



TUTORIAL

# Get Started with Tableau Desktop

Learn how to connect to data, create data visualizations, present your findings, and share your insights with others.

This tutorial walks you through features and functions of Tableau Desktop. As you work through this tutorial, you will create three views in a Tableau workbook. The steps you'll take is based on a Rubbery Squeezy Chicken data set from the University of Arkansas Enterprise System group in the Information Systems Department.

## Dataset Overview:

Table Name	Time Frame	Rows	Attributes	Size (GB)
Batch_Product_Fact	n/a	7,300	12	1.583
Customer_Dimension	1/1/1900 to 1/1/2199	120	16	0.657
Date_Dimension	1/1/2013 to 9/9/2025	4,750	11	1.344
Department_Dimension	n/a	6	4	0.374
Inventory_Fact	n/a	1,380	5	0.466
Month_Dimension	n/a	158	6	0.503
Movement_Dimension	n/a	3	2	0.371
Plant_Dimension	n/a	10	5	0.377
Product_Dimension	n/a	127	8	0.479
Production_Fact	n/a	80,300	8	8.130
Sales_Fact	n/a	5,984	6	0.992
Shift_Dimension	n/a	3	4	0.371
<b>12 TABLES</b>			<b>87</b>	<b>15.653</b>
Platform data is currently available: Yes				

The dataset has a total of 100,240 records and 87 attributes distributed among 12 tables.

This tutorial shows you how to:

1. Connect directly to the WCOB\_RSC dataset residing on the TERADATA system.
2. Prepare the dataset before working on it.
3. Create three visualizations based on an investigation of transaction amounts.

**NOTE:** This tutorial assumes you have been granted access to the University of Arkansas VMWare platform. Requesting access can be done from the Enterprise Systems website at the University of Arkansas (<https://walton.uark.edu/enterprise/>). The data used should not be downloaded to your personal drives. All files should remain on the Remote Desktop S: drive provided by the University of Arkansas. This is due to our agreement with the data providers. Questions can be directed to Ron Freeze at [rfreeze@walton.uark.edu](mailto:rfreeze@walton.uark.edu).

<http://onlinehelp.tableau.com/current/guides/get-started-tutorial/en-us/get-started-tutorial-home.html>

**ESTIMATED COMPLETION TIME:** 20-40 minutes



## The Story

Suppose you were recently hired as an analyst in the merchandising department of the most important toy company in the United States. Your boss assigned you a unique product: Rubbery Squeezy Chickens. Your objective is to find three different insights for this specific product.

Initially, you are interested in visualizing the total quantity sold and sale amount by the different manufacturing plants where the rubbery squeezy chickens were produced. Next, you want to take the insights gained in the first visualization and narrow down your analysis to the top manufacturing plant in terms of revenue generation. You will then see if there is any seasonality pattern for this specific manufacturing plant by looking at monthly sales. Finally, you want to look at days of the week insights. Is there any particular day that sold the most on average? Is there any particular day of the week that generated the highest revenue on average?

In order to reach the desired visualizations, the following are the steps we will follow:

### 1. CONNECTING TO THE DATA ([here](#))

- Connect to **Teradata**
- Connect to **WCOB\_RSC** database
- Connect to the three tables: **DATE\_DIMENSION**, **SALES\_FACT** and **PLANT\_DIMENSION**.

### 2. PREPARING THE DATA ([here](#))

- Use hide and filter tools to reach this list of attributes:
  - Date Description (Table: DATE\_DIMENSION)
  - Month Of Year (Table: DATE\_DIMENSION)
  - Year Number (Table: DATE\_DIMENSION)
  - Quarter of Year (Table: DATE\_DIMENSION)
  - Day of Week (Table: DATE\_DIMENSION)
  - Plant City (Table: PLANT\_DIMENSION)
  - Plant State (Table: PLANT\_DIMENSION)
  - Plant Description (Table: PLANT\_DIMENSION)
  - Sale Amount (Table: SALES\_FACT)
  - Quantity Sold (Table: SALES\_FACT)
  - Unit Price (Table: SALES\_FACT)

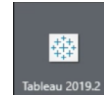
\* For further understanding of the attributes listed above, please refer to the [data dictionary](#) appended at the end of the document.

### 3. CREATE THE VISUALIZATIONS ([here](#))

1. A side-by-side bar chart for the total quantity sold and sale amount per manufacturing plant.
2. A trend line chart with monthly sale amounts for the top manufacturing plant.
3. A dashboard with two packed bubble charts with average quantity sold and average sale amount per day of the week for the top manufacturing plant.

## Open Tableau Desktop and begin

This tutorial assumes that you have logged in to University of Arkansas VMWare platform. Select the **Start Windows** icon, look for **Tableau 2019.2** and click on it. Wait 10 seconds until the application opens. If an update Tableau window pops up, exit this window.



The first thing you see after you open Tableau Desktop is the **start PAGE**. Here, you select the connection that you want to use - how you will connect to your data

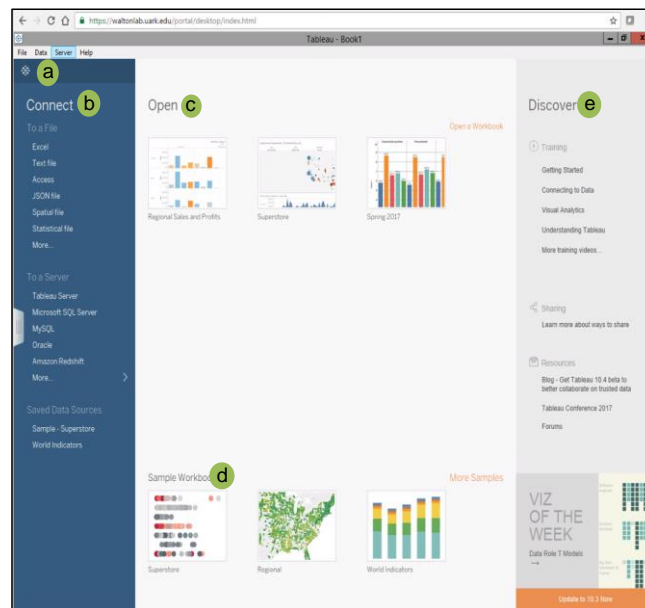
The start page gives you several options to choose from:

a. Click the Tableau icon in the upper left-hand corner of any page to visit the start page at any time.



b. Under **Connect**, you can:

- o Connect to data that is stored in a file, such as Microsoft Excel or Access.
- o Connect to data that is stored on a server, such as Tableau Server, Microsoft SQL Server, or Google Analytics.
- o Connect to a data source that you've connected to before.



*Tableau supports the ability to connect to a wide variety of data stored in a wide variety of places. The **Connect** pane lists the most common places that you might want to connect to, or click the **More...** link to see more options. **More on connecting to data sources in the Learning Library (in the top menu).***

c. Under **Open**, you can open workbooks that you have already created.

d. Under **Sample Workbooks**, view sample dashboards and worksheets that come with Tableau Desktop.

e. Under **Discover**, find additional resources like video tutorials, forums, or the “Viz of the week” to get ideas about what you can build.

## WCOB SAMS INTEGRATED Data Connection



### Connect to Teradata

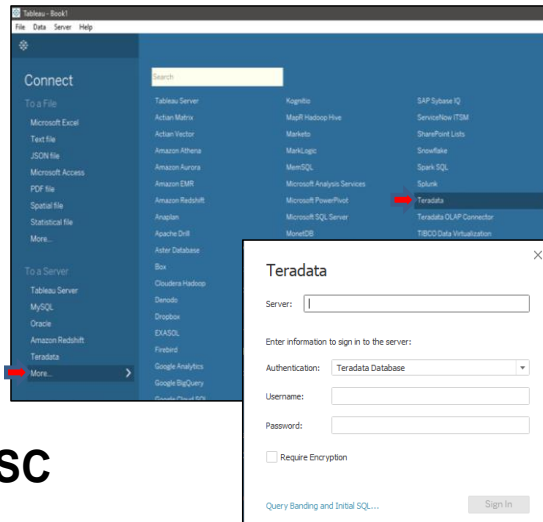
Under **Connect > To a Server**, select **More**. A new window will open, click on **Teradata** as shown in the figure alongside.

