

Tableau Certified Data Analyst Certification Guide

The screenshot shows a desktop application interface for exam preparation. At the top, there's a dark header bar with the 'Practice Resources' logo, a bell icon, and a 'SHARE FEEDBACK' button. Below the header is a 'DASHBOARD' section featuring a thumbnail of the book 'Tableau Certified Data Analyst Certification Guide' by Harry Cooney and Daisy Jones. A subtitle below the book thumbnail reads: 'Ace the Tableau Data Analyst certification exam with expert guidance and practice material'. Underneath this, there are four expandable sections: 'Mock Exams', 'Hands-On Activities', 'Chapter Review Questions', and 'Flashcards', each with a downward arrow icon. At the bottom left, there's a 'BACK TO THE BOOK' link, and at the bottom center, the book's cover is shown again with its title and authors.

Figure 0.1 - Online exam-prep platform on a desktop device

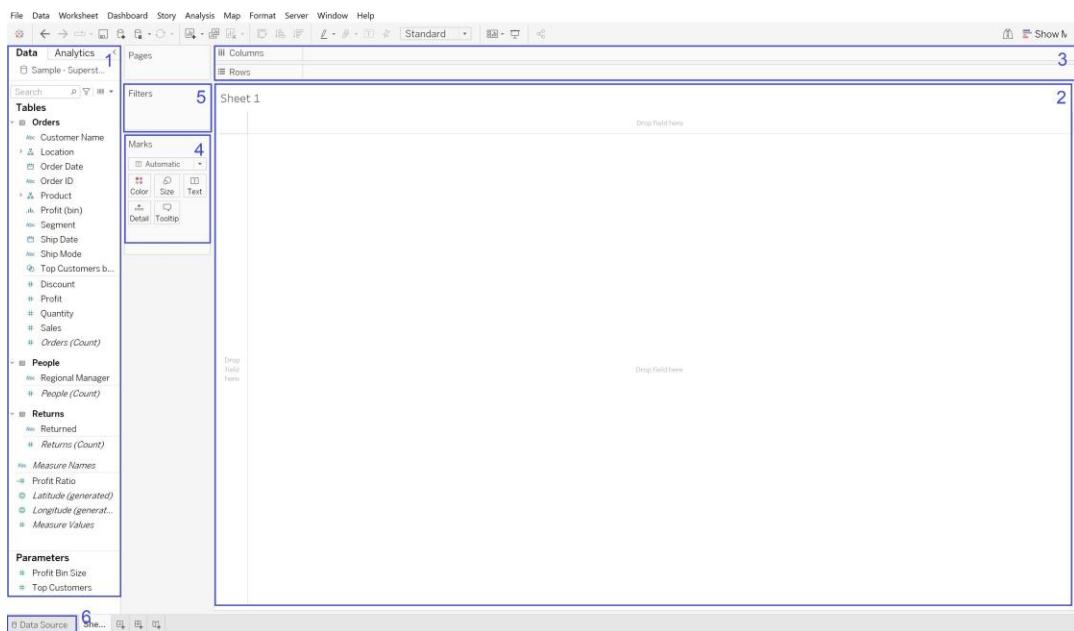


Figure 0.2: Tableau Desktop Interface

The screenshot shows the Tableau website's product download section for Tableau Desktop. At the top, there is a navigation bar with links for Why Tableau, Products, Solutions, Resources (which is highlighted), and Partners. On the right side of the top bar are buttons for PRICING, SIGN IN, TRY NOW, and BUY NOW. Below the navigation is a search icon. The main heading is "PRODUCT DOWNLOADS" followed by "Tableau Desktop". A blue button below the heading says "VIEW THE CURRENT VERSION 2023.3". A note below the heading states: "Starting in September, 2023, fixed defects can be found on this site. Additional defect information is available at <https://issues.salesforce.com/#fsfcategoryfull%Tableau>". A dark banner at the bottom of the page contains the text: "Tableau has changed its product and maintenance release cadence. Please review this blog to learn more before downloading the latest software version." Below this, there is a "RELEASE NOTES" section for "Desktop" under the "2023.3" release, with "EXPAND ALL" and "COLLAPSE ALL" buttons. To the right of this section is a "Downloads" link.

