.000	0.00	1.92	0.00	2,000.00000	0.00	0.288	. years	thousand barrels	0.000	
2.94	0.000	0.00	2.60	0.00	2,000.00000	0.01	0.000	. years	thousand barrels	0.000	
210.28	29.500	1,469.35	5.13	1,110.00	2,000.00000	27.86	0.000	384.35 years	29,500,000 thousand barrels	29.500	
12.13	0.000	0.07	15.74	-7.78	2,000.00000	0.04	0.540	. years	thousand barrels	0.000	
5.26	0.000	0.00	11.80	0.00	2,000.00000	0.00	1.023	. years	thousand barrels	0.000	
3.84	0.000	0.00	10.62	0.00	2,000.00000	0.00	0.233	. years	thousand barrels	0.000	
23.76	Null	-0.09	2.50	-19.45	2,000.00000	0.00	0.032	Null	Null	Null	
19.88	0.000	0.00	1.19	0.00	2,000.00000	0.00	0.095	. years	thousand barrels	0.000	

Aim is to understand

That oil consumption data shows below details

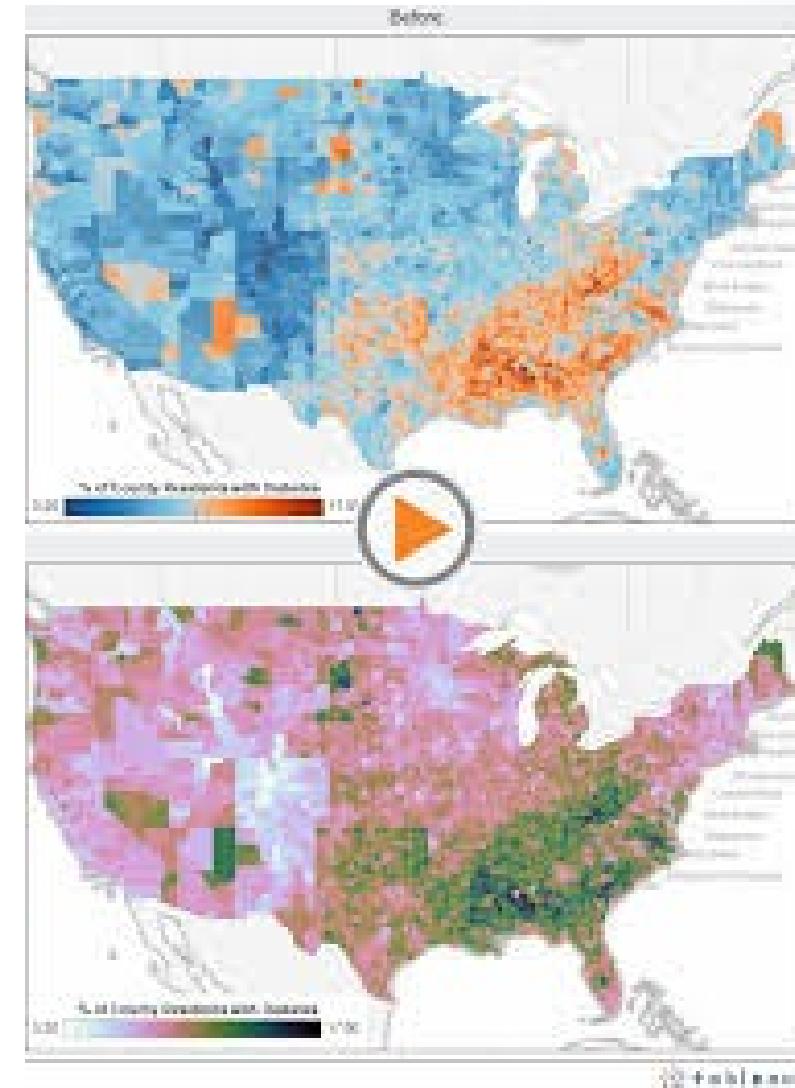
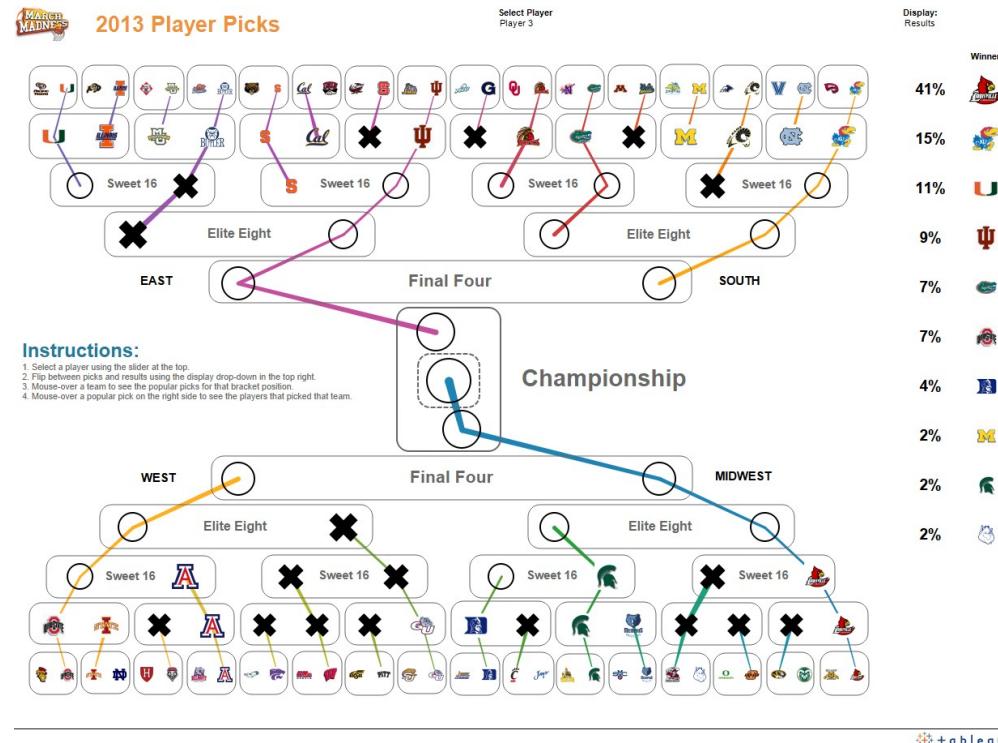
- Crude Oil, refined oil imports and Exports by country also weighted by population
- Reserves left by country and by region
- Consumption by population over the time

Really??? Is it easy to get the picture?

What is Tableau

- Tableau is a rapid BI software
- **Great visualizations:** Allows anyone to connect to data, visualize and create interactive, sharable dashboards in a few clicks
- **Ease of use:** It's easy enough that any Excel user can learn it, but powerful enough to satisfy even the most complex analytical problems.
- **Fast:** We can create parallelized dashboards, quick filters and calculations

Sample Tableau dashboards



Sample Tableau dashboards

MARCH MADNESS Bracket Tracker

Formula: Round Value + (Round Value * Seed * 0.5)

Round 1 = 2 | Round 2 = 3 | Sweet 16 = 5
 Elite 8 = 8 | Final 4 = 13 | Championship = 21

Viewing: Player 1

Smack Talk

Instructions: Mouse-over a player to highlight

Player	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Player 1.																
Player 2.																
Player 3.																
Player 4.																
Player 5.																
Player 6.																
Player 7.																
Player 8.																
Player 9.																
Player 10.																
Player 11.																
Player 12.																
Player 13.																
Player 14.																
Player 15.																
Player 16.																

Score Over Time

Score over time from Round 1 to Champ, with a point potential scale from 550 to 800.

Score by Round

Player	Round 1	Round 2	Sweet 16	Elite 8	Final 4	Champ
16. Player 1	27	162	189			
1. Player 46	45	178	223			
2. Player 8	54	160	214			
3. Player 28	33	180	213			
4. Player 41	63	148	211			
4. Player 42	45	166	211			
6. Player 36	45	164	209			
7. Player 35	36	170	206			
8. Player 25	42	160	202			
9. Player 23	42	158	200			
10. Player 33	36	162	198			
11. Player 45	33	162	195			
12. Player 11	54	140	194			
13. Player 10	45	146	191			
13. Player 20	27	164	191			
15. Player 9	24	166	190			
17. Player 19	54	134	188			
18. Player 38	24	162	186			
19. Player 37	24	160	184			
20. Player 17	33	150	183			
20. Player 39	33	150	183			
22. Player 29	54	128	182			
22. Player 3	36	146	182			
24. Player 18	54	126	180			
25. Player 15	42	135	178			

% Correct

Player	Round 1	Round 2	Sweet 16	Elite 8	Final 4	Championship
Player 1 [54%]	Red	Red	Red	Red	Red	Red
Player 46 [64%]	Red	Red	Red	Red	Red	Red
Player 33 [63%]	Red	Red	Red	Red	Red	Red
Player 36 [61%]	Red	Red	Red	Red	Red	Red
Player 38 [60%]	Red	Red	Red	Red	Red	Red
Player 11 [60%]	Red	Red	Red	Red	Red	Red
Player 23 [60%]	Red	Red	Red	Red	Red	Red
Player 25 [60%]	Red	Red	Red	Red	Red	Red
Player 8 [60%]	Red	Red	Red	Red	Red	Red
Player 10 [59%]	Red	Red	Red	Red	Red	Red
Player 20 [59%]	Red	Red	Red	Red	Red	Red
Player 29 [59%]	Red	Red	Red	Red	Red	Red
Player 28 [58%]	Red	Red	Red	Red	Red	Red
Player 3 [58%]	Red	Red	Red	Red	Red	Red
Player 30 [58%]	Red	Red	Red	Red	Red	Red
Player 39 [58%]	Red	Red	Red	Red	Red	Red
Player 42 [58%]	Red	Red	Red	Red	Red	Red
Player 9 [58%]	Red	Red	Red	Red	Red	Red
Player 13 [57%]	Red	Red	Red	Red	Red	Red
Player 22 [57%]	Red	Red	Red	Red	Red	Red
Player 3 [57%]	Red	Red	Red	Red	Red	Red
Player 41 [57%]	Red	Red	Red	Red	Red	Red
Player 45 [57%]	Red	Red	Red	Red	Red	Red
Player 24 [56%]	Red	Red	Red	Red	Red	Red
Player 26 [56%]	Red	Red	Red	Red	Red	Red

Asset Output - Time Trends by Well and Fault Types

Select or/lasso to view details for those wells

Map showing asset output by well and fault types across various regions.