A window will ask you to enter the following information:

**Server:** 130.184.26.161

**Username:** given to you by instructor

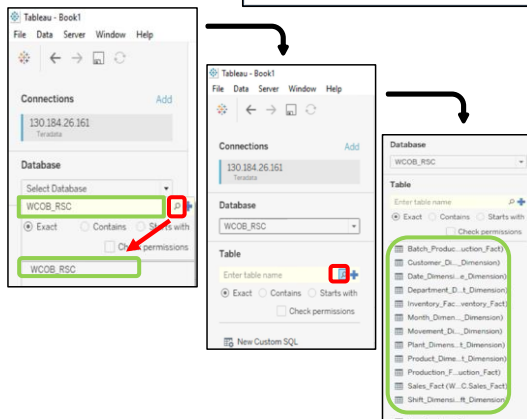
**Password:** given to you by instructor



### Connect to WCOB\_RSC

Now we have to access the **WCOB\_RSC** database through the panel to the left:

1. Type "WCOB\_RSC", click on the search icon. A new "WCOB\_RSC" will appear below, click on it.
2. Once on the database, click on the search icon.
3. Finally, tables from the database should appear on the panel to the left.

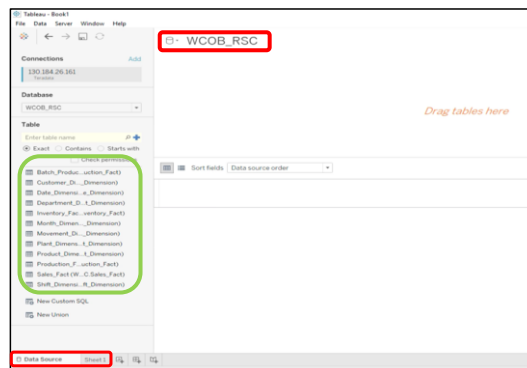


Your window should look like the picture on the right. You are connected to **WCOB\_RSC** database (circled in red). The left panel shows the tables (circled in green) in the database.

At the bottom left corner, there are two tabs named **Data Source** and **Sheet 1**. Click on **Sheet 1** and a window similar to the picture below will appear.

**Sheet 1** does not currently have data. This is indicated by an exclamation point next to the database name (circled in red in the figure on the next page).

Click on the **Data Source** tab on the



## WCOB SAMS INTEGRATED Data Connection



bottom left. This will take you to the previous window where you connected to the Database and displayed the tables.

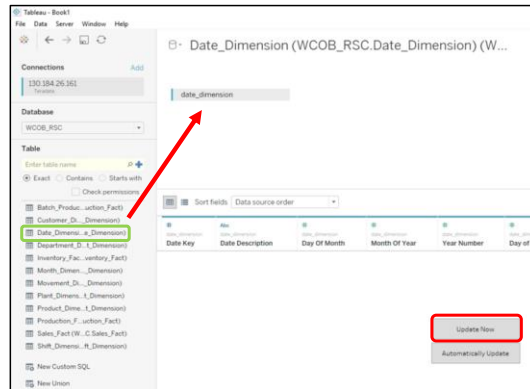


## Connect to Date\_Dimension table

On the Data Source window:

4. Drag and drop the **Date\_Dimension** table on the left panel to the blank space at the top where it says “*Drag tables here*”.
5. Click on **Update Now** (circled in green) and Tableau will fill the columns with data.
6. Click on **Sheet 1**.

You will now note that you can see the table attributes assigned to **Dimensions** and **Measures**.



### As a recap:

After you connect to your data, Tableau does the following:

- Opens a new worksheet. This is a blank slate where you create your first view.
- Automatically assigns data types (such as date, number, string, etc.) and roles (dimension or measures) to your data. (We'll talk more about these terms later.)
- Adds columns from your data source to the Data pane on the left-hand side. Columns are added as fields.

If you want to review details of your data, you can select the Data Source tab in the bottom left-hand corner. Here, you can view the first 1,000 rows of your data. What happens in Tableau stays in Tableau; the data is safe.

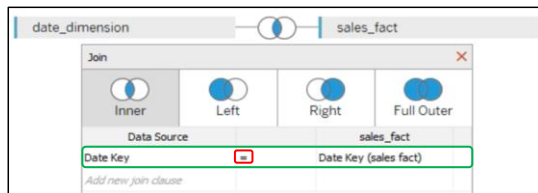
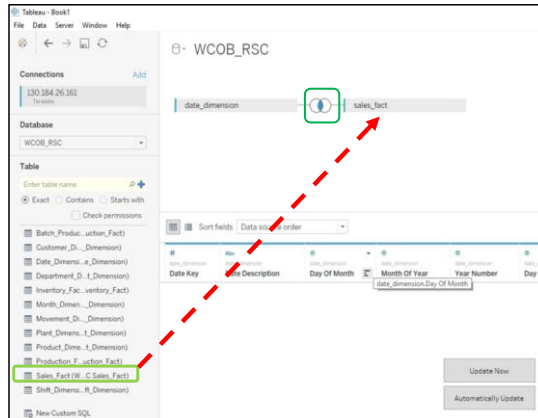
When you connect to your own data, you might need to do some prep work before connecting to it in Tableau. This is because Tableau makes assumptions about your data so that it can display it properly. With the Date\_Dimension table added, we have the first five variables needed for our analysis: Date Description, Month of Year, Year Number, Quarter of Year, and Day of Week.

**Note:** If you navigated to Data Source to check out the details, just click on the tab for **Sheet 1** to get back to where you started.

## Add the Sales\_Fact table

To obtain the variables for the remainder of the analysis, we need to add and connect the **Date\_Dimension** table to the **Sales\_Fact** table. The connection is possible since both tables share a single variable attribute: **Date Key**.

7. Return to the Data Source page.
8. Drag and drop **Date\_Dimension** to the blank space like you did with **Sales\_FACT**.
9. The two intersecting circles (circled in green) mean that they were successfully connected. This is considered an inner join.
10. Right click on the join symbol. The popup shows all the different joins Tableau allows you to do. Here

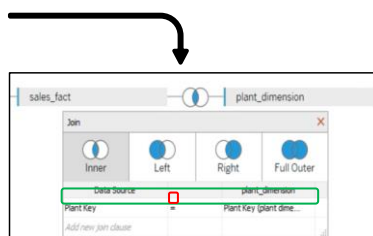
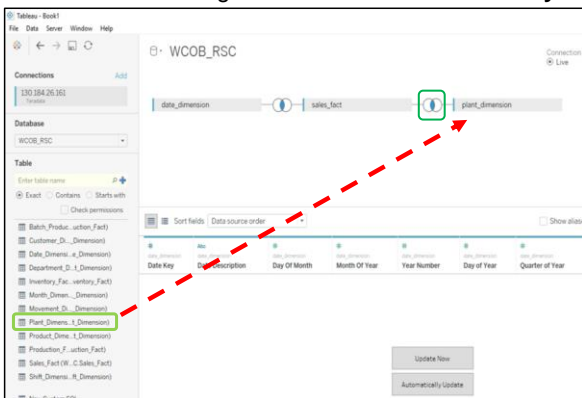


**Date\_Dimension** table is taken as 'Data Source' inner joining **Sales\_Fact** table. Both have **Date Key** as the common attribute joined by an equal sign (circled in red).

Now we have the attributes from both the **Date\_Dimension** table and the **Sales\_Fact** table.