Figure 0.3: The Tableau Desktop released versions page

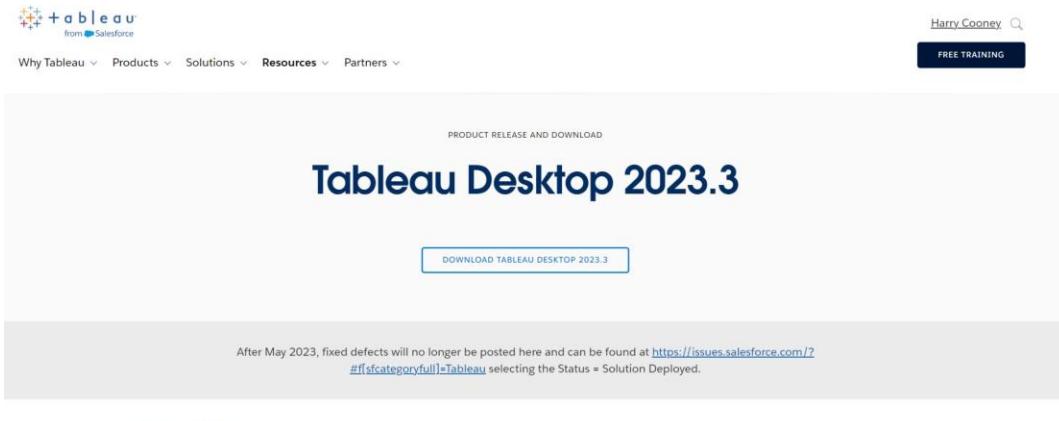


Figure 0.4: Most recent Tableau version download page

Download files

Windows

- [TableauDesktop-64bit-2023-3-0.exe \(573 MB\)](#)

Mac

- [TableauDesktop-2023-3-0.dmg \(707 MB\)](#)