Oil Output by Well

Cumulative Oil (kbarrels)

Oil Cumulative (kbarrels) 0 273,462

Highlight Reservoir: Nor B Onyx Alpha

Highlight year: 2004 2005 2006 2007 2008 2009

Oil Output by Well & Year

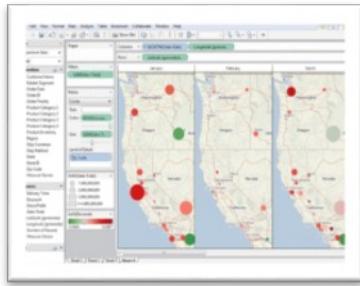
Current year: 2009

Exactly 800 x 570 pixels

Tableau Products

Tableau Desktop

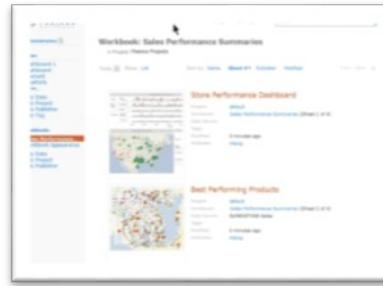
Create



- + ad hoc analytics, dashboards, reports, graphs
- + explore, visualize, and analyze your data
- + create dashboards to consolidate multiple views
- + deliver interactive data experiences

Tableau Server

Share - Web



- + business intelligence solution scales to organizations of all sizes
- + share visual analytics with anyone with a web browser
- + publish interactive analytics or dashboards
- + secure information and manage metadata
- + collaborate with others

Tableau Reader

Share - Local



- + share visualizations & dashboards on the desktop
- + filter, sort, and page through the views
- + “Acrobat for Data”
- + free download

Tableau Public

Share - Everyone

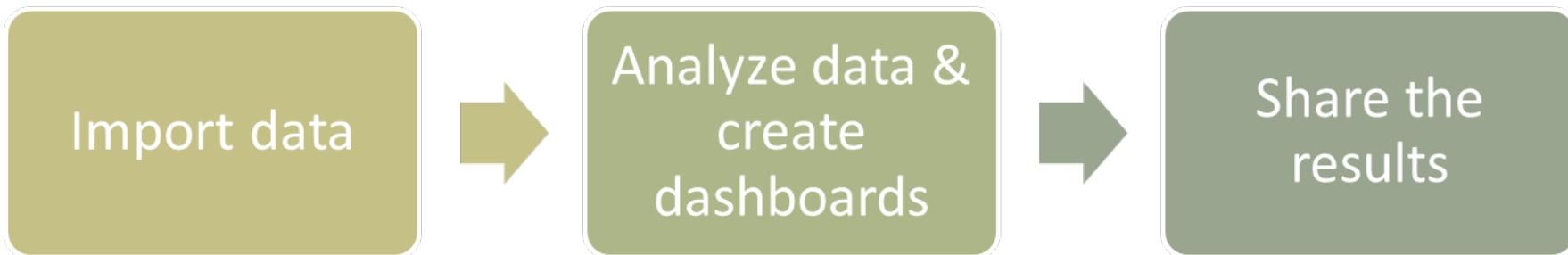


- + create and publish interactive visualizations and dashboards
- + embed in websites and blogs
- + free download and free hosting service

Tableau Public

- Can connect to Microsoft Excel, Microsoft Access, and text files
- It has a limit of 100,000 rows of data that is allowed in any single connection
- You can not save your work using Tableau public

Three main stages



Opening Screen

The screenshot shows the Tableau Public website interface. At the top left, there's a browser tab labeled "Tableau Public - Book2" with a menu bar containing "File", "Data", and "Help". On the right side, there's a window control bar with standard minimize, maximize, and close buttons. Below the header, the "tableau public" logo is displayed. A central call-to-action button says "Open. Create. Share.". To the left, there's a "Create a viz now" section with instructions: "1. Open your data (.xls or .txt) 2. Drag & Drop to visualize" and a "▶ Open Data" button. Below this are three navigation links: "Get Started", "Find Training & Templates", and "Get Inspired". To the left, there's a sidebar titled "Templates for" with links to "Real Estate", "Census data", "Fantasy sports", "School test scores", and "Public spending". In the center, there's a "Best Practices" section with a sub-section "Master the art and science of data visualization" and a "Learn more" link. To the right, there's a box for "Get FREE LIVE Training" with the text "Fridays at 9:30AM Pacific." and a "Learn more" link. At the bottom, there's a "Viz of the Day" section showing four examples: "Today" (a map of the US with numbered states), "Yesterday" (a dark map with green dots), "Two Days Ago" (two circular logos for "TAM" and "VU"), and "More Vizes" (a red network graph). On the far right, there's a "Twitter" section with a "Join the conversation" link.

tableau public

Create a viz now

1. Open your data (.xls or .txt)
2. Drag & Drop to visualize

▶ Open Data

Get Started Find Training & Templates Get Inspired

Templates for

Real Estate
Census data
Fantasy sports
School test scores
Public spending

Seattle Bubble

Best Practices

Master the art and science of data visualization

Learn more

Get FREE LIVE Training

Fridays at 9:30AM Pacific.

Learn more

Viz of the Day

Today Yesterday Two Days Ago More Vizes

Join the conversation

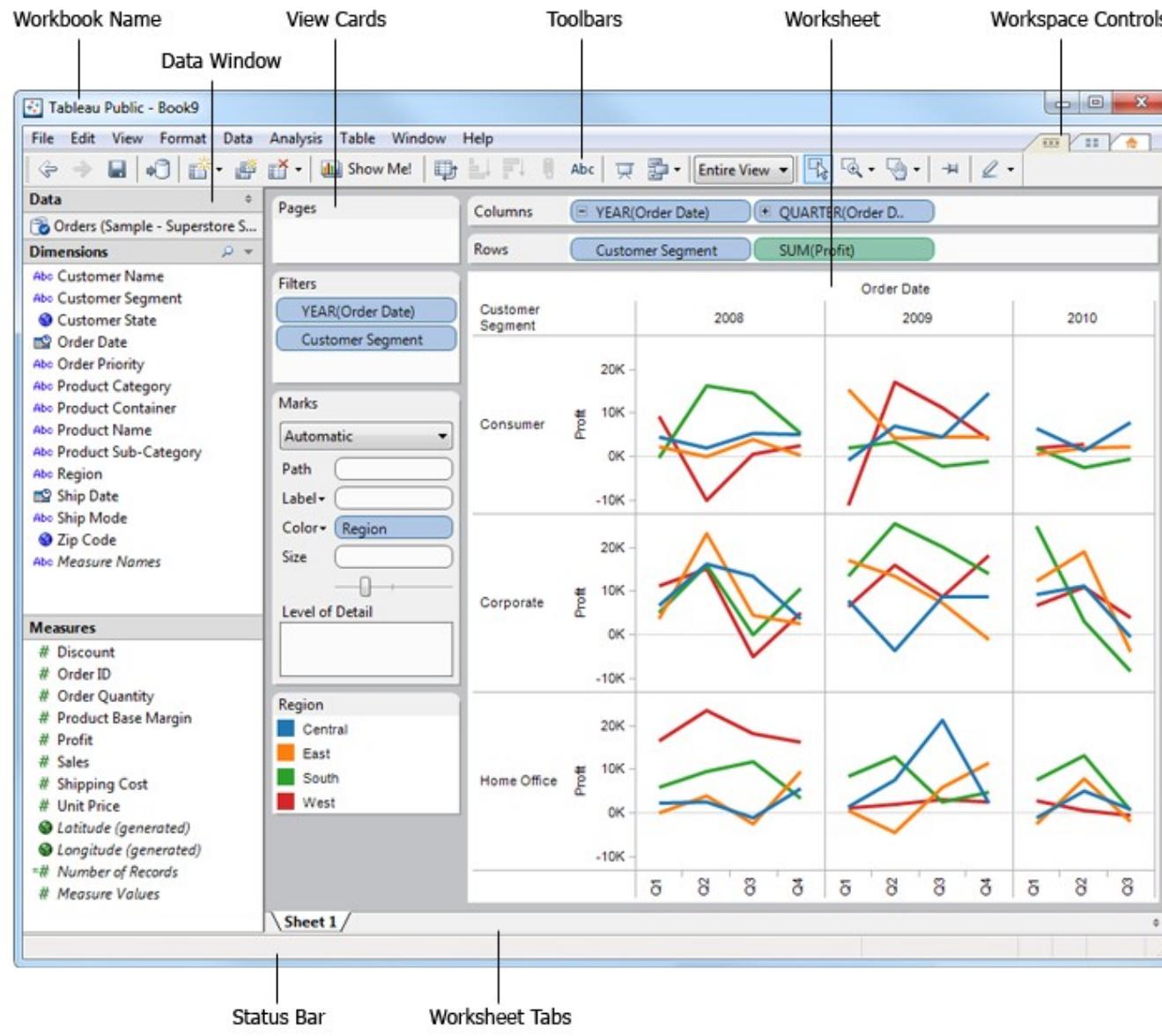
Basics

- Opening a new sheet
 - File>>New
- Connect to data
 - Data>>Connect to data

Demo

- Starting Tableau
- Open a new workbook
- Adding additional sheets
- Data connection tab
- Various data connection options
- Adding a new dash board
- Various graph options

Tableau Workspace



Workbook and worksheets

- Each workbook can contain worksheets and dashboards.
- Worksheet is where you build views of your data by dragging and dropping fields onto shelves
- A dashboard is a combination of several worksheets that you can arrange for presentation or to monitor
- The sheets, whether worksheets or dashboards, display along the bottom of the workbook as tabs

Lab

- Start Tableau
- Open a new workbook
- Add one additional sheet
- Identify data connection tab
- Can we connect to MySQL server?
- Can we connect to txt file?
- How to go back to workbook from connect to data window?
- Add a new dashboard
- Where are various types of graphs options available?
- Can we draw pie chart using Tableau?

Tableau Repository

- The Tableau repository holds Workbooks Bookmarks and data sources.
- located in a folder called My Tableau Repository inside of your My Documents folder.

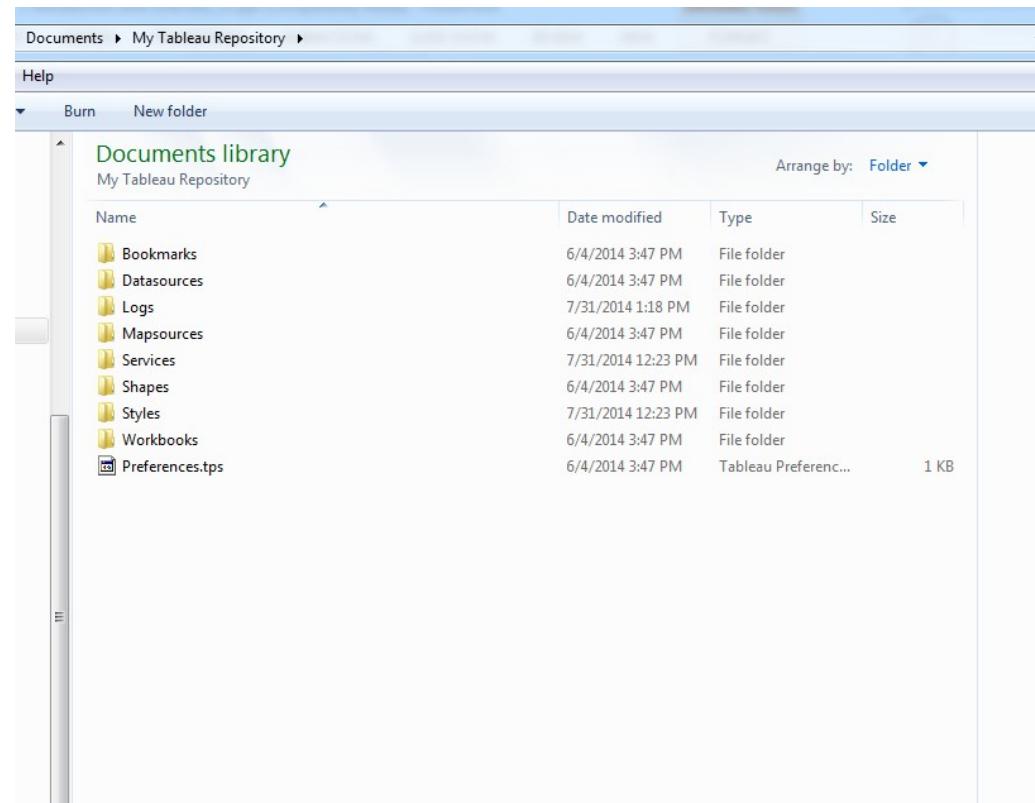


Tableau Files and File types

- Workbooks
 - Tableau workbook files have the **.twb** file extension and are marked with the workbook icon. Workbooks hold one or more worksheets and dashboards.
- Bookmarks
 - Tableau bookmark files have the **.tmb** file extension and are marked with the bookmark icon. Bookmarks contain a single worksheet and are an easy way to quickly share your work.
- Packaged Workbooks
 - Tableau packaged workbooks have the **.twbx** file extension and are marked with the packaged workbook icon. Packaged workbooks contain a workbook along with any supporting local file data sources and background images. This format is the best way to package your work for sharing with others who don't have access to the data.