## Add the Plant\_Dimension table

Finally, we need to add and connect the **Plant\_Dimension** table. Similar to what we just did, the connection will be with table **Sales\_Fact**. This connection is possible since both tables share the single variable attribute: **Plant Key**. Repeat the same steps as above:



## Preparing the Data

### Hide Unneeded Fields

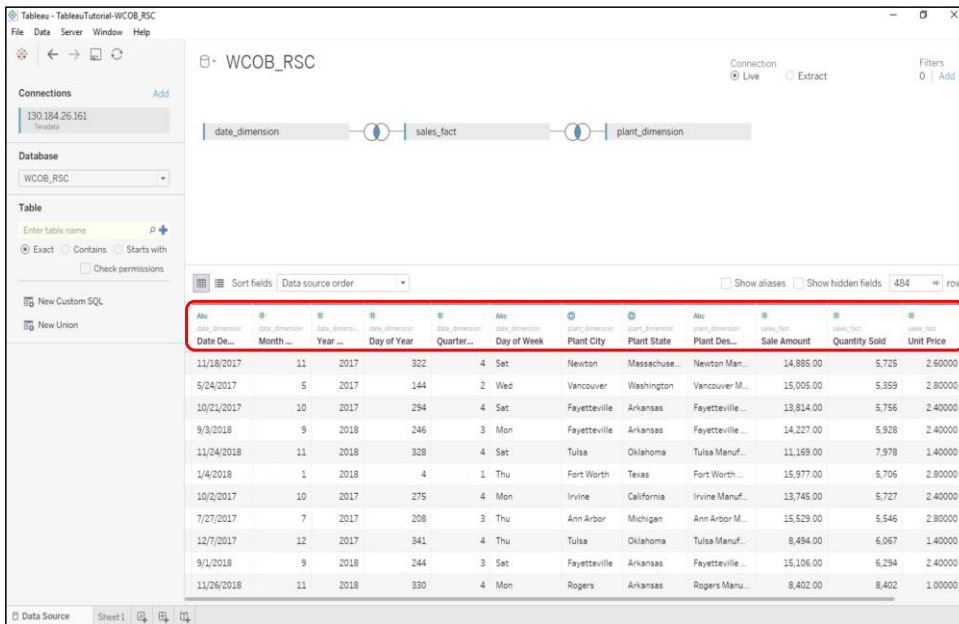
To get the list of attributes stated in [The Story](#), we need to hide the ones we don't need:

1. Click the down arrow at the top right corner of each attribute not needed in the analysis.
2. Click on Hide and the attribute will no longer appear in the data.



To undo this, click the 'Show hidden fields' box at the far right of the window and manually unhide the attribute.

After hiding all the unnecessary attributes and keeping only the ones mentioned (**Date Description, Month of Year, Year Number, Quarter of Year, Day of Week, Plant City, Plant State, Plant Description, Sale amount, Quantity Sold, and Unit Price**) your screen should look like the following:

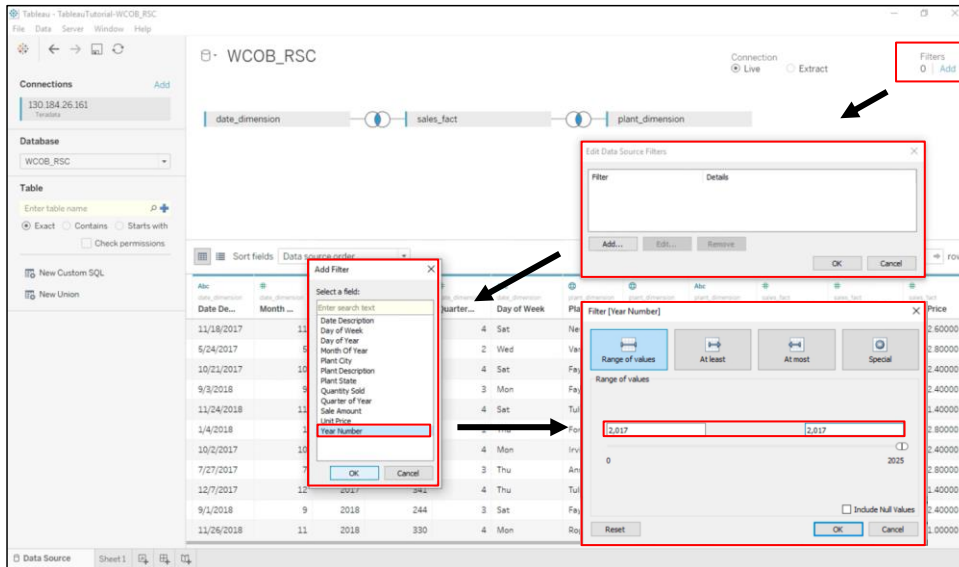


A screenshot of the Tableau interface showing a data table. The table has the following columns: Date De..., Month..., Year..., Day of Year, Quarter..., Day of Week, Plant City, Plant State, Plant Des..., Sale Amount, Quantity Sold, and Unit Price. The table contains 12 rows of data. The columns are highlighted with a red box.

Date De...	Month...	Year...	Day of Year	Quarter...	Day of Week	Plant City	Plant State	Plant Des...	Sale Amount	Quantity Sold	Unit Price
11/18/2017	11	2017	322	4	Sat	Newton	Massachuse...	Newton Man...	14,885.00	5,725	2.60000
5/24/2017	5	2017	144	2	Wed	Vancouver	Washington	Vancouver M...	15,005.00	5,359	2.80000
10/21/2017	10	2017	294	4	Sat	Fayetteville	Arkansas	Fayetteville ...	13,814.00	5,756	2.40000
9/3/2018	9	2018	246	3	Mon	Fayetteville	Arkansas	Fayetteville ...	14,227.00	5,928	2.40000
11/24/2018	11	2018	328	4	Sat	Tulsa	Oklahoma	Tulsa Manuf...	11,169.00	7,978	1.40000
1/4/2018	1	2018	4	1	Thu	Fort Worth	Texas	Fort Worth ...	15,977.00	5,706	2.80000
10/2/2017	10	2017	275	4	Mon	Irvine	California	Irvine Manuf...	13,745.00	5,727	2.40000
7/27/2017	7	2017	208	3	Thu	Ann Arbor	Michigan	Ann Arbor M...	15,529.00	5,546	2.80000
12/7/2017	12	2017	341	4	Thu	Tulsa	Oklahoma	Tulsa Manuf...	8,494.00	6,067	1.40000
9/1/2018	9	2018	244	3	Sat	Fayetteville	Arkansas	Fayetteville ...	15,106.00	6,294	2.40000
11/26/2018	11	2018	330	4	Mon	Rogers	Arkansas	Rogers Manu...	8,402.00	8,402	1.00000

## Filter Fields

Since our analysis is based on the year 2017 only, we can already filter our data to that year:



On the picture above, at the top right corner, you can find a **Filters** subtitle:

Commented [RF1]: Need to correct the circled items.

3. Click on **Add**. A new window will open, click on **Add..** again.
4. You are now in the 'Add Filter' window. Click on **Year Number** and then **click OK**.
5. You are now in the 'Filter [Year Number]' window. Click on **Range of Values** box (highlighted in blue).
6. In the two blank spaces, type **2017** (this will set the range to the year 2017 only).
7. Click **Ok**.

*Note: You are not required to filter the date at this moment. Alternatively, you can do this when you are already working on a workbook.*

We have finished organizing our data:

8. Click on **Sheet 1**, now you can start your visualizations.



## Create the Visualizations

### Total Quantity Sold and Sale amount per Plant

Create the side-by-side bars chart for the total quantity sold and sale amount per manufacturing plant.

The following are the parameters you wanted for the exploration of the quantity sold and sales value in your side-by-side bar chart.

- Manufacturing plants in descending order.
- For the year 2017.
- Show the total quantity sold and total sale amount per plant.
- The side-by-side bar chart should be in US Dollars.

The parameters help set which dimensions and measures you are interested in using. Tableau will assume certain things for you as you create your visualization.

