

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
12 TABLES			87	15.653
Platform data is currently available: Ye	25			

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 (<u>https://walton.uark.edu/enterprise/</u>). 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 <u>rfreeze@walton.uark.edu</u>.

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

ESTIMATED COMPLETION TIME: 20-40 minutes

Updated by Matias Delay – Sept 2019



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:

0	Date Description	(Table: DATE_DIMENSION)
0	Month Of Year	(Table: DATE_DIMENSION)
0	Year Number	(Table: DATE_DIMENSION)
0	Quarter of Year	(Table: DATE_DIMENSION)
0	Day of Week	(Table: DATE_DIMENSION)
0	Plant City	(Table: PLANT_DIMENSION)
0	Plant State	(Table: PLANT_DIMENSION)
0	Plant Description	(Table: PLANT_DIMENSION)
0	Sale Amount	(Table: SALES_FACT)
0	Quantity Sold	(Table: SALES_FACT)
0	Unit Price	(Table: SALES_FACT)

* For further understanding of the attributes listed above, please refer to the <u>data dictionary</u> 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.

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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.

Tableau 2019.2

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 lefthand corner of any page to visit the start page at any time.
- b. Under **Connect**, you can:
 - Connect to data that is stored in a file, such as Microsoft Excel or Access.
 - Connect to data that is stored on a server, such as Tableau Server, Microsoft SQL Server, or Google Analytics.
 - 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.

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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

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B- Date Dimension (WCOB RSC.Date Dimension) (W.

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

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WCOB_RSC		I Rows			
mensions III P *	Filters	Sheet 1			

Connect to Date_Dimension table

On the Data Source window:

- Drag and drop the Date_Dimension table on the left panel to the blank space at the top where is 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.

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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



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:





- Abo

Rename

Reset Name

Copy Values Hide

Create Group...

Create Bins...

Describe...

Create Calculated Field...

Aliases...

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.

IVMH MOET HENNESSY LO 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:

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Parent Company

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067520

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Filter Fields

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

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

- 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. Your ae 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.

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

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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.

iii Columns

E Rows

 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.

Data Analytics iii Column Pages MCOB_RSC E Rows Dimensions Filters date_dim Sheet 1 Abc Date Description Day of Week Day of Year Mark Duplicate **Reset Names** Hide plant_dimension Abc Plant Descriptio Create Plant_State, Plant_City Transform . Plant State Plant City Convert to Discrete Convert to Measure Abc Measure Nam Change Data Type 🔸 Number (deci Number (whole) Geographic Role . Default Properties Date & Time Group by Date Fold Hierarchy Default

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:

- 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 blye). 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:

- 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).

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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:

- 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.
- 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:

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Edit Alias

Name: Fayetteville

\$450

\$400K

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- 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:

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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. ٠
- 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	Pages	III Columns Month Of Year
nood to filtor		I Rows SUM(Sale Amount)
need to filter	Filters	Sheet 2
the Year	Plant Description: N.	
Number.	Marks	2000
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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.

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etal Detali	Tootip UM(Sale	Label A Align	Show mark labels ppearance Text: <sum(sale amoun)<br="">Font: Tableou Book, 10pt ~ mmet: Automatic ~</sum(sale>	SUM(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).

Add a Reference Line	ıllıll	###	₊ <u></u> ∔ <u></u> ††∔
	Table	Pane	Cell
Month Of Year			
SUM(Sale Antavenage I	ine		

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



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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.
- 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:



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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.

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m'X.	1. +D	•6 <u>6</u> 0 11 1	Chandland	SUM T	0
	iii Columns		Fit Width		
			Fit Height	/	
	I Rows		Entire View		

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:

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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:

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

2017 Average sale amount per 🖳 🖽 🛱				
	2017 Average sale amount per	4	₽ 	07 +

16. 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:



- 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:







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

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Product_Fact Table

Column Abbreviated Name	Column Long	Short Description	Long Description &	Data Type	Constraint
	Name		Example Data		
Plant_Key	Plant Key	surrogate key from	Possible values: 1, 2, 3	Integer	Foreign key
		Plant Dimension			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	Column Long		Long Description &	Data Type	Constraint
Abbreviated Name	Name	Short Description	Example Data		
Month Koy	Month Koy	Month_Dimension surrogate		Integer	Primary key
WOTUT_Key	wonth key	key	Possible values: 1, 2, 3		
	Month		Possible values:	varchar(99)	N/A
Month_Desc	th_Desc Description	Month description in full	January, February,		
		name	March		
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 Voor	waar of month	corresponding year of the	Possible values: 2016,	Integer	N/A
Wollul_real	year or month	month	2017, 2018		
			Possible values:	Integer	N/A
Month_YYYY_MM	Year and Month	corresponding year of the	20160101, 20170101,		
		month and the month	20180101		

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Inventory_Fact Table

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

Sales_Fact Table

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

Date_Dimension Table

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

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

Product_Dimension Table

Column Abbreviated	Column Long		Long Description & Example	Data Type	Constraint
Name	Name	Short Description	Data		
Product_Key	Product Key	Surrogate key	Possible values: 1, 2, 3	Integer	Primary key
		Unique identifier		Integer	N/A
Product_ID	Product ID	represents a product	Possible values: 1, 2, 3		
			Possible values: Red	varchar(99)	N/A
		Description of the color,	Chicken Clear View, Orange		
	Product	type and brand of the	Ball Quest Technologies,		
Product_Description	Description	product	Yellow Chicken RSC		
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	Column Long		Long Description & Example	Data Type	Constraint
Name	Name	Short Description	Data		
Customer_Key	Customer Key	Surrogate key	Possible values: 1,2,3	Integer	Primary key
		Unique identifier for		Integer	N/A
Customer_ID	Customer ID	customer	Possible values: 1, 2, 3		
			Possible values: Fine Foods	varchar(99)	N/A
		Full business name of	Budget, Wallard's Prime		
Customer_Name	Customer Name	customer	Stores, Amazin.com		
			Possible values: 979 San	varchar(99)	N/A
	Customer		Juan Ave, 18 Jackson St.,		
Customer_Address	Address	customer address	932 Gartner Circle		
	Customer Zip	the 5 digit zip code of	Possible values: 72701,	varchar(99)	N/A
Customer_Zip	Code	customer's address	22191, 53204		
			Possible values:	varchar(99)	N/A
			Woodbridge, Milwaukee,		
Customer City	Customer City	full name of customer city	Birmingham		

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

Department_Dimension Table

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

Movement_Dimension Table

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

Shift_Dimension Table

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

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Plant_Dimension Table

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