Tableau Files and File types

- Data Extract Files
 - Tableau data extract files have the .tde file extension and are marked with the extract icon. Extract files are a local copy of a subset or entire data source that you can use to share data, work offline, and improve database performance.
- Data Connection Files
 - Tableau data connection files have the .tds file extension and are marked with the data connection icon. Data connection files are shortcuts for quickly connecting to data sources that you use often.

Step2-Connecting to Data

Venkat Reddy

Contents

- Connecting to flat files
- Connecting to DB files
- Connecting to server
- Conditional importing
- Editing a Connection

Demo: Connecting to Desktop files

- Connecting to excel file
 - Connecting to superstore sales in sales data folder
- Snapshot view of the data
- Connecting to txt file
 - Connecting to survey data
- Connecting to access file
 - Connecting to survey data

Lab: Connecting to Desktop files

- Download the online sales data.csv
- Snapshot view of the data
- Connect to healthcare database
- Connect to survey data
- Create a table for client
- Create a table for clinet_manager

Connecting with Filters

Tableau Public - Book2

File Data Help

Orders (Sample - Superstore Sales (Excel))

Connected to Excel

Workbook

Sample - Superstore Sales (Excel).xls

Sheets

Enter sheet name

Orders

Orders

Go to Worksheet

Copy

Show hidden fields

Rows 8,399

Row ID	Order ID	Order Date	Order Priority	Order Quantity	Sales	Discount	Ship Mode	Profit	Unit Price	Shipp.
1	3	10/13/2010	Low	6	261.54	0.040000	Regular Air	-213.25	38.94	
49	293	10/1/2012	High	49	10,123.02	0.070000	Delivery Truck	457.81	208.16	
50	293	10/1/2012	High	27	244.57	0.010000	Regular Air	46.71	8.69	
80	483	7/10/2011	High	30	4,965.76	0.080000	Regular Air	1,198.97	195.99	
85	515	8/28/2010	Not Specified	19	394.27	0.080000	Regular Air	30.94	21.78	
86	515	8/28/2010	Not Specified	21	146.69	0.050000	Regular Air	4.43	6.64	
97	613	6/17/2011	High	12	93.54	0.030000	Regular Air	-54.04	7.30	
98	613	6/17/2011	High	22	905.08	0.090000	Regular Air	127.70	42.76	
103	643	3/24/2011	High	21	2,781.82	0.070000	Express Air	-695.26	138.14	
107	678	2/26/2010	Low	44	228.41	0.070000	Regular Air	-226.36	4.98	

Demo: Customized data import

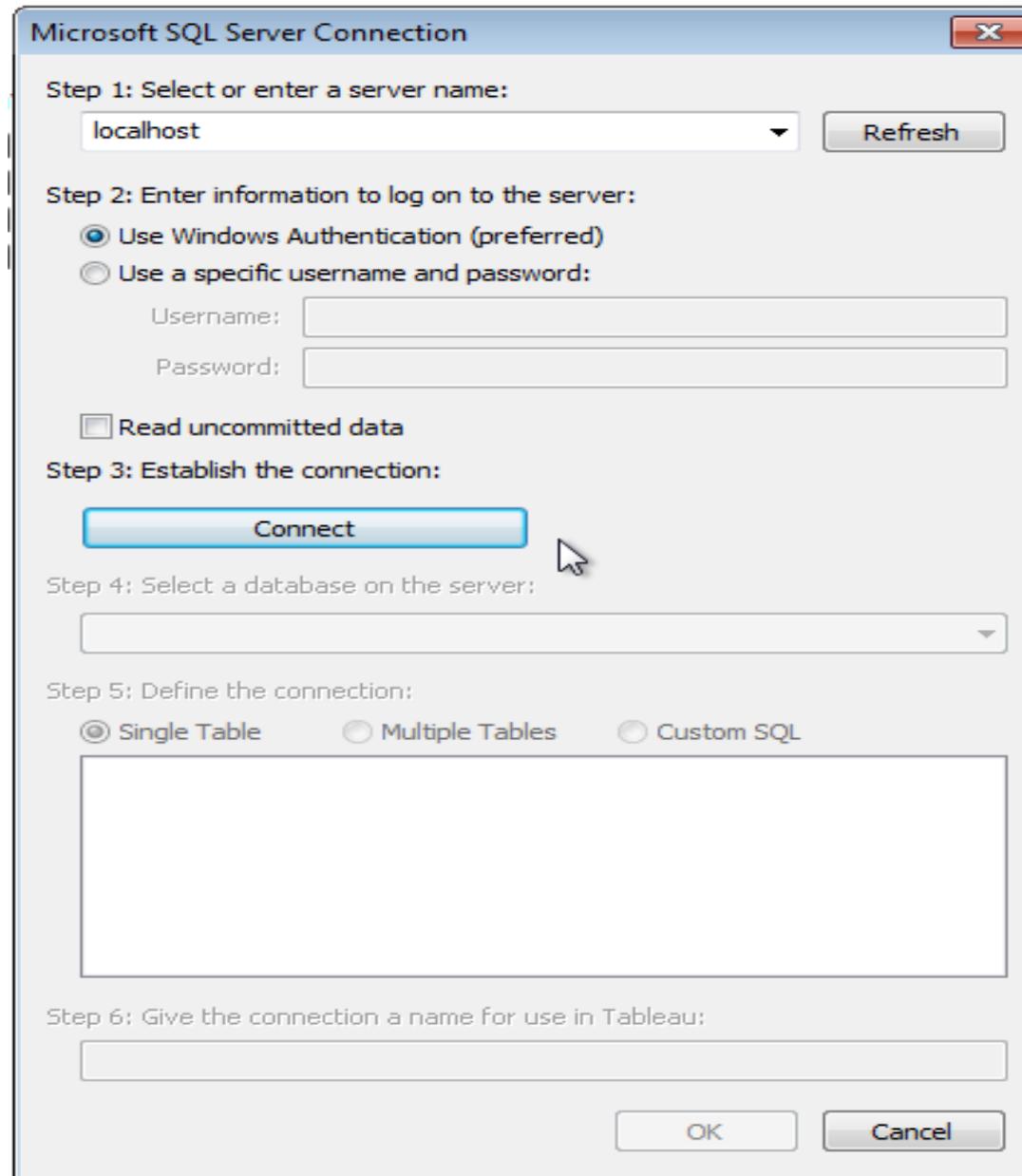
- Import sales by country data
 - Where sales channel=“Online”

Lab: Customized data import

- Download data using filters from survey DB
 - Only data where overall rating =5 and client level is more than 7 from S2012 table(Client id more than 70,000,000)
- Download data using filters from healthcare data(health claim.csv)
 - Only data where days admitted is atleast 6 and claim amount is more than 10,000

Connecting Microsoft SQL Server

-  MapR Hadoop Hive
-  Microsoft Analysis Services
-  Microsoft PowerPivot
-  [Microsoft SQL Server](#)
-  MySQL 
-  OData
-  Oracle
-  Oracle Essbase



Connecting Microsoft SQL Server

- Microsoft PowerPivot
- Microsoft SQL Server
- MySQL
- ODS
- Oracle
- Oracle Essbase

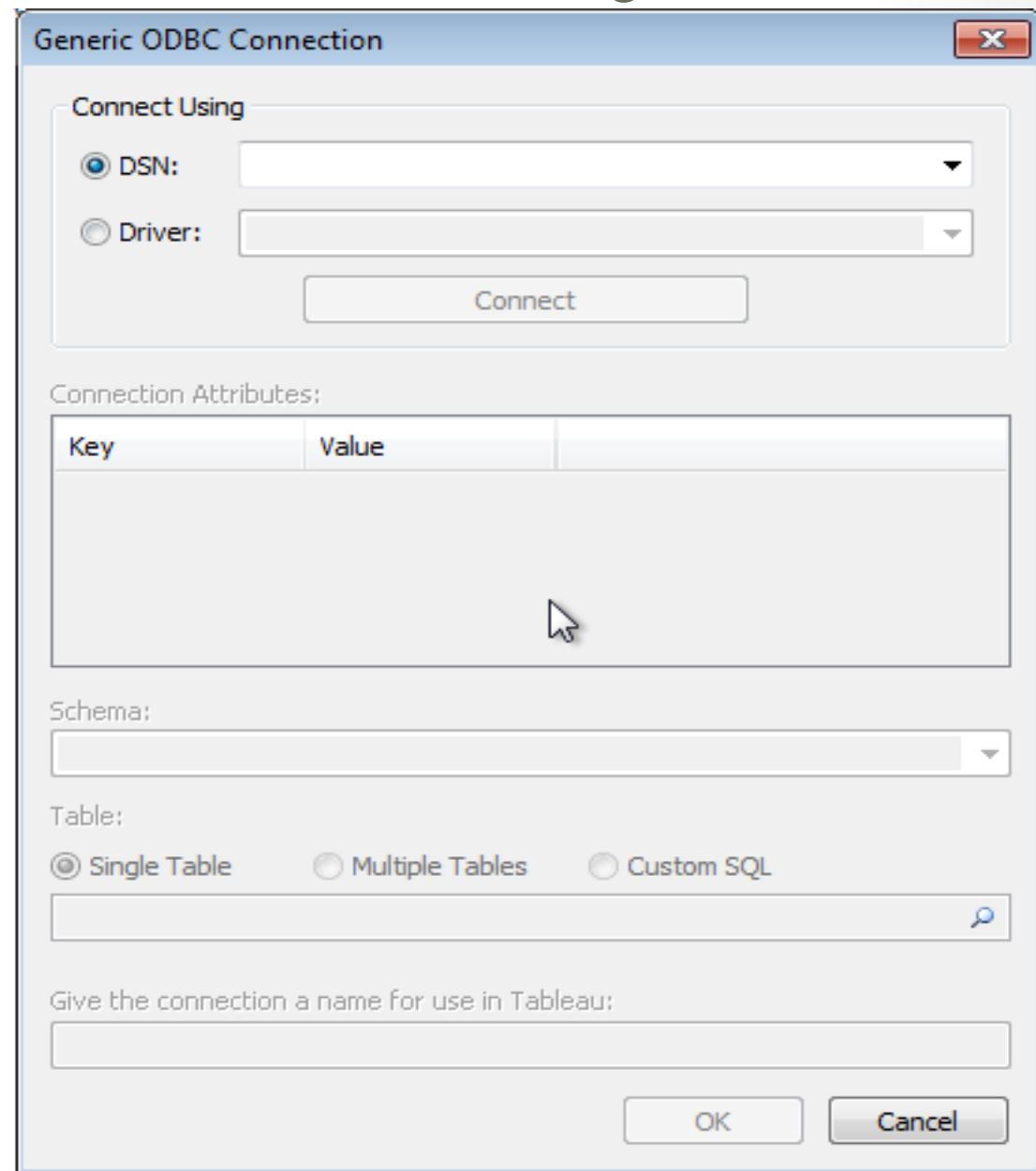
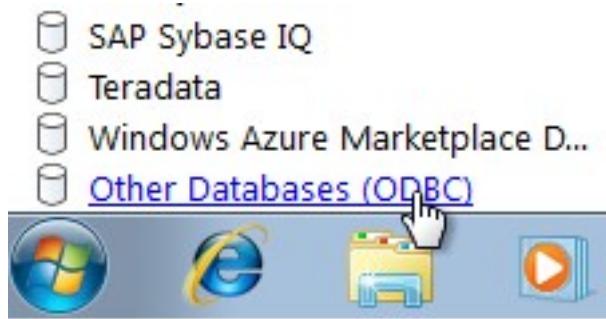