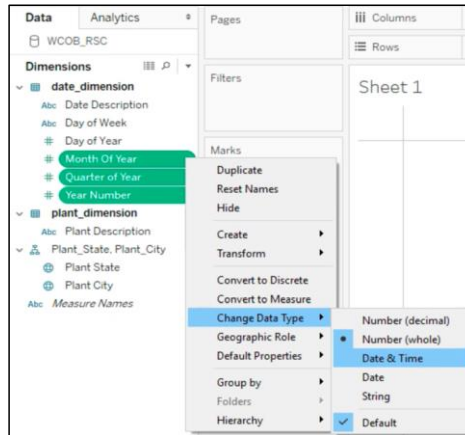
1. Start by dragging and dropping the dimensions of **Plant Description** to the Rows cell and the **Quantity Sold** and **Sale Amount** measure to Columns cell.



Since we already set our data for the year 2017, we do not need to filter the date anymore unless we would want to analyze a different year.

Nevertheless, you can tell by sharp sign (#) next to **Month of Year**, **Quarter of Year**, and **Year Number**, that these are not set to a **Date & Time** data type. To change this, do the following:

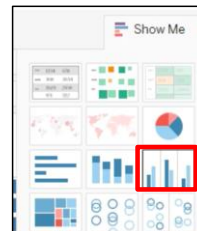
2. Click on **Month of Year** and keeping **shift** select **Quarter of Year** and **Year Number** (highlighted in green).
3. Right-click and choose **Change Data Type** (highlighted in blue).



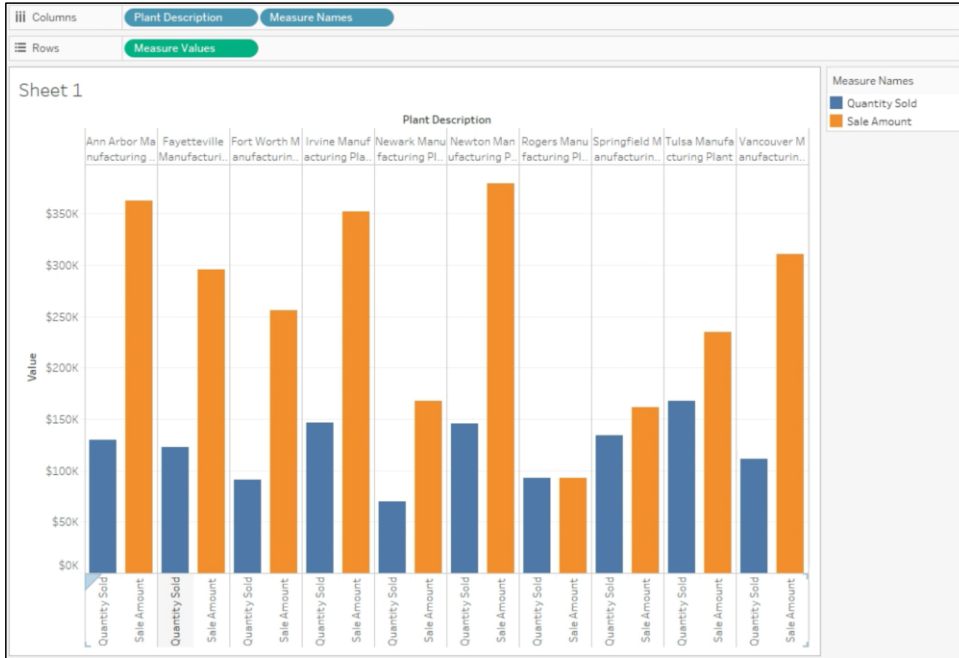
4. Select **Date & Time** (highlighted in blue). Now your dimensions have changed from Number datatype to Date & Time datatype.

You should now see two horizontal column charts, one for Quantity Sold and the other for Sale Amount. Now, we want to join these two and create a side-by-side bar chart:

5. On the top right corner, click on **Show Me** (figure alongside). This panel is a quick guide that helps you create different visualizations based on the attributes you have.
6. Select the box with a **side-by-side** bar figure (circled in red).



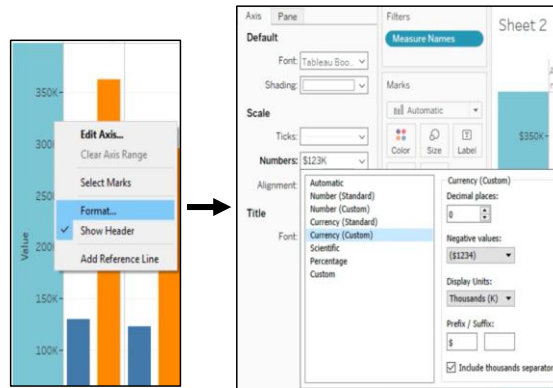
At this point, your visualization should look like the following:



Our main objective is half-way completed. Now we have to make it readable for our boss and visual friendly for presentation purposes.

We will first change our y-axis to Dollars:

7. Click on the left **Value** panel (y-axis). When highlighted in blue, right-click on it. A new 'Axis' pane will appear where your attributes were located.
8. Select **Numbers**. Then click on **Currency (Custom)** and make sure the following parameters are selected:
  - a. Decimal places: 0
  - b. Display Units: Thousands (K)
  - c. Prefix/Suffix: \$
  - d. Box checked for: Include thousands separators.

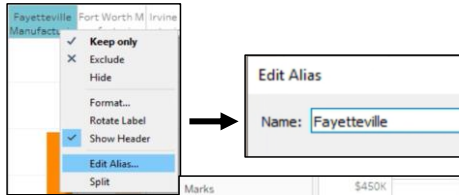


Since all plants hold 'Manufacturing Plant' next to the city were they are located, we will edit the aliases of the columns and remove them from their names:

**WCOB SAMS INTEGRATED Data Connection**

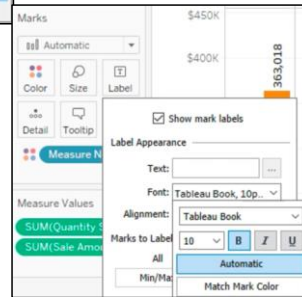


9. Right-click on the **Plant Description** name and select **Edit Alias**.
10. Remove **Manufacturing Plant** from the 'Name: ' and click **Ok**.
11. Repeat for all the columns.



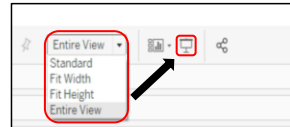
Now, we want our bars to have labels:

12. Under the **Marks** palette, click on the **Label** box.
13. On it, check the **Show mark labels** box and change the font to size 10 and bold.
14. Double-click on the **Sheet 1** tab and change the name to: **Total Quantity sold and Sale amount per Plant in 2017**. (This will automatically change the title or your visualization).

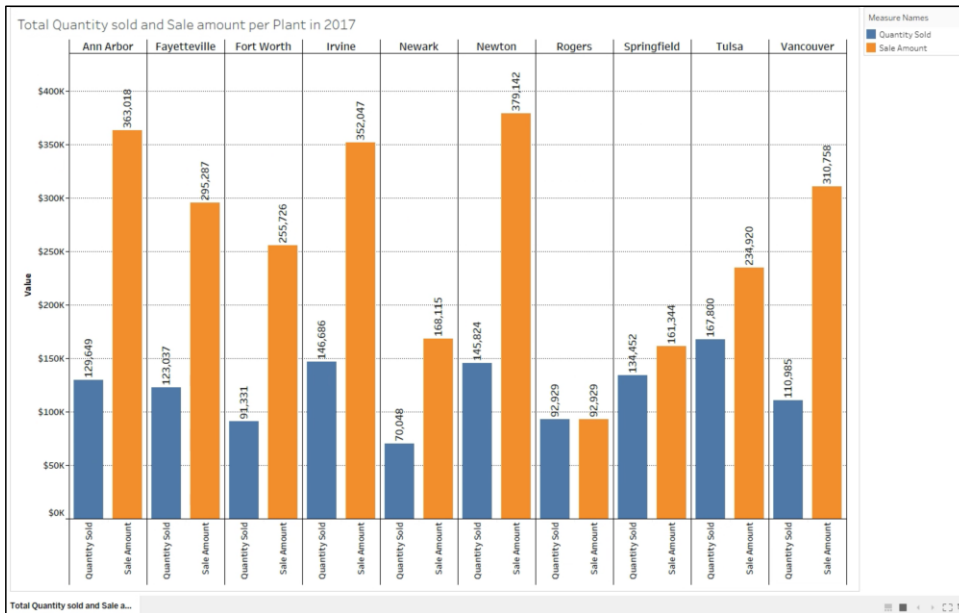


Finally, right click on different places of the side-by-side bar chart and change the font in a way that it looks presentable to your audience.