Figure 0.5: The Windows and Mac download links

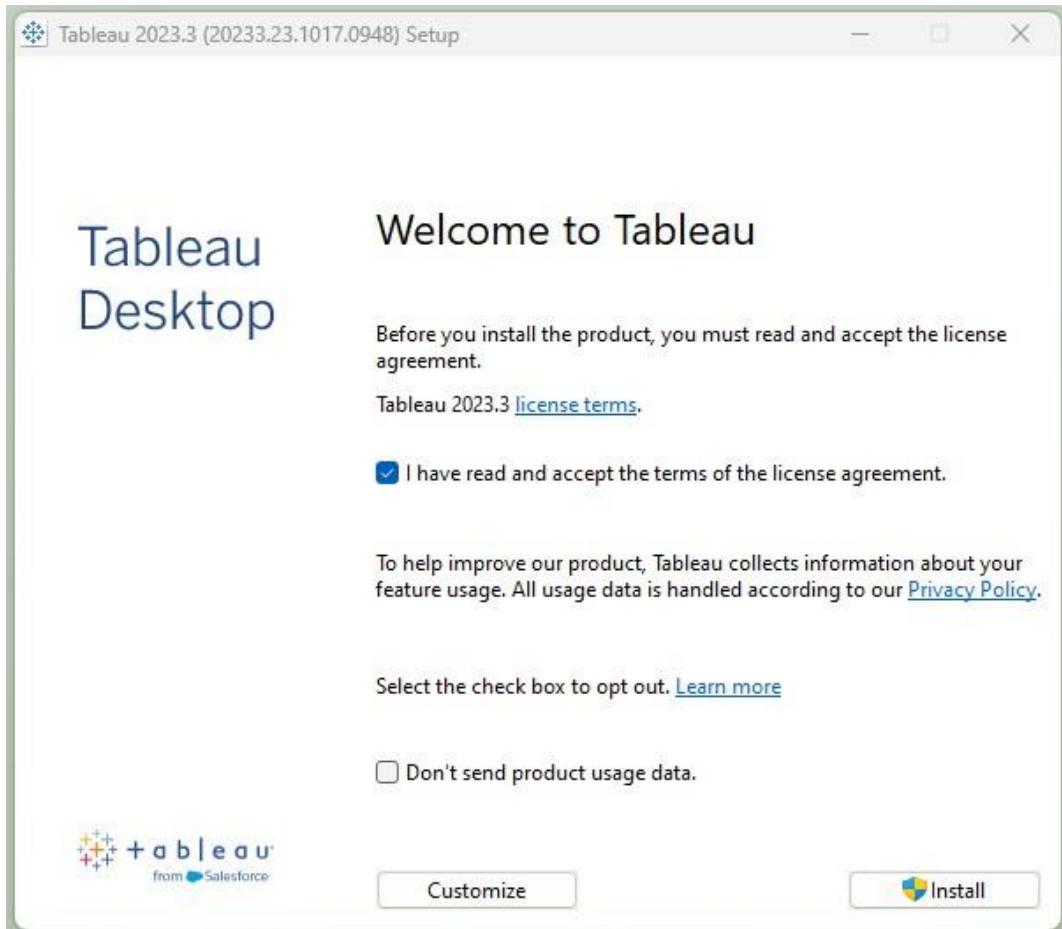


Figure 0.6: The Tableau Desktop Windows installation wizard

Tableau Registration X

Almost there

Already purchased? [Activate Tableau](#)

First Name Harry	Last Name Cooney
Email harrycooney@outlook.com	Organization The Information Lab
Department IT	Job Role --
Company Size 21 - 200 employees	Phone
Country/Region United Kingdom of Great Britain and Northern Ireland	

By registering, you confirm that you agree to the processing of your personal data by Salesforce as described in the [Privacy Statement](#).

Start trial now

We respect your privacy | Having Trouble?

Figure 0.7: Tableau Desktop product activation



from Salesforce

Why Tableau ▾ Products ▾ Solutions ▾ Resources ▾ Partners ▾

Harry Cooney

FREE TRAINING

Start exploring your data with Tableau Cloud

The power of Tableau, in the cloud.

[START YOUR FREE TRIAL](#)



Reasons to start with Tableau Cloud:

- Connect to data sources without leaving your browser.

Figure 0.8: The Tableau Cloud free trial page

Success! It looks like you're ready to start a trial.

START A FREE TRIAL →



Figure 0.9: Post registration form landing page

Almost there! Activate your trial below

Site Name

Your site name can be up to 80 characters, and can include any letter from any language, any numbers, spaces, and any characters from the set !@#\$%*.?-_,.'()&/:#"

Choose your location

▼

I've read and agree to the [Main Services Agreement](#), [Product Terms Directory](#) and the [Terms of Service](#).

ACTIVATE MY TRIAL

Figure 0.10: Tableau Cloud site name, location, and activation

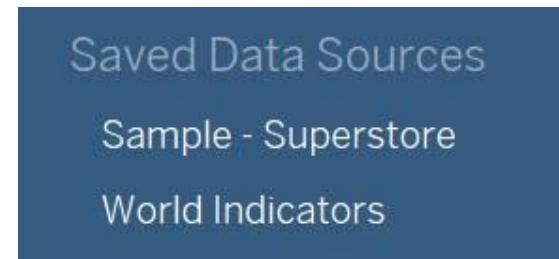


Figure 0.11: The Sample - Superstore data source connection used for practical exercises

Chapter 1: Connecting to Data

The screenshot shows the 'DASHBOARD' interface of the online practice resources. At the top, there's a header bar with a 'Practice Resources' logo, a bell icon for notifications, and a 'SHARE FEEDBACK' button. Below the header, the main content area features a section titled 'Tableau Certified Data Analyst Certification Guide' with a sub-instruction: 'Ace the Tableau Data Analyst certification exam with expert guidance and practice material'. This section includes a thumbnail of the book cover. Below this, there are four expandable dropdown menus: 'Mock Exams', 'Hands-On Activities', 'Chapter Review Questions', and 'Flashcards'. At the bottom left, there's a link to 'BACK TO THE BOOK' which leads to the Tableau Certified Data Analyst Certification Guide by Harry Cooney, Jess Hancock, and Daisy Jones.