Connecting Microsoft SQL Server

- Microsoft SQL Server
- MySQL
- OData
- Ora 
- Oracle Essbase
- ParAccel
- PostgreSQL



Connecting Microsoft SQL Server



Data roles

- Dimensions:
 - Qualitative, categorical information is a dimension
 - Gender : Male & Female
 - Region
 - Marital Status
- Measures
 - Numeric variables / Quantitative values
 - Age
 - Income
 - Credit score

Data Types

Icon	Description
Abc	Text values
📅	Date values
🕒	Date & Time values
#	Numerical values
T/F	Boolean values (relational only)
📍	Geographic values (used with maps)

- Sometimes Tableau may identify a field with a data type that is incorrect.
- For example, a field that contains dates may be identified as an integer rather than a date.
- You can change the data type in Tableau by right-clicking the field in the Data window, selecting Change Data Type, and then selecting the appropriate data type.

Lab: Data Roles

- What are the measures and dimensions in TV commercials data (spot data sheet)
- What are the measures and dimensions in world bank data

Demo Converting measures to dimensions

- Converting id to dimension
- Converting num_assests to dimension

The screenshot shows the Tableau Public interface with a context menu open over a measure named "# num_as". The menu is titled "Add to Sheet" and includes options like "Copy", "Paste", "Duplicate", "Rename...", "Hide", "Create Calculated Field...", "Create Group...", "Create Bins...", "Create Parameter...", "Convert to Discrete", "Convert to Dimension" (which is highlighted), "Change Data Type", "Geographic Role", "Default Properties", "Replace References...", and "Describe...". The "Convert to Dimension" option is currently selected. To the right of the menu, there is a data grid with two columns: "id" and "abc". The "id" column contains integers from 1 to 24, and the "abc" column contains the character "Abc" repeated 24 times. At the bottom of the screen, it says "Sheet 1" and "7843 marks 7843 rows by 1 column".

LAB: Converting measures to dimensions

- Import TV commercial spot data
 - Convert HH ratings to Dimension
 - Convert unique key to Dimension
- In health care data
 - Patient id into dimension

Editing the connection

- Connect to cars data>>>Edit data source>>Hide Origin Field
- Show hidden fields to get back and then unhide

LAB: Edit Connection

- Edit survey data connection and hide the two fields response and quality
- Edit survey data connection and add a filter on communication
 ≥ 3

Renaming the connection

- Edit Connection >>.Change the name of connection
- Cars data to cars_2014

LAB: Renaming the connection

- Rename survey data to customer survey
- Connect to market data one and rename it to market campaign data

Other Data connection related operations

- Duplicating connection
- Close Connection

Step-3: Building basic views

Demo: Basic views

- Superstore data
 - Sum of order quantity by product category
 - Sum of order quantity by month & year
 - Changing the graph type

Lab: Basic views

- Connect to Price Web Data(Price_web_data.csv)
- Draw a bar graph to show total sales(count of rows) by brand
- Which brand sold the most number of items
- Change it to pie chart
- Sort the bargraph
- Which are the top two brands based on list price
 - Draw graph that shows average list price for each brand

Demo : Trend chart

- Price web data day wise count of products

Lab: Trend Chart

- Import market one data
 - Draw a time series chart of number of campaigns by date
 - Draw a time series chart of number of campaigns by month
 - Draw a time series chart for budget and identify the month with maximum budget

LAB: Other Charts

- Import cars data, create a tree map chart for make vs items sold(count ids)
- Import TV commercials spot data, create a vertical bar chart for network id vs average spot cost. Change the chart for vertical to horizontal
- Import telecom bill data, show average bill(current charges) and count of customers(Del number) in each customer segment. Identify the best segment (which customer segment has very high bill and very high number of customers)

Demo: Formatting the graphs- Color and size

- Representing Average unit price & total ordered quantity per Product category & subcategory in superstore data

Lab: Formatting the graphs-Color and size

- **Identify the best rated brand from online sales data(price web)**
 - Draw a graph(other than bubble chart) on online sales data to show
 - Review count as size
 - Average rating as color for each brand
- **Import Market campaign data**
 - Identify the top 5 verticals. A vertical with significant budget and significant number of campaigns(rows).
 - Identify the most productive vertical in market campaign data. A vertical that has highest reach with least budget is the best vertical
- **Identify the best car make in cars data(low MSRP and high horse power)**
- **Identify the most profitable customer segment from telecom bill data**
 - Draw bubble chart on billing data by each customer segment
 - Size of the bubble is average bill(Current charges)
 - Color of bubble as count of accounts

Adding Reference lines

- Adding reference line average age to age in healthcare data

Lab: Adding reference line

- In price web data, what are the brands that got above average ratings? Add a reference line
- Add average list price reference line in price web data-Avg list price by brand
- Add a mean reference line to days admitted in health care data

Demo: GIS graph

- City wise bill on the map
 - Count if accounts as size
 - Total Bill as colour

Lab: GIS graph

- Connect to Sales_by_country_v1.csv (inside super store folder)
 - Show number of units sold for each country
 - Draw a fill map fill graph
- Connect to world bank data (data by country tab)
 - Create a GIS graph to show GDP by country
 - Create a GIS graph to show total population by country

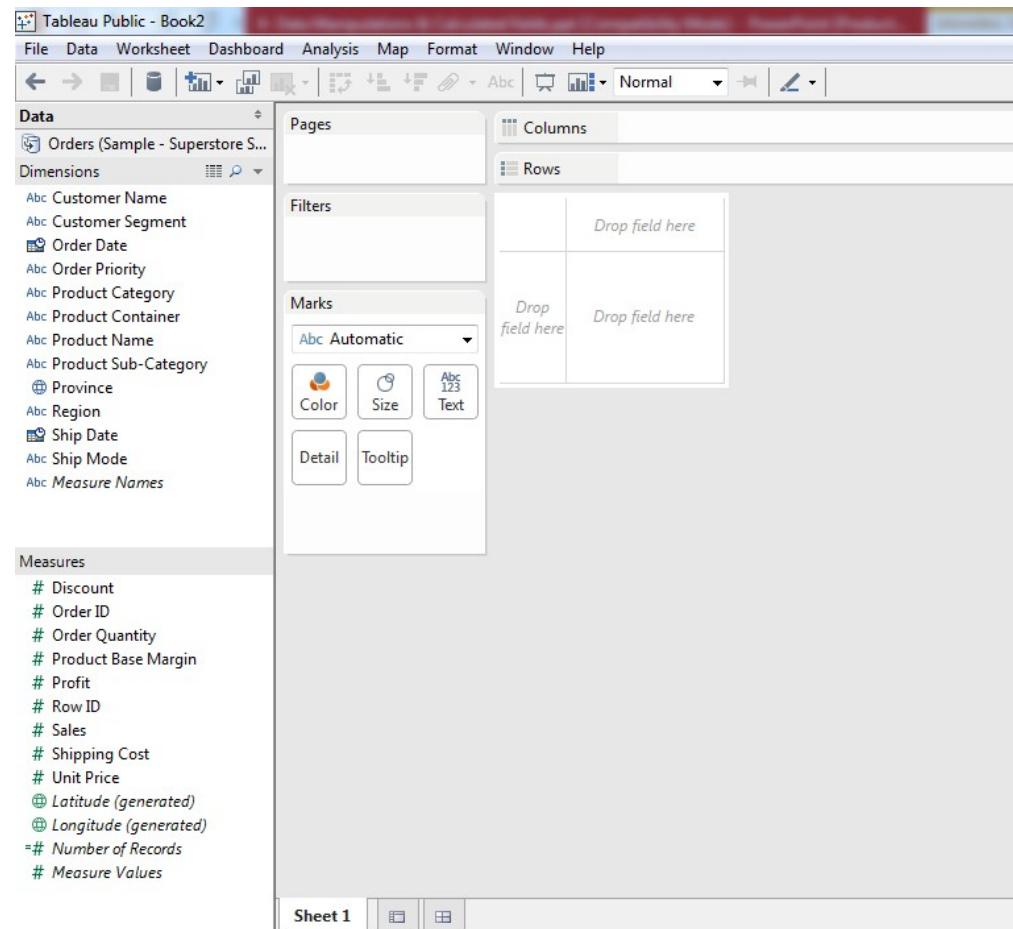
Step-4 : Data manipulations and Calculated fields

Contents

- Calculated fields
- Working with dates
- Logic statements
- Working with filters