15. Finally, to view your final product, click on **Presentation Mode (F7)** on the top tool bar (circled in red).



Try to make your visualization look something similar to this:



## Monthly Sale Amount for top Manufacturing plant

Create a trend line of monthly sale amounts for the top manufacturing plant in 2017 found on the previous visualization.

The following are the parameters you want for the exploration of the sales value in your trend line:

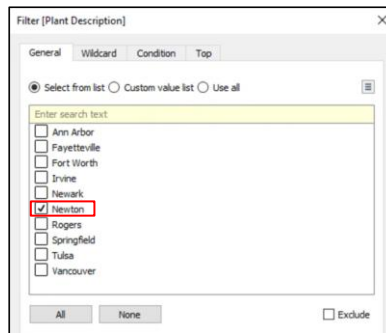
- For the year 2017.
- Sale amounts in a monthly base.
- Trend line with area highlighted below (Area chart visual).
- The sale values should be in US Dollars.

The parameters help set which dimensions and measures you are interested in using. Tableau will assume certain things for you as you create your visualization.

1. At the bottom left and next to the title you assigned to the previous visualization, click on **New Worksheet**.

In the previous visualization we found that the manufacturing plant in **Newton** was the one with the highest revenue in Dollars. For that reason, we will first filter our data to this manufacturing plant only:

2. Drag and drop **Plant Description** to the **Filters** palette located above the Marks palette.
3. A 'Filter [Plant Description]' window will appear. Check the box where you see **Newton** (circled in red). Click **Ok**.



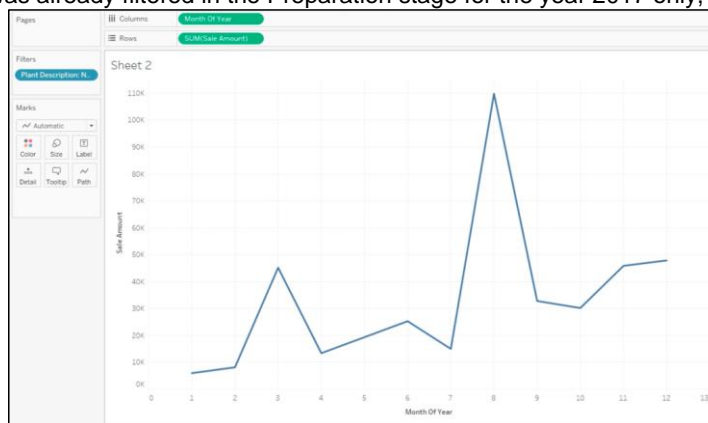
Now everything you do in the worksheet will be for the Newton manufacturing plant only.

4. Double-click on the dimension **Month of Year** and on the measure **Sale amount** (Tableau will automatically assign them to columns and row respectively).
5. Since the data was already filtered in the Preparation stage for the year 2017 only, there is no need to filter the **Year Number**.

Your visualization should look something similar to the figure alongside.

You can notice some seasonality pattern on two months:

- 3 - March
- 8 – August



**WCOB SAMS INTEGRATED Data Connection**

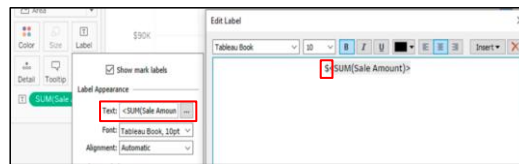


Now, we want to show the area below our line and the respective values for each month:

6. Click on **Show Me** (top right corner) and select **Area Chart** (circled in red).
7. Click on the **Label** box like you did previously and click on **Show mark label** (adjust the font accordingly).
8. Adjust the y-axis to Dollars (\$) like we did above.



Hint: In order to put Dollar signs to your labels, drag and drop **Sale Amount** to the **Label** box and alter the text by inserting a Dollar sign (\$) before the sale amount.



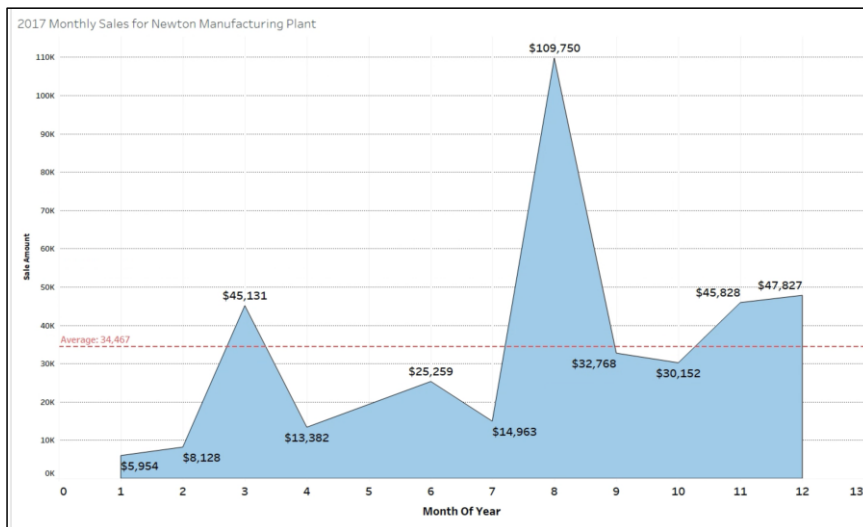
9. Click on the **Color** box in the Marks palette and under **Effects**, click on **Border** and select the black color.

Finally, show the average sale amount for the year in **Newton Manufacturing plant**:

10. On the left panel, at the top left corner, click on **Analytics** (next to Data).
11. Drag **Average Line** to the trend line, a window will appear.
12. Drop **Average Line** on the intersection between the **Table** column and the **Sum(Sale Amount)** row (circled in red).



Format the entire visualization like we did with the previous one and try to arrive to something like the following:



## Average Quantity Sold and Sale Amount per day of the week

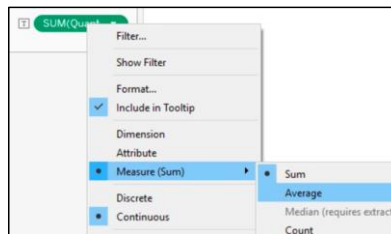
As the final task, we want to take a different look at Newton Manufacturing Plant. We are interested at the average quantity sold and average sale amount per day of the week.

The following are the parameters you want for the exploration of the sales value in your trend line:

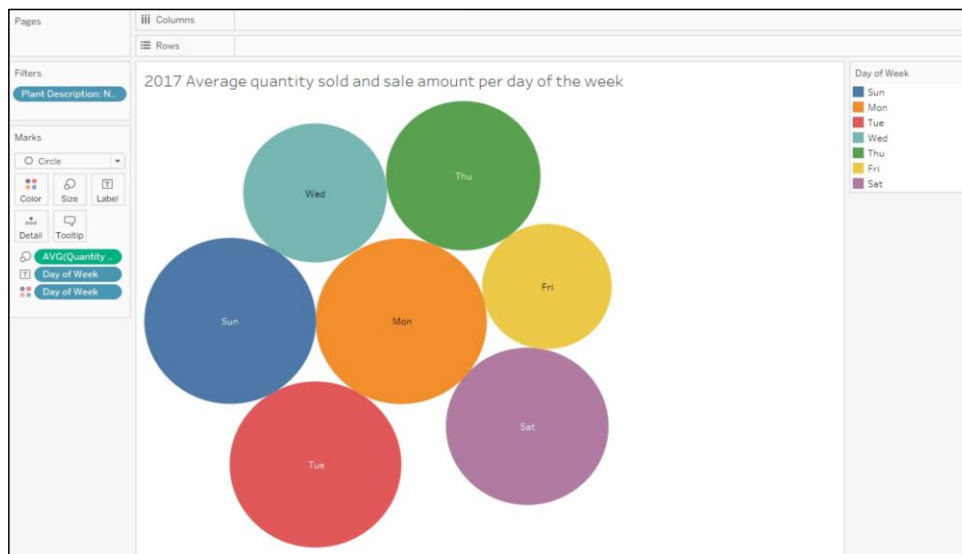
- For the year 2017.
- Average quantity sold and sale amount per day of the week.
- The sale values should be in US Dollars.
- Values should be in packed bubbles.