Figure 1.1 - Dashboard interface of the online practice resources

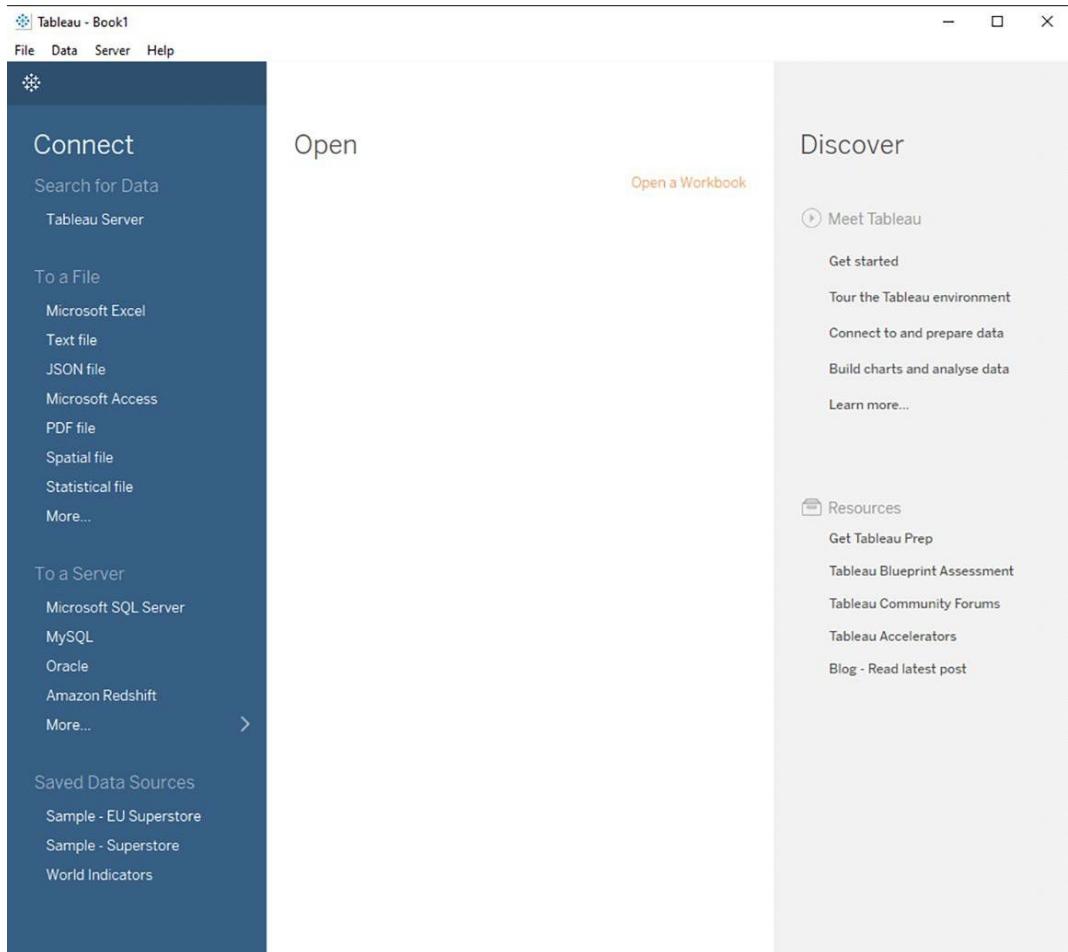


Figure 1.2: Tableau Desktop start page

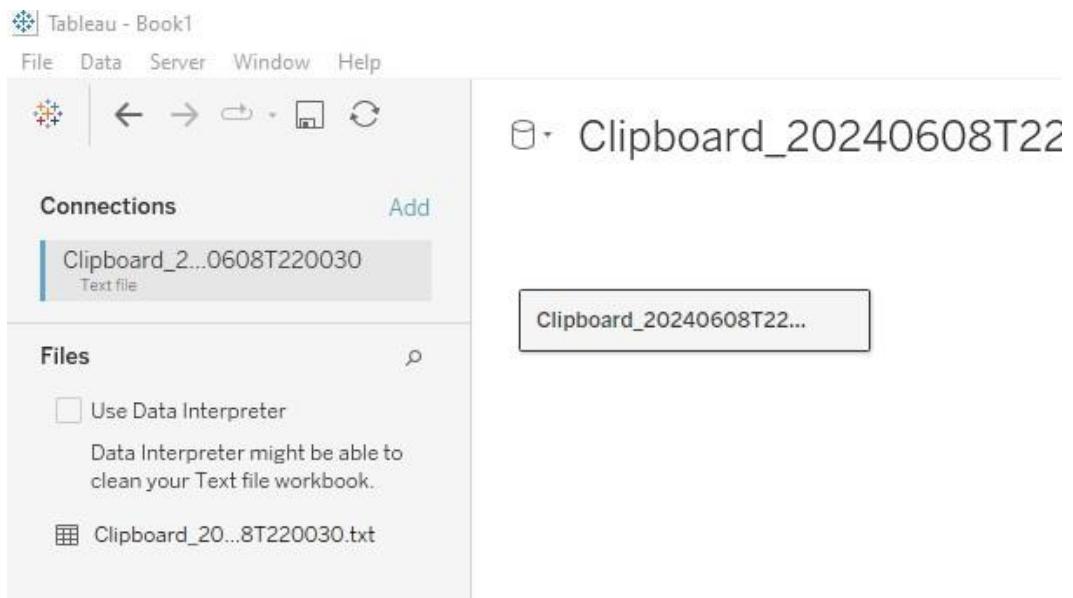


Figure 1.3: Data connector pane

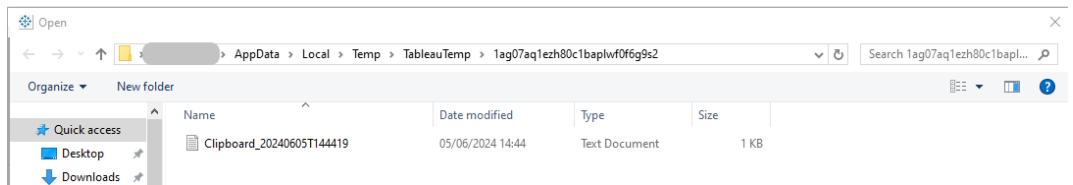


Figure 1.4: File directory

The screenshot shows the Data Source tab interface. At the top, there's a toolbar with icons for back, forward, search, and refresh. Below it is a 'Connections' section with a dropdown menu showing 'Clipboard_20240105T112145' (Text file). To the right, there are 'Connection' options: 'Live' (radio button selected) and 'Extract'. A large text input field contains the placeholder 'Clipboard_20240105T1121...'