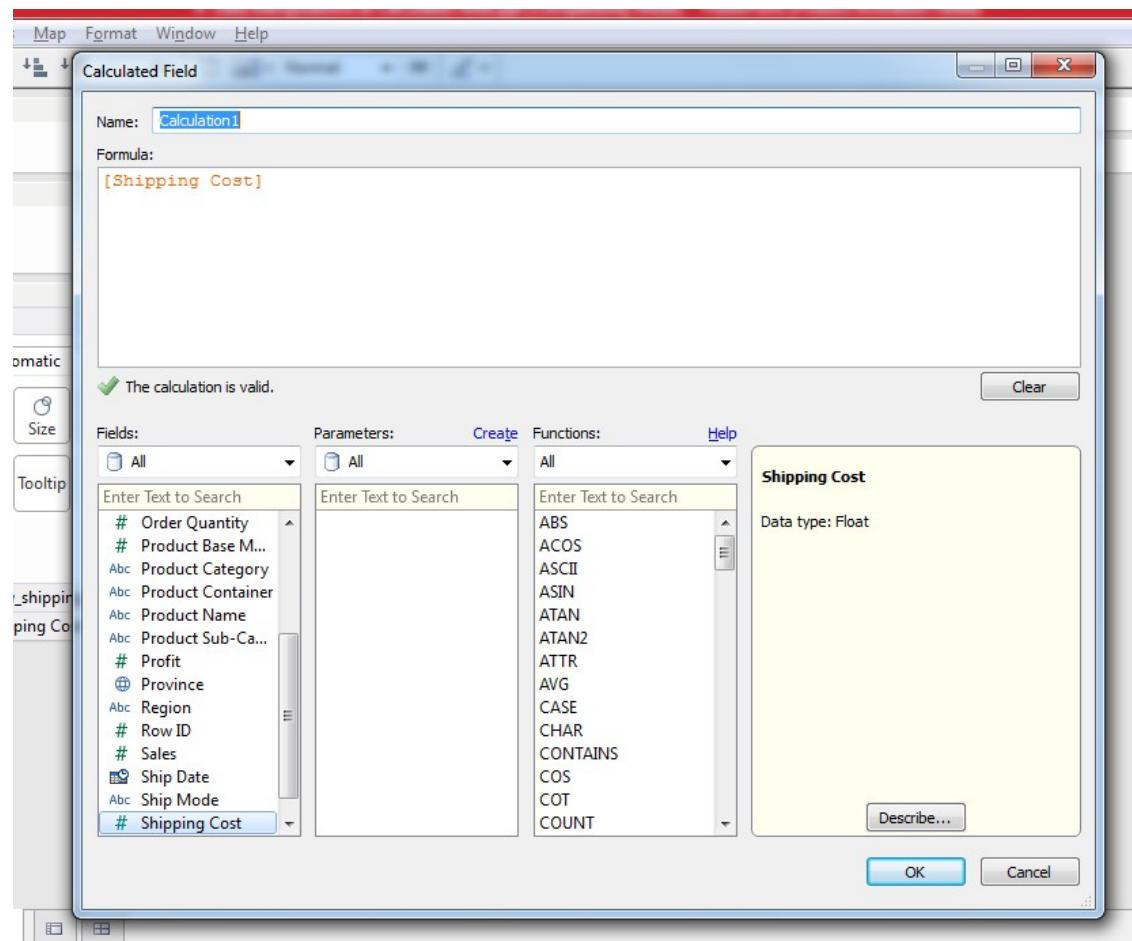
Demo: Calculated fields

- Connect to excel>>Sample-Superstore data>>>orders



Demo: Calculated fields

- New reduced shipping cost to 50%



Lab: Calculated fields

- Connect to Sample-Superstore data excel file
- Create a new discounted unit price from actual unit price field.
Reduce the price by 10% and create a new field as disc_price
- Create a new shipping cost. Reduce the shipping cost by by
30% and create a new field new_ship_cost
- Create a new field “final_price” which is sum of disc_price &
new_ship_cost
- What is the average final price?

Working with dates

Calculated Field

Name: month between order date and todays date

Formula:

```
DATEDIFF('month', TODAY(), [Order Date])
```

The calculation is valid.

Select any of the date function to manipulate dates and use them in the expression.

Fields: Parameters: Functions: Help

Date

TODAY()

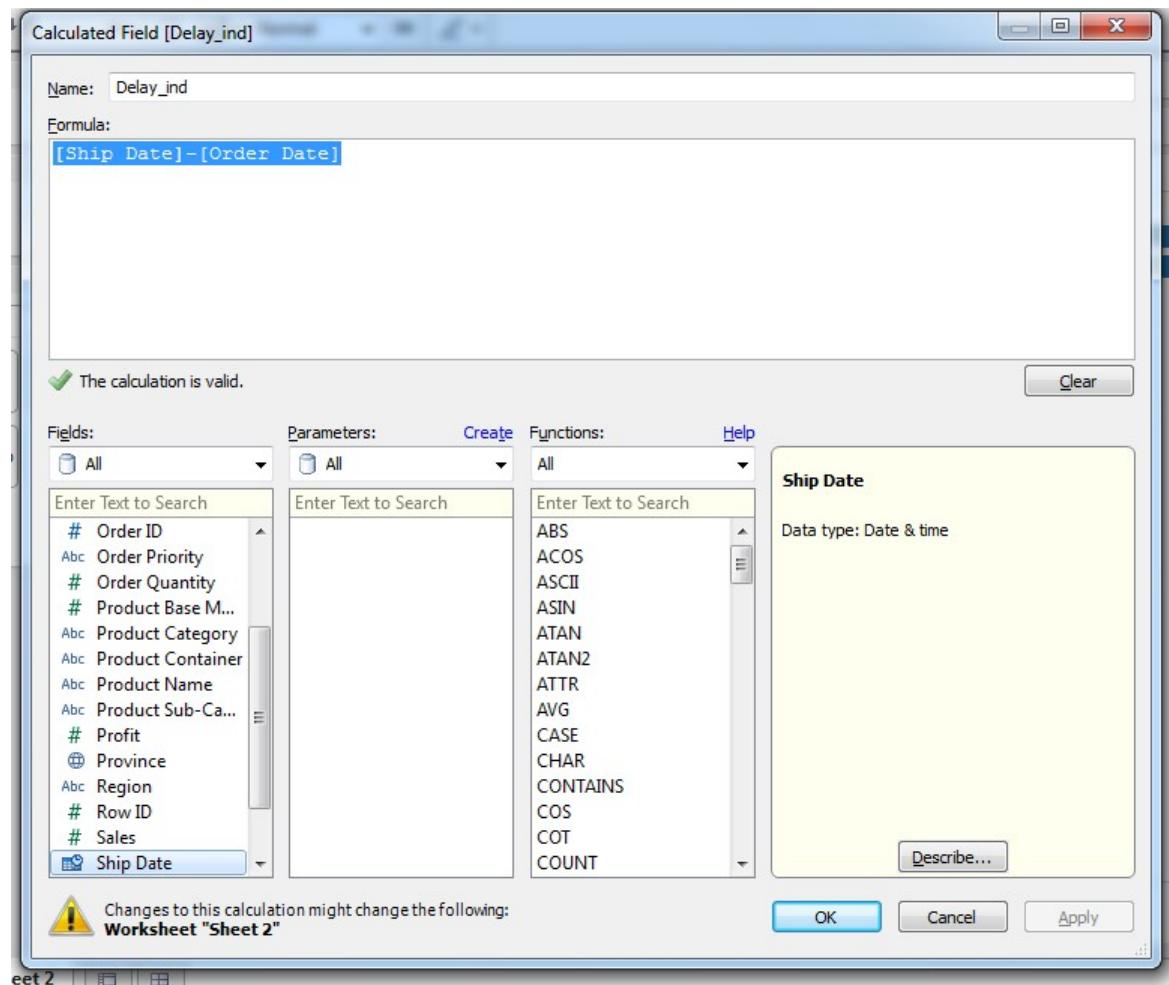
Returns the current date.
Example: TODAY() = 5/10/2006

OK Cancel

Venkata Reddy Konassani

Demo: Working with dates

- Delay indicator in Super store data [Ship Date]-[Order Date]



Lab: Working with dates

- Connect to Telco_Bill_data_v1 in telecom data folder
 - Calculate age of account in months, today-account active date
 - Draw a graph that shows Del number & age on network. Sort it by age
- Connect to Market_data_raw.xls in Market_data folder
 - Calculate the interval of campaign (end date – start date)
 - Convert id into dimension and draw a graph between id & interval

Logic statements

Name: is string a date?

Formula:

```
IF (ISDATE("teststring"))
then 'yes'
else 'no'
end
```

✓ The calculation is valid.

Fields: Parameters: Functions:

All	All	Logical
Enter Text to Search	Enter Text to Search	Enter Text to Search
City Customer ID Customer Name Customer Segm... Discount Number of Reco... Order Date Order ID Order Priority Postal Code Product Base M...		CASE IF IFNULL IIF ISDATE ISNULL ZN

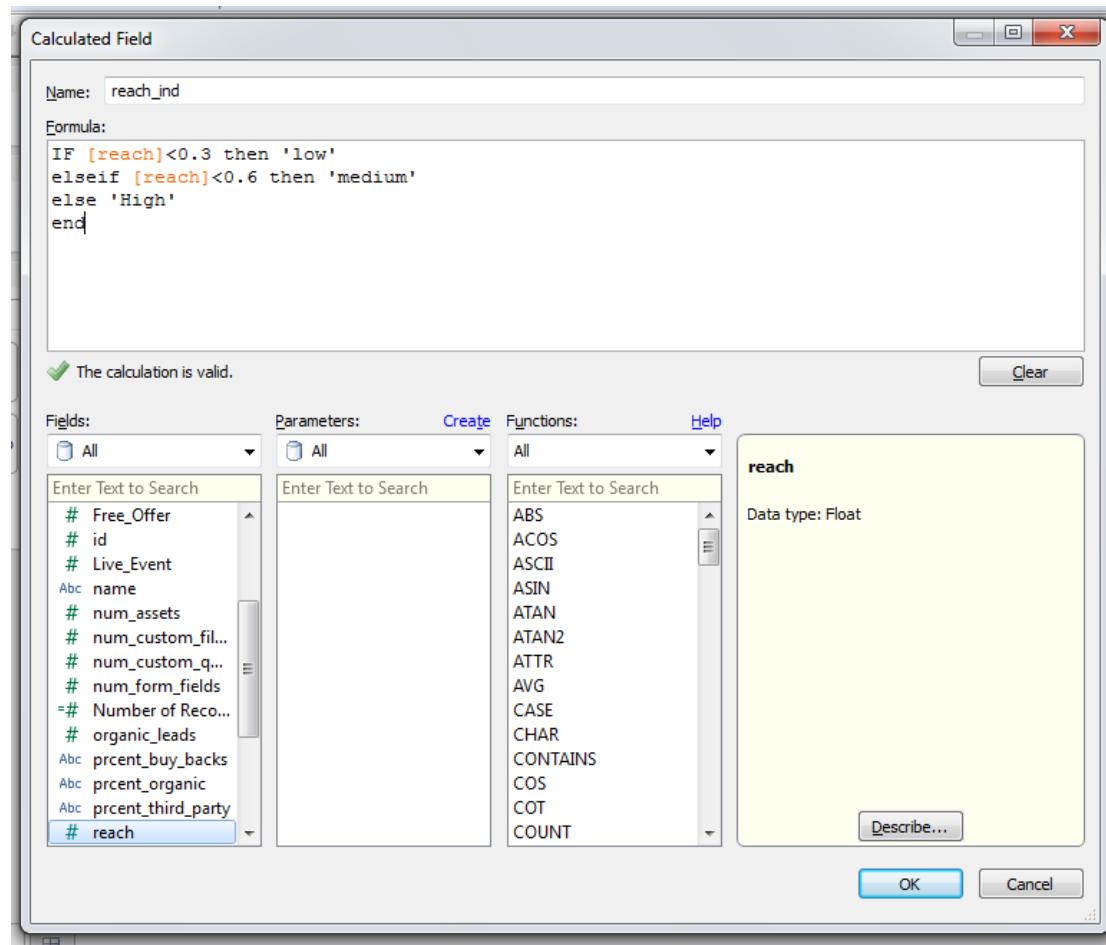
ISDATE(string)

Returns true if a given string is a date.