The parameters help set which dimensions and measures you are interested in using. Tableau will assume certain things for you as you create your visualization.

1. Create a new worksheet and name it: **2017 Average quantity sold and sale amount per day of the week**.
2. Filter to **Newton** manufacturing plant.
3. Double-click on dimension **Day of Week**.
4. Double click on measure **Quantity Sold**.
5. Right-click on **SUM(Quantity Sold)** under the Marks palette. Click on **Measure (Sum)** and select **Average**.
6. Under **Show Me**, select the **packed bubbles** box.



Your visualization should look similar to the following:



## WCOB SAMS INTEGRATED Data Connection



Now we want to adjust the format of our visualization:

7. Add labels in such a way that the average quantity sold value is displayed.
8. Adjust the size of your labels and make each bubble have a black border.

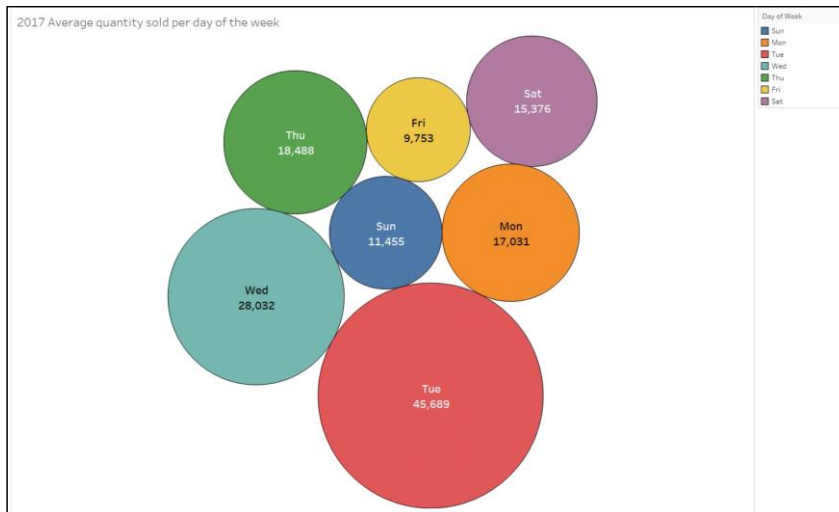
To adjust the visualization's width before looking at it in the presentation mode:

9. Click on the drop-down menu that says **Standard** and change it to **Entire View** (circled in red). This will center your visualization.



10. Change the title to: **2017 Average quantity sold per day of the week**

Your visualization should look similar to the following:



You notice that we changed the title to only quantity sold and the visualization only shows quantity sold. We did this in purpose:

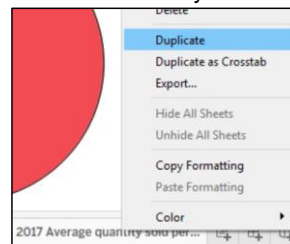
11. Right-click on the worksheet tab and select **Duplicate**.

You just duplicated your worksheet. On the duplicated one do the following:

12. Change the title to: **2017 Average sale amount per day of the week**

13. Under Marks Palette, replace **SUM(Quantity Sold)** measures for **Sale Amount**.

14. Modify the labels and make sure to show the Dollar sign (\$) values.

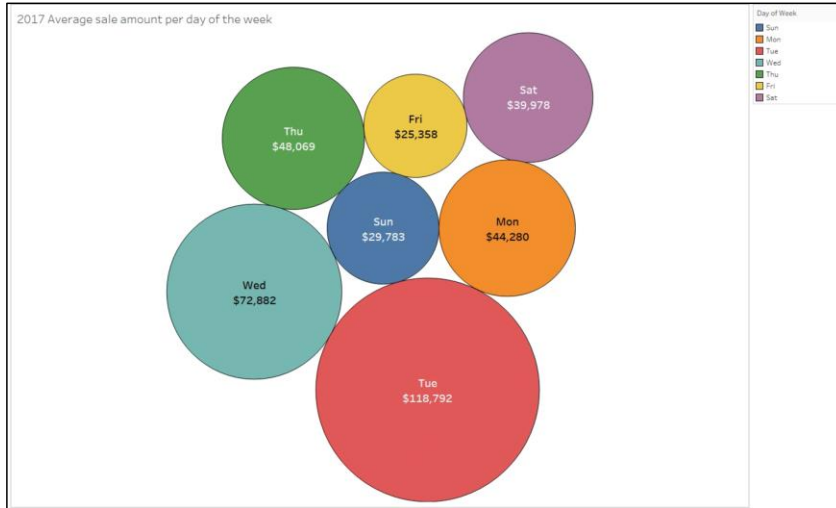


Your visualization should look like the following:

Updated by Matias Delay – Sept 2019

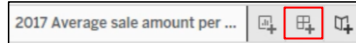
Created by Ron Freeze – June 2018

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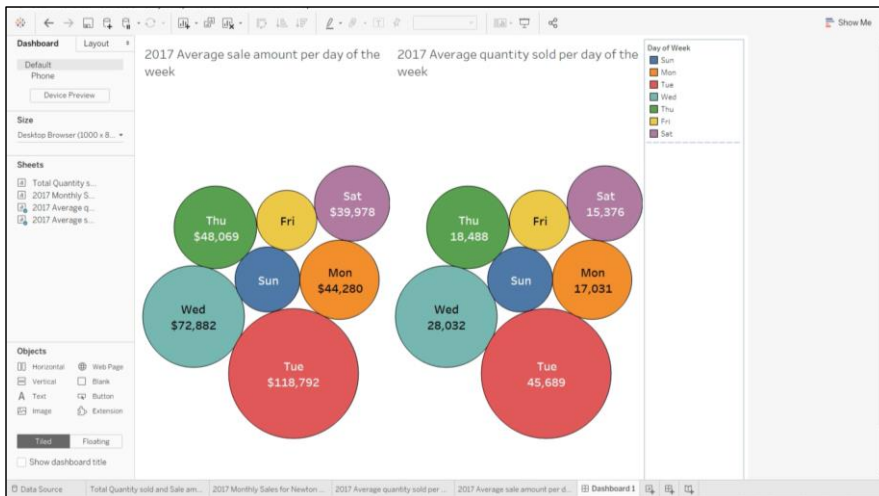
Now you have two worksheets where one displays average quantity sold per day of the week and the other average sale amount per day of the week. What we want to do now is display both in the same visualization:

- Next to the last worksheet tab created, click on **Create Dashboard** (circled in red).



- On the new Dashboard, on the left panel under **Sheets**, drag the two worksheets (one after the other) and drop them in the blank space.

