

金 Та

Microsoft SOL Serve

### SNS COLLEGE OF TECHNOLOGY, COIMBATORE –35 (An Autonomous Institution) DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING Introduction to Various data visualization tools: Tableau

#### Connecting to Data Sources in Tableau

Tableau is capable of connecting with a wide range of data sources. It can connect to files present in your system, such as <u>Microsoft Excel</u>, text files, JSON, PDF, etc. It can also work on data present on a database server, such as Microsoft <u>SQL Server</u>, <u>MySQL</u>, Oracle, Teradata, etc. There are other saved data sources that Tableau can connect with. It also can connect and fetch data from <u>cloud sources</u>, like <u>AWS</u>, Azure SQL Data Warehouse, and Google Cloud SQL.

Tableau - Book1 File Data Server Help					- 8 ×
Connect	Open				
				Open a Workbook	
Tableau Server					
			-		
	join tables and create	a_data_cbuild_a_symbol	build_a_combebuild_a_combin	Desktop I Revie	
	The Constant of the second			and a stand of the	
Text file JSON file		100 Y (100			
Microsoft Access					
PDF file					
Spatial file	build_a_heat_m build_a	_tree_ma add_actions_to	build_an_interac add_two_types_	build_a_pie_cha	
		term ( )			
		CHEN CHEN COMPANY	Image         Image <th< td=""><td>A COLORADO AND A COLO</td><td></td></th<>	A COLORADO AND A COLO	
		2010 2020 202 2011 2020 202 2013 2020 202 2013 2020 2020 202	Manager Barrier Barrier Control Contro		
	apply_a_rank_ta apply_i	_year_ov create_a_calcula	create_a_date_c manipulate_stri		
Microsoft SQL Server					
MySQL					
Oracle Amazon Redshift	Sample Workbooks			More Samples	
More	S BOAT	A			
	#180 0000				
	Superstore Region	World Indicators			
Book1					-
Server Help					
nect	Search				
	Actian Matrix				
au Server					
		Google BigQuery			
		Google Sheets			

×

 Oracle
 Dropbox
 Markato
 SAP HANA

 Amazon Redshift
 Exasol
 Marklogic
 SAP NetWeaver Business Warehouse

 More...
 Firebird 3
 Mem SQL
 SAP Sybase ASE

COMPUTER ORGANIZATION AND ARCHITECTURE / S. VASUKI / CSE / SNSCT



### SNS COLLEGE OF TECHNOLOGY, COIMBATORE –35 (An Autonomous Institution)



DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

The following is an example of importing an excel file to Tableau Desktop.

Under Connect, click on Microsoft Excel. Locate the Excel file present in your system, which will export the dataset into Tableau. As you can see below, we have imported the Sample - Superstore dataset. Now, drag the required sheets under the "Drag sheets here" space.

Now, if you click on Sheet1, you can see all the fields of the dataset under Dimensions and Measures.

1411 · · ·						
⅔ Tableau Public - Book2				_	Ð	$\times$
Eile Data Window Help						
* ← → □ 0	<sup>⊛.</sup> Sample - Superstore (1)					
Connections Add						
Sample - Superstore (1) Microsoft Excel						
Sheets						
Orders						
I People		Drag sheets here				
III Returns						
n New Union						
	Sort fields Data source order •		Show aliases Show hidden field	s	-	rows
	ß					
Data Source Sheet 1 목 목 파						
				н	$\varepsilon \in H$	

#### Tableau Desktop Interface

Next up in the what is tableau tutorial, let us understand all about its interface. Tableau Desktop's interface, or the workspace, consists of menus, a toolbar, cards, shelves, data and analytics pane, different sheets for creating reports, dashboards, and stories.

The following is what the Tableau Desktop interface looks like:



## SNS COLLEGE OF TECHNOLOGY, COIMBATORE –35 (An Autonomous Institution)



DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

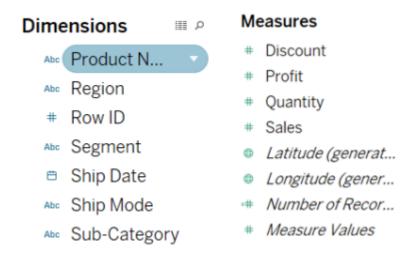


#### Dimensions and Measures in Tableau

Once you load a dataset, Tableau automatically divides the data into dimensions and measures. You can see this in the workspace area under the data pane.

Dimensions are usually categorical fields that cannot be aggregated, while measures are numerical fields that can be measured, aggregated, or manipulated.

Dimensions are marked in blue, while measures are marked in green.



#### What is Tableau Tutorial: Creating visualizations

1. The following is a simple table that will analyze sales and profit for different subcategories of products across various regions.