Example: ISDATE("A")

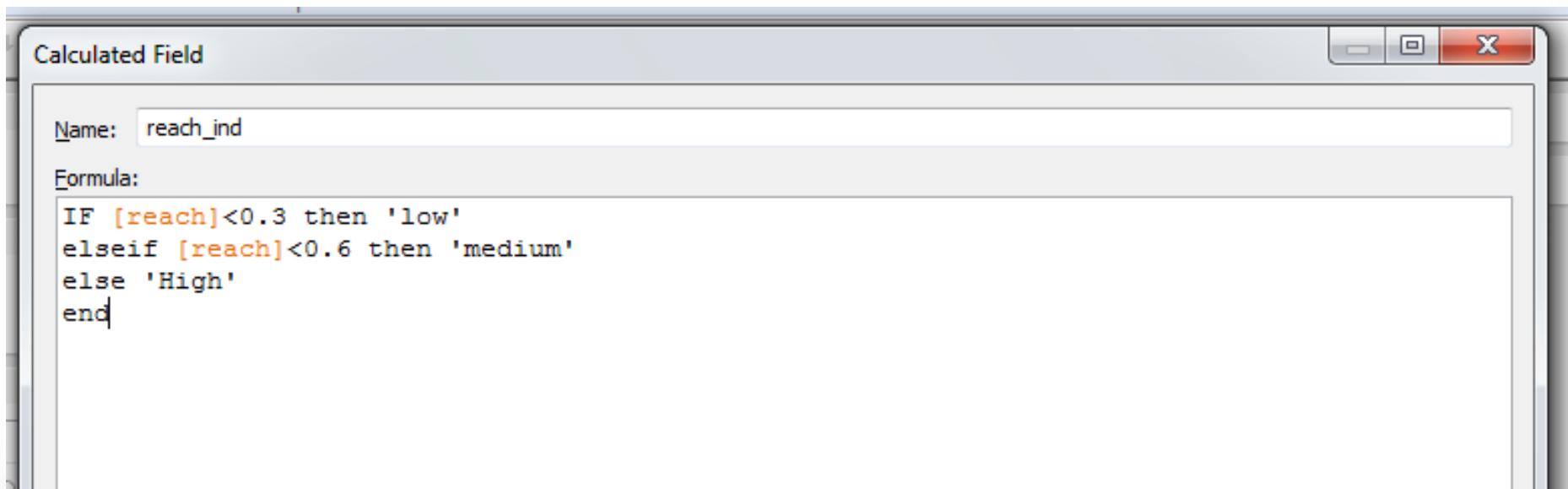
Demo: Logic statements

- Market data, high, medium, low reach

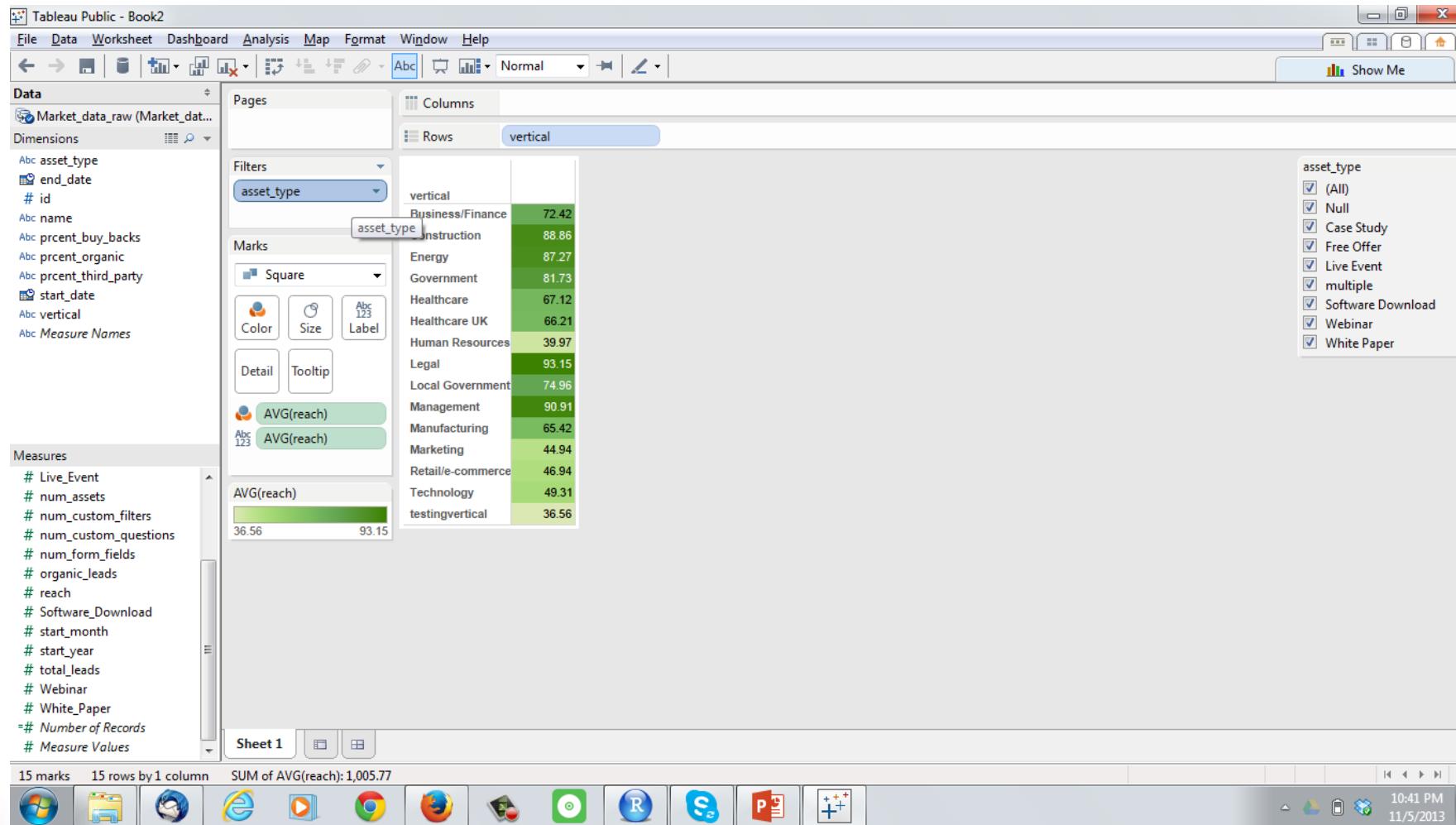


Lab: Logic statements

- In the market data, Create a new field budget indicator
 - If budget is less than 50,000 then “low”
 - 50,000 to 100,000 then “medium”
 - Else high budget
- Create a bar chart budget_ind vs count of campaigns(ids)



Working with filters



Demo: Working with filters

- Reach by vertical in market data
 - Add asset type as filter

Lab: Working with filters

- Connect to sales data (Sample - Superstore Sales (Excel).xls)
 - Create graph for order quantity (sum) by product sub category
 - Add province as filter, show quick filter
 - Add customer segment as second filter show quick filter
 - Change them to single value dropdown
- Connect to price web data
 - Crate a time series graph for number of items sold per day
 - Use site name and brand as filters
 - Change the filter type to multiple value drop down for brand
 - Single value drop down for site
 - Change the filter type to global and local

Step-5

Tableau Dashboards

Dashboards

Tableau Public - Book2

File Data Worksheet Dashboard Analysis Map Format Window Help

Dashboard

- Orders_by_product
- Orders_by_month
- Orders by provience
- Ordersby Region

Add new sheets and objects as:
Tiled Floating

Horizontal Vertical Text Image Web Page Blank

Layout
Dashboard Tiled

Orders by provience

Position: x 245 y 0
Size: w 245 h 301

Show Title Floating

13 marks 13 rows by 1 column SUM(Order Quantity): 214,777

Orders_by_product

Product Cat..	Product Sub..	Order Quantity
Furniture	Bookcases	4,891
	Chairs & Chai..	9,590
	Office Furnish..	20,648
	Tables	9,195
Office Supplies	Appliances	10,901
	Binders and B..	22,992
	Envelopes	6,578
	Labels	7,301
	Paper	30,871
	Pens & Art Su..	16,980
	Rubber Bands	4,920

Orders_by_month

Order Quantity

Month of Order Date

Orders by provience

Province	Order Quantity
Alberta	22,654
British Columbia	28,769
Manitoba	20,279
New Brunswick	8,437
Newfoundland	1,936
Northwest Territories	9,722
Nova Scotia	11,874
Nunavut	
Ontario	
Prince Edward Island	19,589
Quebec	23,453
Saskatchewan	
Yukon	13,596

Customer Segment

- (All)
- Consumer
- Corporate
- Home Office
- Small Business

Province: Saskatchewan Order Quantity: 23,453

Keep Only Exclude

Ordersby Region

West Prairie Atlantic

Ontario Quebec Yukon

Show Me

For symbol maps try
1 geo @ dimension
0 or more dimensions
0 to 2 measures

The screenshot shows a Tableau Public dashboard titled 'Book2'. The dashboard includes four main visualizations: 1) A bar chart titled 'Orders by provience' showing order quantities for Canadian provinces. 2) A line chart titled 'Orders_by_month' showing monthly order quantity over time. 3) A map titled 'Ordersby Region' showing regional distribution across West, Prairie, Atlantic, Ontario, Quebec, and Yukon. 4) A table titled 'Orders_by_product' listing product categories and their order quantities. A tooltip is displayed over the 'Saskatchewan' row in the 'Orders by provience' chart, showing the value 23,453. The 'Show Me' sidebar on the right provides options for creating symbol maps. The bottom navigation bar includes links for 'Orders_by_product', 'Orders_by_month', 'Orders by provience', 'Ordersby Region', and 'Dashboard 1'.

Demo: Creating a Dashboard

- In superstore data
 - Orders by product, by province, by month & by region

Lab: Creating a dashboard

- Connect to Market_data_one.csv
 - Create a graph that shows budget by each vertical
 - Create a graph that average budget by each vertical
 - Create a graph that shows average reach by each vertical
 - Create a graph that shows the relation between number of form fields & reach(use id)
 - Create a dashboard with all the above graphs
- Connect to 2.2 Health_claim.xlsx
 - Create a graph for average claim amount by days admitted
 - Create a graph for average claim amount by Month
 - Create a graph for average claim amount by age(convert age into bins)
 - Create a scatter plot for distance from clinic vs claim amount(use patient id also)

Demo: Using a graph as filter

Tableau Public - Book2

File Data Worksheet Dashboard Analysis Map Format Window Help

Normal

Dashboard

- Orders_by_product
- Orders_by_month
- Orders by provience
- Orders by Region
- Sheet 5
- Sheet 6
- Sheet 7

Horizontal Vertical Text Image Web Page Blank

Add new sheets and objects as:
Tiled Floating

Layout
Dashboard Tiled

Ordersby Region
Position: x 245 y 301
Size: w 245 h 301

Show Title Floating

1 of 8 marks 1 row by 1 column SUM(Order Quantity): 51,423

Orders_by_product

Product Category	Product Sub-Category	Order Quantity
Furniture	Bookcases	1,202
	Chairs & Chai..	2,428
	Office Furnishi..	5,074
	Tables	1,857
Office Supplies	Appliances	2,277
	Binders and B..	5,597
	Envelopes	1,633
	Labels	1,777
	Paper	8,018
	Pens & Art Su..	3,878
	Rubber Bands	1,252

Orders by provience

Province

Customer Segment

- (All)
- Consumer
- Corporate
- Home Office
- Small Business

Size

Order Quantity

Region: West Order Quantity: 51,423

Keep Only Exclude

For horizontal bars try
0 or more dimensions
1 or more measures

Orders_by_month

Order Quantity

Month of Order Date

Dashboard 1 Sheet 5 Sheet 6 Sheet 7 Dashboard 2

11:16 PM 11/5/2013

Windows Internet Explorer Google Chrome Mozilla Firefox

Step-6: Advanced Data Options

Contents

- Clipboard data
- Connecting two data sources
- Joining data sources
- Creating hierarchies
- Measure values and Measure names
- Number of records

Copying Data from clipboard

- Demo:
 - Copy air travel data to clipboard
 - Worksheet>>Data>>paste data

LAB: Copying Data from clipboard

- Copy petrol consumption data and crate a data connection by pasting it; Change the connection name to petrol consumption data
- Copy data from Price_web_data Analysis.csv and paste it in tableau; Change the connection name to price web data