Your window should look like this:

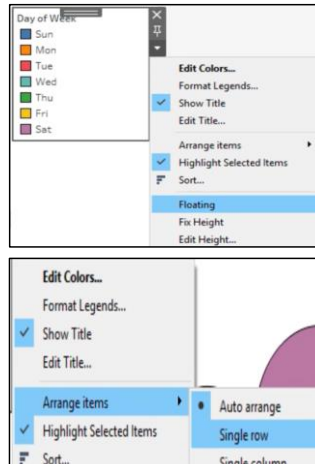




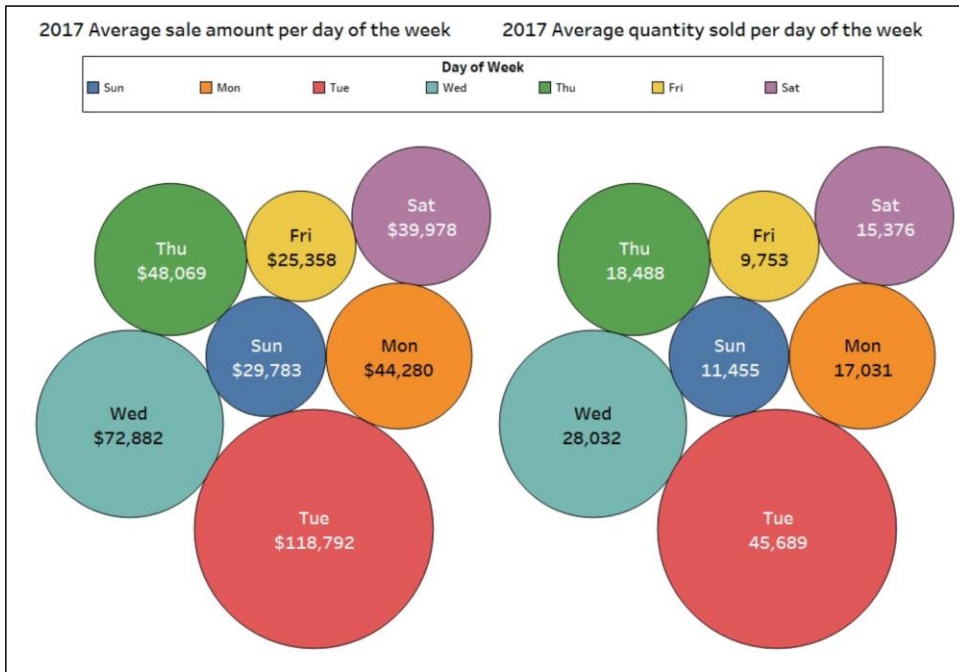
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17. Click on the drop-down menu in the legend box and click on **Floating** as shown in the figure alongside.
18. Repeat step 17 but now click on **Arrange items** and select **Single row** as shown in the figure alongside.
19. Adjust the size of your new legend box until all the Days of the week are visible in the visualization.
20. Format the legend box at your own preference.
21. Go to presentation mode (F7).



The end result should display something similar to the following:





# Data Dictionary

## Batch\_Product\_Fact Table

Column Abbreviated Name	Column Long Name	Short Description	Long Description & Example Data	Data Type	Constraint
Batch_Key	Batch Key	Batch key is a degenerated dimension in the fact table to identify groups of goods produced at one time in RSC's batch manufacturing process	Batch key starts at 100. Possible values: 100, 101, 102	Integer	N/A
Product_Key	Product Key	surrogate key from Product_Dimension	Possible values: 3, 4, 20	Integer	Foreign key references Product_Key in Product Dimension
Plant_Key	Plant Key	surrogate key from Plant_Dimension	Possible values: 1, 2, 3	Integer	Foreign key references Plant_Key in Plant Dimension
Batch_Num	Batch Number	Batch number is a combination of product key, plant key and batch key	Possible values: 3-1-100, 4-2-100, 20-3-100	varchar(999)	N/A
Batch_Molding_Date_Key	Batch Molding Date Key	Molding date	Possible values: 1462, 1463, 1464	Integer	Foreign key references Date_Key in Date Dimension

Batch_Trimming_Date_Key	Batch Trimming Date Key	Trimming date	Possible values: 1462, 1463, 1464	Integer	Foreign key references Date_Key in Date Dimension
Batch_Painting_Date_Key	Batch Painting Date Key	Painting date	Possible values: 1462, 1463, 1464	Integer	Foreign key references Date_Key in Date Dimension
Batch_Packing_Date_Key	Batch Packing Date Key	Packing date	Possible values: 1462, 1463, 1464	Integer	Foreign key references Date_Key in Date Dimension
Batch_Inventory_Date_Key	Batch Inventory Date Key	Inventory date	Possible values: 1462, 1463, 1464	Integer	Foreign key references Date_Key in Date Dimension
Last_Update_Date_Key	Last Update Date Key	Most recent inventory update date	Possible values: 1462, 1463, 1464	Integer	Foreign key references Date_Key in Date Dimension
Shrink	Shrink	Inventory shrinkage amount	Some inventory may be lost in the manufacturing process. Possible values: 74, 66, 65	Integer	N/A
Qty	Quantity	Inventory amount	Possible values: 789, 829, 843	Integer	N/A

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**Product\_Fact Table**

Column Abbreviated Name	Column Long Name	Short Description	Long Description & Example Data	Data Type	Constraint
Plant_Key	Plant Key	surrogate key from Plant_Dimension	Possible values: 1, 2, 3	Integer	Foreign key references
					Plant_Key in Plant Dimension
Batch_Key	Batch Key	Batch key is a degenerated dimension in the fact table to identify groups of goods produced at one time in RSC's batch manufacturing process	Possible values: 100, 101, 102	Integer	N/A
Department_Key	Department Key	Surrogate key from Department_Dimension	Possible values: 2, 3, 4	Integer	Foreign key references Department_Key in Department Dimension
Product_Key	Product Key	Surrogate key from Product_Dimension	Possible values: 3, 4, 5	Integer	Foreign key references Product_Key in Product Dimension
Date_Key	Date Key	Date key from Date_Dimension	Possible values: 1462, 1463, 1464	Integer	Foreign key references Date_Key in Date Dimension
Shift_Key	Shift Key	Surrogate key from Shift_Dimension	Possible values: 1, 2, 3	Integer	Foreign key references Shift_Key in Shift Dimension
Movement_Key	Movement Key	Movement key from Movement_Dimension	Possible values: 1, 2, 3	Integer	Foreign key references Movement_Key in Movement Dimension
Amount_Moved	Amount Moved	Amount of inventory moved	Possible values: 863, 38, 825	Integer	N/A

**Month\_Dimension**

Column Abbreviated Name	Column Long Name	Short Description	Long Description & Example Data	Data Type	Constraint
Month_Key	Month Key	Month_Dimension surrogate key	Possible values: 1, 2, 3	Integer	Primary key
Month_Desc	Month Description	Month description in full name	Possible values: January, February, March	varchar(99)	N/A
Month_Num	Month Number	Month in number	Possible values: 1, 2, 3	Integer	N/A
Quarter	Quarter	Quarter of year in number	Possible values: 1, 2, 3	Integer	N/A
Month_Year	year of month	corresponding year of the month	Possible values: 2016, 2017, 2018	Integer	N/A
Month_YYYY_MM	Year and Month	corresponding year of the month and the month	Possible values: 20160101, 20170101, 20180101	Integer	N/A



**Inventory\_Fact Table**

Column Abbreviated Name	Column Long Name	Short Description	Long Description & Example Data	Data Type	Constraint
Department_Key	Department Key	Surrogate key from Department_Dimsneion	Possible values: 1, 2, 3	Integer	Foreign key references Department_Key in Department Dimension
Plant_Key	Plant Key	Surrogate key from Plant_Dimension	Possible values: 1, 2, 3	Integer	Foreign key references Plant_Key in Plant Dimension
Month_Key	Month Key	Surrogate key from Month_Dimension	Possible values: 50, 51, 52	Integer	Foreign key references Month_Key in Month Dimension
Beginning_Inventory	Beginning Inventory	Beginning inventory of the month	Possible values: 4774, 7111, 7378	Integer	N/A
Ending_Inventory	Ending Inventory	Ending inventory of the month	Possible values: 6140, 9146, 9311	Integer	N/A