# SNS COLLEGE OF TECHNOLOGY, COIMBATORE -35 (An Autonomous Institution)



DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

Data Analytics :	Pages	iii Columns Measure Names	
Orders (Sample - Su		E Rows Region Sub-Category	
Dimensions     # P     *       Customer ID     *       © Order Date     *       © Order Date     *       © Order Date     *       © Product ID     *       Product ID     *       Product ID     *       Product IA     *       Region     *       State     *       State     *       State Adaptory     *       *     *       Discount     *       *     Product IS       *     *       Ustocount     *       *     Discount       *     *       Outroy     *       *	Filters Marks D Automatic Colour Size Colour Size Text Colour Size Text Colour Size Text Colour Size Text Size Text Size Siz	Sheet 1         Region       Sub-Ctargo.       Profit       Sales         South       Bookcases       1.339       10,199         Chairs       6.612       45,176         Copera       1.659       9.300         Envielopes       1.485       3.346         Fasterers       1/4       503         Furnishings       3.443       17,307         Labels       1.041       2.353         Machines       -1.439       53,901         Paper       5,947       4.513         Storage       2.274       35,768         Supplies       2       8,319         Tables       -4.623       43,916         Wort       Accessories       16,497       55,061         Bonderses       1.207       55,061         Bonderses       1.909       4,118         Pasterers       2.74       9,212         Binders       1.900       4,118         Pasterers       1.900       4,118         Pasterers       2.33       5,079         Labels       2.33       5,079         Basterers       2.33       5,079         Hasterers       2.33	

2. The horizontal bar chart below shows sales of different subcategories of products with the color of the bars indicating the profit. Sort the sales axis in descending order and change the color of the bars using a different palette.

Data Analytics :	* Pages # Columns SUM(Sales)					
🚯 Orders (Sample - Su		≡ Rows Sub-Category				
Dimensions 🖩 🖉 +	Filters		SUM(Profit)			
* Customer ID		Sheet 3		-		
** Customer Name		Sub-Category Accessories	-17,725	55,61		
<ul> <li>Order Date</li> </ul>		Appliances				
Order ID	Marks +	Art Binders				
Postal Code	al Automatic 🔹	Bookcases				
Product ID Product Name		Copiers				
Region	ColSur Size Label	Envelopes Television Fasteners				
+ Row ID		Furnishings				
Segment		Machines				
<ul> <li>Ship Date</li> </ul>	Detail Tooltip	Paper Phones				
Ship Mode	# SUM(Profit)	Storage				
• State		Supplies Tables				
** Sub-Category		OK 20N 40K 60K 80K 100K 120K 140K 160K 180K 200K 220K 240K 260K 280K 300K 320K 340K				
🖙 Measure Names 🛛 🧹		Sales				
Measures						
+ Discount						
+ Profit						
<ul> <li>Quantity</li> </ul>						
<ul> <li>Sales</li> </ul>						
<ul> <li>Latitude (generated)</li> </ul>						
<ul> <li>Longitude (genera</li> </ul>						
Number of Records     Measure Values						

Phones made the highest amount of sales, while copiers had the highest profit.

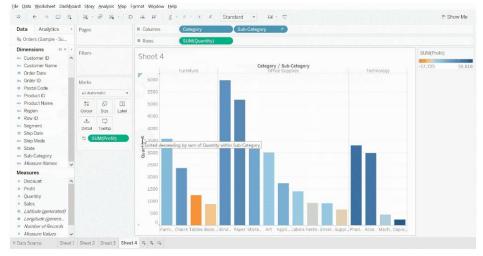
3. The side-by-side bar chart is used to visualize sales and profits for different subcategories of products under each category.



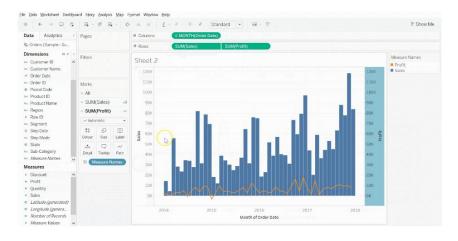
# SNS COLLEGE OF TECHNOLOGY, COIMBATORE -35 (An Autonomous Institution)



DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

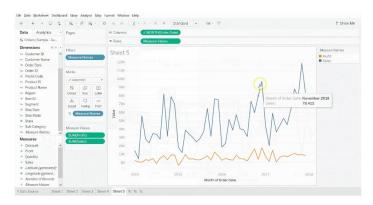


4. A dual-axis chart will analyze sales and profits by order month. Drag the order date field on to columns shelve and profit field on the right corner where you see a green rectangle. Synchronize the profit axis and change sales to bars.



The month of November had the highest amount of sales, while January had the least.

5. A blended axis chart is used for comparing two measured values against the same axis.



COMPUTER ORGANIZATION AND ARCHITECTURE / S. VASUKI / CSE / SNSCT



## SNS COLLEGE OF TECHNOLOGY, COIMBATORE –35 (An Autonomous Institution)



DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

The blended axis chart enables users to forecast the data for making future predictions. Go to the analytics pane and double-click on forecast.

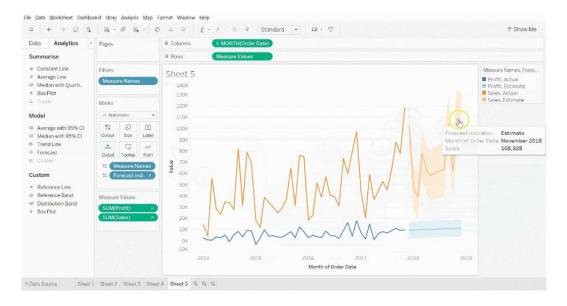


Tableau enables users to create hierarchies using data fields, which makes it easy to break down the visualization and organize data in a logical order. The following is an example of creating a location hierarchy using country, state, and city fields. You need to drag a field and drop it directly on top of another field and give a name to the hierarchy.