Connecting two data sources

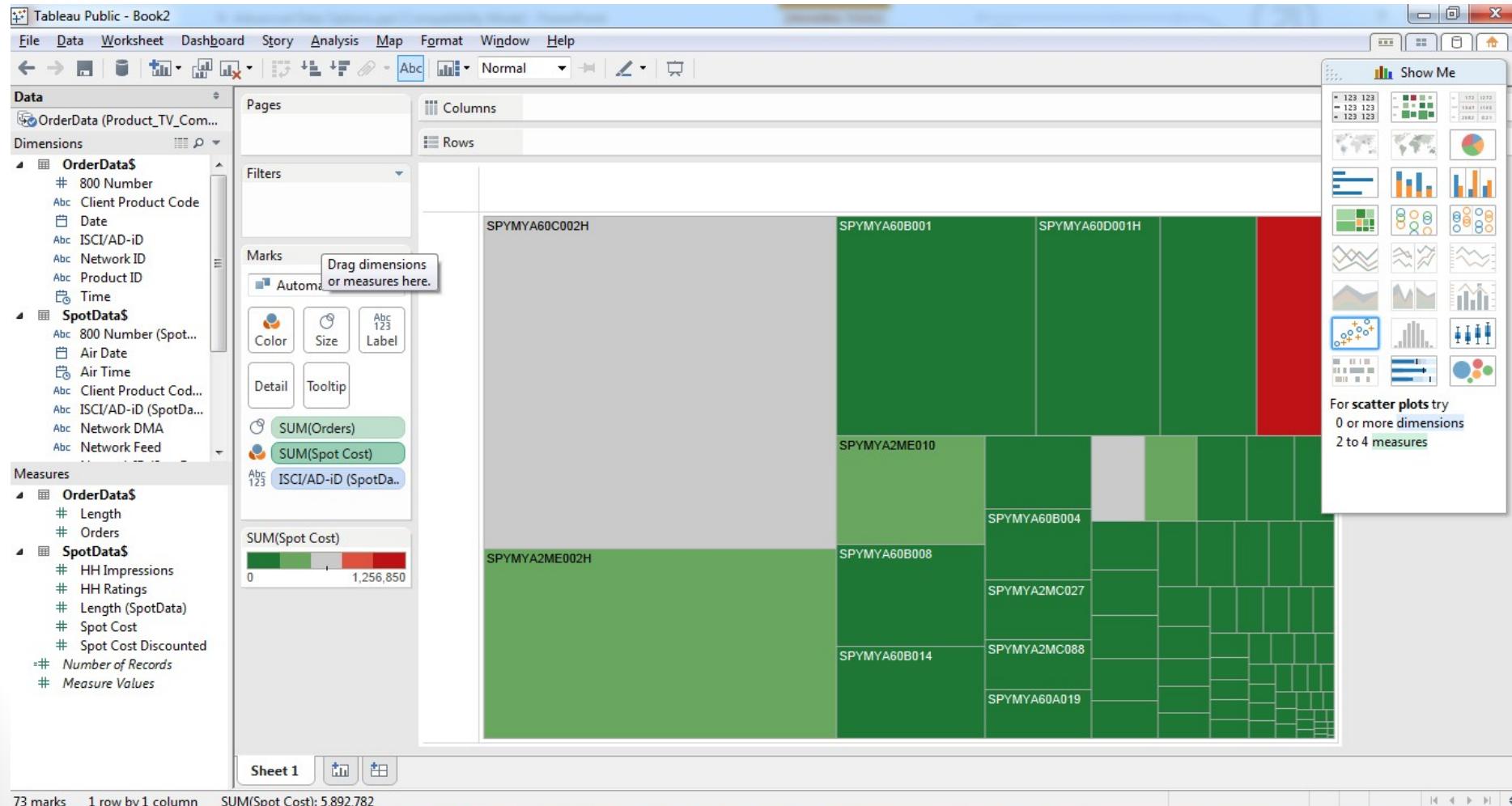
- Demo:
 - In TV commercial data, we have orders data and commercial spot data.
 - We want to draw an are graph to see whether the spot really effects the order quantity. Do you think if the spot cost is high the number of orders are also high

Joining two tables

- Joining spot cost and orders tables in TV commercial data

The screenshot shows the Tableau Public interface with a blue header bar. The main area displays a data source named "OrderData (Product_TV_Commercial_data)". Below the title, it says "Connected to Excel" and "Product_TV_Commercial_data.xlsx". A "Workbook" section shows a connection between "OrderData" and "SpotData". The "Sheets" section lists "OrderData", "SpotData", and "WebOrders". A search bar for "Enter sheet name" is present. At the bottom, there's a table with columns: Date, Time, Client Product Code, Product ID, Network ID, 800 Number, ISCI/AD-iD, Length, Orders, Air Date, and Air. A "Copy" button and a "Go to Worksheet" button are at the top of the table area. A progress dialog box in the bottom right corner says "Loading data..." with a circular progress indicator and a "Cancel" button.

Creating a graph with joined tables



LAB: Joining two tables

- In TV commercial data, connect orders to spots based on ISCI/AD-iD
 - Draw a graph time(date from orders table) vs spot cost
 - Draw a graph that shows total orders and average spot cost for each network
- Connect market one and market raw data
 - Draw a scatter plot between budget(raw data) and reach(market one)

Creating a Hierarchy

- For example, a data source may have fields for Country, State, and City. These fields could be grouped into a hierarchy called Location.
 - Right-click one or more selected fields in the Data window and select Create Hierarchy
 - In the Data window, drag and drop a field directly on top of another field.

Demo : Creating Hierarchy

- In superstore data drag and drop customer name on customer segment
- Create a graph using customer segment hierarchy vs orders

LAB: Creating Hierarchies

- Import superstore data create below hierarchies
 - Product category
 - Product sub category
 - Product name
- Draw a graph to show profit by product hierarchy
- Import cars data
 - Create hierarchy for make and model
 - Draw a graph to show average price by make model hierarchy
 - What if we create a hierarchy for model and make??

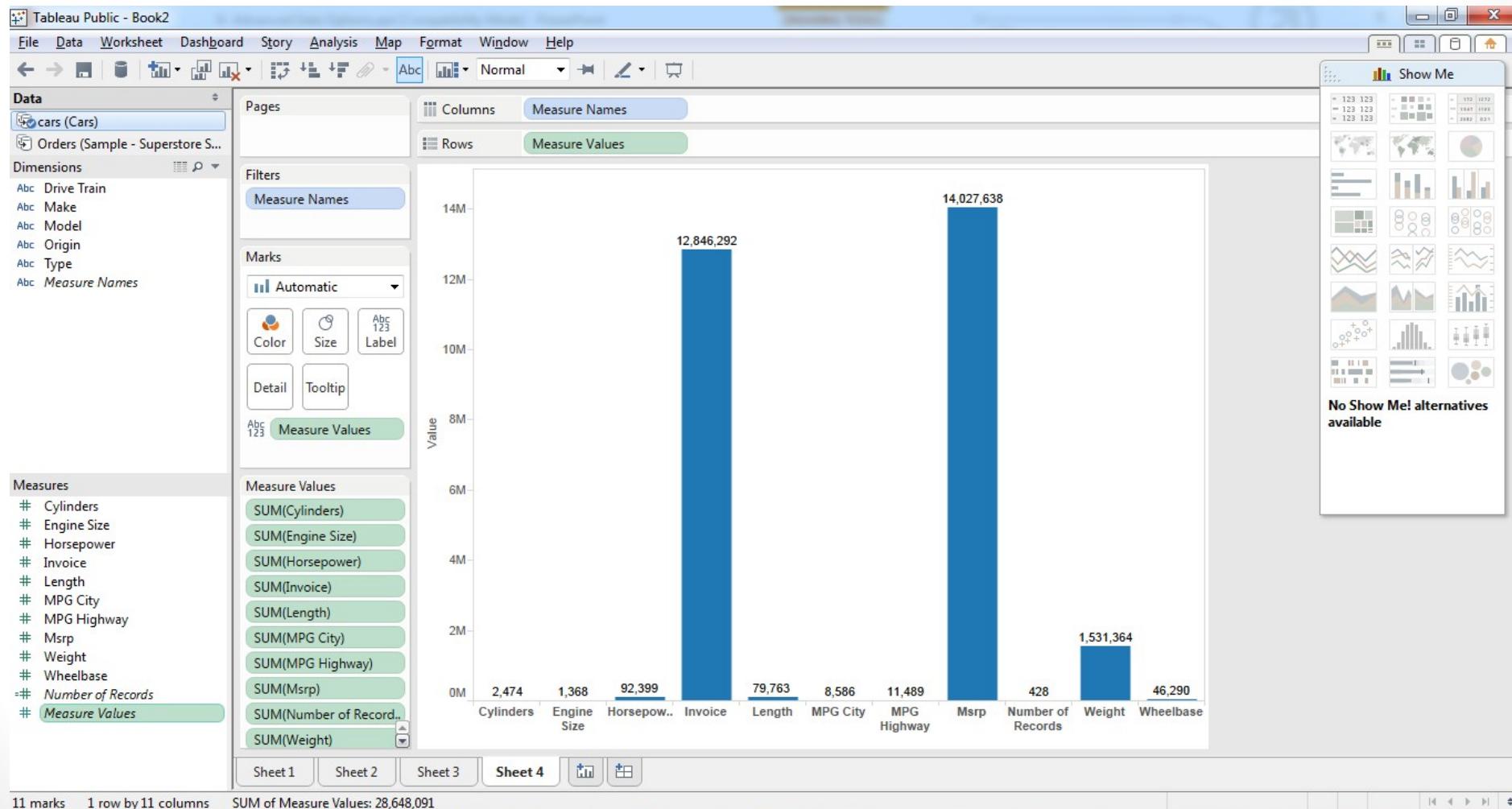
LAB: Removing Hierarchies

- Remove all the hierarchies that are created

Measure Values and Measure Names

- The Data window contains a few fields that are not part of your data source, two of which are Measure Names and Measure Values
- **Measure Values:** All the measures of your data source collected into one field.
- **Measure Names:** Contains all the names of the measures collected into a single dimension.

Demo Measure Values and Measure Names

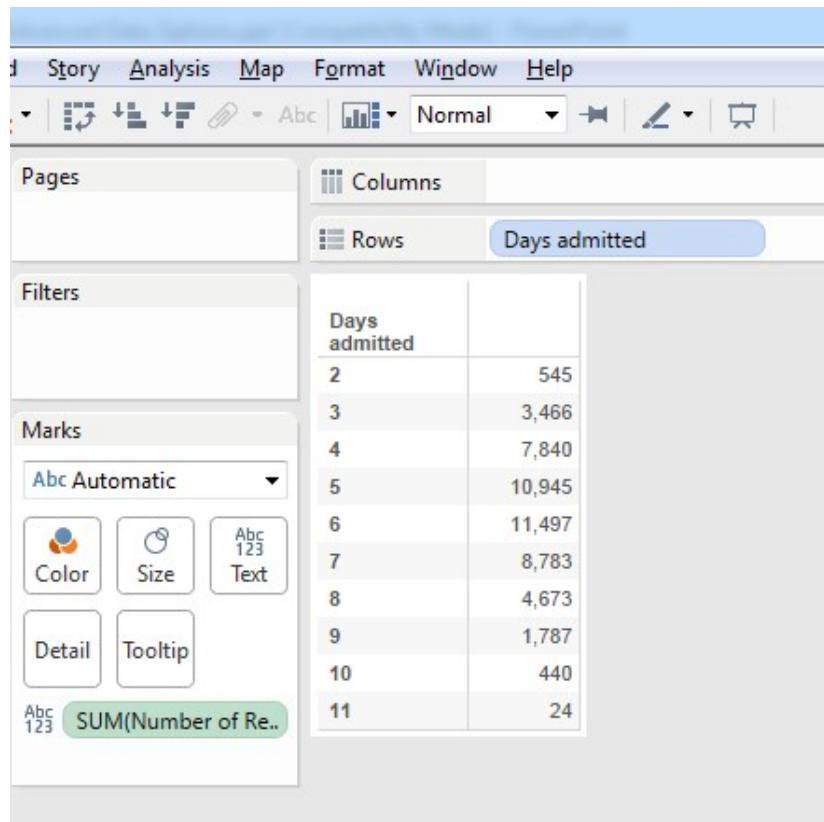


LAB: Measure Values and Measure Names

- Import health claim data
 - Draw a graph measure names against measure values
 - Can we recreate the input data table using measure values and measure names?