**Sales\_Fact Table**

Column Abbreviated Name	Column Long Name	Short Description	Long Description & Example Data	Data Type	Constraint
Product_Key	Product Key	Surrogate key	Possible values: 1, 2, 3	Integer	Foreign key references Product_Key in Product Dimension
Date_key	Date Key	Surrogate key	Possible values: 1462, 1463, 1464	Integer	Foreign key references Date_Key in Date Dimension
Customer_Key	Customer Key	Surrogate key	Possible values: 10, 48, 93	Integer	Foreign key references Customer_Key in Customer Dimension
Amount_Sold	Amount Sold	Amount of products sold	Possible values: 2571, 5002, 2348	Integer	N/A
Quantity_Sold	Quantity Sold	Quantity of products sold	Possible values: 989, 2084, 1677	Integer	N/A

**Date\_Dimension Table**

Column Abbreviated Name	Column Long Name	Short Description	Long Description & Example Data	Data Type	Constraint
Date_key	Date Key	Surrogate key	Possible values: 1, 2, 3	Integer	Primary key
Date_Desc	Date Description	Full date description in numbers	Possible values: 1/1/2018, Unknown Date, TBD (To be determined date)	varchar(99)	N/A
Day_of_Month	Day of Month	Day of month number	Possible values: 1, 2, 3	Integer	N/A
Month_of_Year	Month of Year	Month of year number	Possible values: 1, 2, 3	Integer	N/A

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Year_Number	Year Number	Year number	Possible values: 2016, 2017, 2018	Integer	N/A
Day_of_Year	Day of Year	Day of year number	Possible values: 1, 2, 3	Integer	N/A
Quarter_of_Year	Quarter of Year	Quarter of year number	Possible values: 1, 2, 3	Integer	N/A
Day_of_Week	Day of Week	Day of week in abbreviation	Possible values: Mon, Tue, Wed	varchar(99)	N/A
Holiday_Flag	Holiday Flag	Holiday flag indicator	0 means it is not a holiday. Possible values: 0 and 1 only	Integer	N/A
Weekend_Flag	Weekend Flag	Weekend flag indicator	0 means it is not a weekend. Possible values: 0 and 1 only	Integer	N/A
Weekday_Flag	Weekday Flag	Weekday flag indicator	0 means it is not weekday (Monday-Friday). Possible values: 0 and 1 only	Integer	N/A

**Product\_Dimension Table**

Column Abbreviated Name	Column Long Name	Short Description	Long Description & Example Data	Data Type	Constraint
Product_Key	Product Key	Surrogate key	Possible values: 1, 2, 3	Integer	Primary key
Product_ID	Product ID	Unique identifier represents a product	Possible values: 1, 2, 3	Integer	N/A
Product_Description	Product Description	Description of the color, type and brand of the product	Possible values: Red Chicken Clear View, Orange Ball Quest Technologies, Yellow Chicken RSC	varchar(99)	N/A
Category_Num	Category Number	Unique identifier represents the category of a product	Possible values: 1-11	varchar(99)	N/A
Category_Description	Category Description	description of product category such as chicken and globe	Possible values: Chicken, Bull, Globe	varchar(99)	N/A
Brand	Brand	brand of product is the same as the customer's company name, except for Wallard's Prime Stores and Amazin.com	Possible values: Amazin.com, Wallard's Prime Superstores, Fine Foods Budget	Integer	N/A
Color	Color	Color description	Possible values: Red, Yellow, Black	Integer	N/A
Size	Size	Size description	Possible values: Small, Medium, Large	Integer	N/A

**Customer\_Dimension Table**

Column Abbreviated Name	Column Long Name	Short Description	Long Description & Example Data	Data Type	Constraint
Customer_Key	Customer Key	Surrogate key	Possible values: 1,2,3	Integer	Primary key
Customer_ID	Customer ID	Unique identifier for customer	Possible values: 1, 2, 3	Integer	N/A
Customer_Name	Customer Name	Full business name of customer	Possible values: Fine Foods Budget, Wallard's Prime Stores, Amazin.com	varchar(99)	N/A
Customer_Address	Customer Address	customer address	Possible values: 979 San Juan Ave, 18 Jackson St., 932 Gartner Circle	varchar(99)	N/A
Customer_Zip	Customer Zip Code	the 5 digit zip code of customer's address	Possible values: 72701, 22191, 53204	varchar(99)	N/A
Customer_City	Customer City	full name of customer city	Possible values: Woodbridge, Milwaukee, Birmingham	varchar(99)	N/A

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Customer_State	Customer State	full name of customer state	Possible values: Virginia, Arkansas, Wisconsin	varchar(99)	N/A
Customer_Industry	Customer Industry	text description of customer industry	Possible values: Agriculture, Construction, Manufacturing	varchar(99)	N/A
Customer_Type	Customer Type	text description of customer type	Possible values: Small-Medium business (SMB), Medium-sized business, (Large) Enterprise	varchar(99)	N/A
Salesperson_Name	Salesperson Name	salesperson name	Possible values: Jack Blair, Shane Craig, Alexis Bentley	varchar(99)	N/A
Salesperson_Address	Salesperson Address	living address of salesperson	Possible values: 8040 Walnutwood Avenue, 6 Warren Court, 528 Division Drive	varchar(99)	N/A
Salesperson_City	Salesperson City	city of salesperson's address	Possible values: Nashville, Lancaster, Jersey City	varchar(99)	N/A
Salesperson_State	Salesperson State	state of salesperson's address	Possible values: New Jersey, Arkansas, California	varchar(99)	N/A
Salesperson_Zip	Salesperson Zip Code	5 digit zip code of salesperson's address	Possible values: 72701, 07302, 93534	varchar(99)	N/A
SC_Begin_Date	Sales Commission Begin Date	begin date of sales commission contract	All begin date is 1/1/1900	interval	N/A
SC_End_Date	Sales Commission End Date	end date of sales commission contract	All end date is 1/1/2199	interval	N/A

**Department\_Dimension Table**

Column Abbreviated Name	Column Long Name	Short Description	Long Description & Example Data	Data Type	Constraint
Department_Key	Department Key	surrogate key	Possible values: 1,2 3	integer	Primary key
Department_ID	Department ID	Unique identifier for department	Possible values: 10644120, 10644121, 10644123	integer	N/A
Department_Name	Department Name	full name description of department	Possible values: Mixing Dept., Molding Dept., Trimming Dept.	varchar(99)	N/A
Department_Description	Department Description	text description of department function	Possible values: shape rubber by heating, paint items, pack items	varchar(99)	N/A

**Movement\_Dimension Table**

Column Abbreviated Name	Column Long Name	Short Description	Long Description & Example Data	Data Type	Constraint
Movement_Key	Plant ID	surrogate key	Possible values: 1, 2, 3	integer	Primary key
Movement_Types	Movement Types	text description of movement types	Possible values: Batch In, Batch Out, Shrinkage	varchar(99)	N/A

**Shift\_Dimension Table**

Column Abbreviated Name	Column Long Name	Short Description	Long Description & Example Data	Data Type	Constraint
Shift_Key	Shift Key	surrogate key	Possible values: 1, 2, 3	integer	Primary key
Shift_Description	Shift Description	text description of work shift	Possible values: Day Shift, Night Shift, Midnight Shift	varchar(99)	N/A
Start_time	Start Time	start time of shift	Possible values: 8:00:00 AM, 4:00:01 PM, 12:00:01 AM	time	N/A
End_Time	End Time	end time of shift	Possible values: 4:00:00 PM, 12:00:00 AM, 7:59:00 AM	time	N/A



**Plant\_Dimension Table**

Column Abbreviated Name	Column Long Name	Short Description	Long Description & Example Data	Data Type	Constraint
Plant_Key	Plant Key	surrogate key	Possible values: 1, 2, 3	integer	Primary key
Plant_ID	Plant ID	unique identifier of plant	Possible values: 1, 2, 3	integer	N/A
Plant_City	Plant City	the city where the plant is located	Possible values: Fayetteville, Springdale, Irvine	varchar(99)	N/A
Plant_State	Plant State	the state where the plant is located	Possible values: Arkansas, Missouri, California	varchar(99)	N/A
Plant_Description	Plant Description	description of the city and function of the plant	Possible values: Fayetteville Manufacturing Plant, Springfield Manufacturing Plant, Irvine Manufacturing Plant	varchar(99)	N/A