Number of Records

- Number of Records field that is also not part of the underlying data source.
- This field represents the number of rows in the data source.
- Demo days admitted vs. number of records



LAB: Number of records

- Find the frequency of each brand in cars data
- Find the frequency of each brand in price web data

Latitude and Longitude

- Tableau automatically geocodes your data and includes Latitude (generated) and Longitude (generated) fields. You can use these fields to overlay your data on live maps.
- Lat & Long for province in superstore data

Step-7: Advanced graph Options

Contents

- Sorting
- Groups
- Sets
- Actions
- Parameters

Sorting

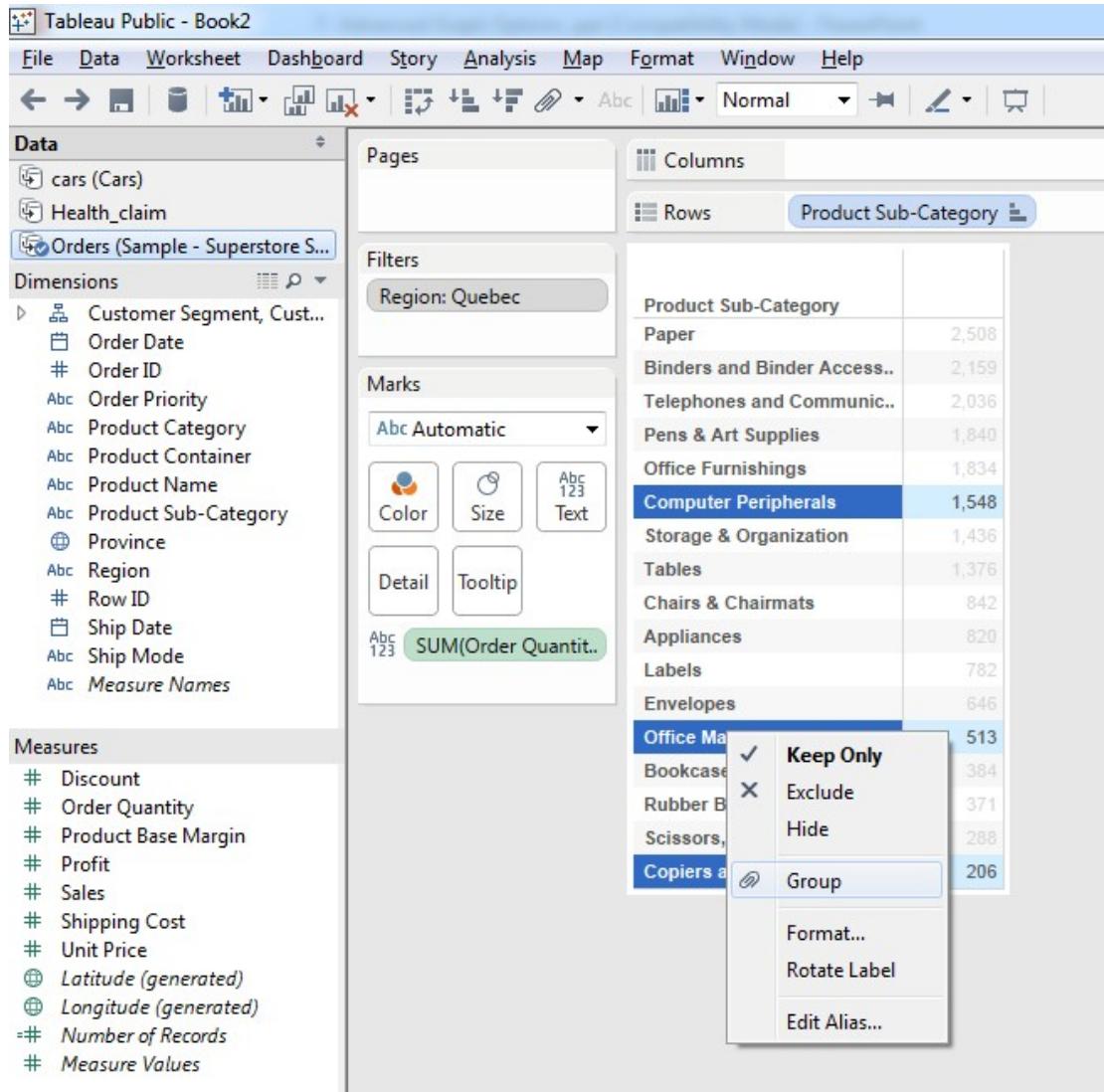
- Display your data in ascending or descending order based on other fields or custom formulas using computed sorts.

LAB: Sorting

- Create a graph for price web data, brand vs average list price, sort the result by average list price
- Create a graph for telecom bill data; customer segment vs average bill. Sort it by bill amount

Groups

- Combine dimension members into higher level categories.



Lab Groups

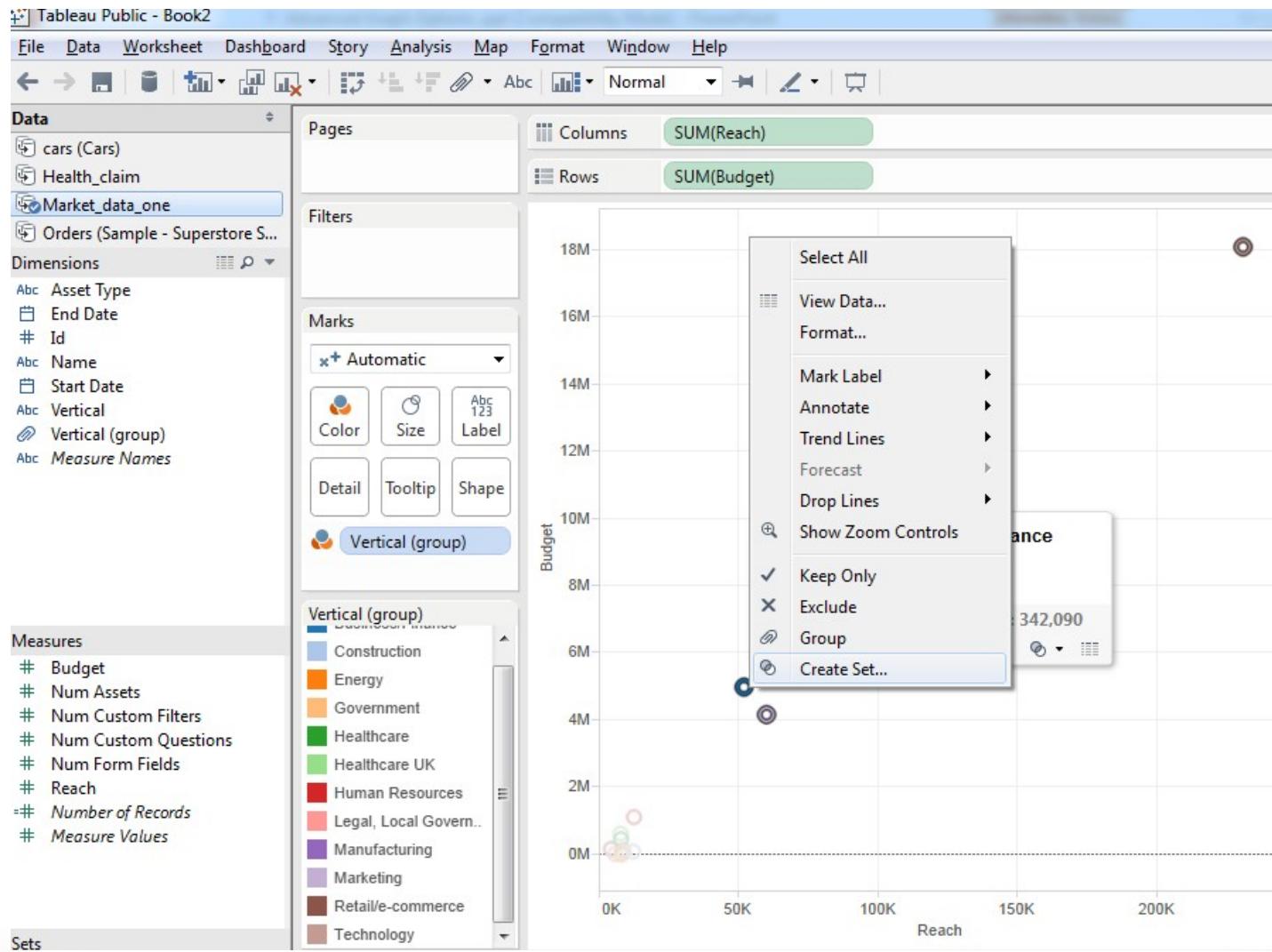
- Import market_one.csv
 - Create a table for vertical vs sum of number of records
 - Combine last four verticals as a single group
- Import price web data
 - Create a table for brand vs count of records
 - Combine the last 10 brands

Sets

- Set is almost like a dynamic subset.
- Sometimes we may want to create a subset by collecting all the data points of our interest
 - Outliers
 - Points falling in a certain region

Demo

- Vertical vs reach vs budget



LAB: Sets

- Create a graph for claim amount vs distance from clinic. There is a higher chance in case of patients travelling more than 100 kms(100K meters); Select all such cases and create a different set
- Create a graph for telecom billing data
 - Bar chart for Customer segment vs average bill(Current Charges)
 - Sort them based on average current charges
 - Create a set based on last five groups
 - What is the count of accounts and average bill for the subset?

Actions - Filter Action

- Worksheet >> Actions
- Demo: Cars data
 - MSRP vs MPG vs Make
- Add action

LAB: Action

- Import Telecom billing data
 - Create a bar graph to show the average of current charges in each customer segment. Add filter action
 - Remove filter action and add highlight action, what is the difference?
- Import TV commercial spot data
 - Create a graph to show network name along with average spot cost.
 - Add URL action , redirect the highlighted part to google.com

Outliers

- Mean
- Median
- Quartiles
- Outliers

Box Plots to identify outliers

- Draw a boxplot to identify the outliers in claim amount vs patient id

Boxplots and outliers

- Draw a boxplot to identify the outliers in claim amount vs patient id
 - Remove outliers and recreate the box plot(use filter on claim amount)
- Draw a boxplot to identify the outliers in current charges in telecom bill data (use del number as id)
- Draw a boxplot to identify the outliers in age of patients in health claim data. Are there any outliers?

Thank You