. Below this is a diagram icon showing two tables connected by a line. A message says 'Need more data?' with a link to 'Learn more'. Under the text input, there's a 'Fields' section showing a table with 5 fields and 5 rows. The table has columns for Type, Field Name, Physical Table, and Remarks. The rows are:

Type	Field Name	Physical Table	Remarks
#	ID	Clipboard_20240105T1121...	ID
Abc	Name	Clipboard_20240105T1121...	Name
#	Age	Clipboard_20240105T1121...	Age
⊕	City	Clipboard_20240105T1121...	City
Abc	Occupation	Clipboard_20240105T1121...	Occup...

To the right of the table, there's a vertical pane labeled 'ID' with a list of values from 1 to 5. At the bottom, there are tabs for 'Data Source' (highlighted in yellow), 'Sheet1', and other icons.

Figure 1.5: The Data Source tab

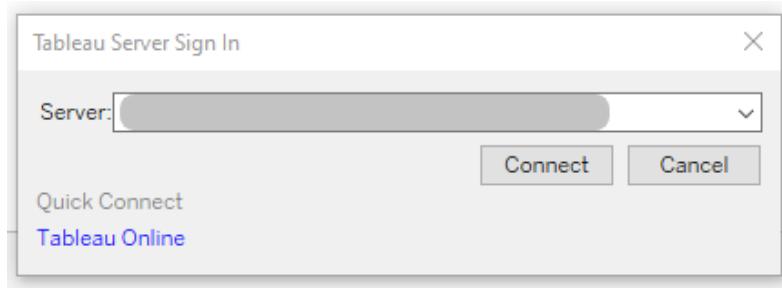


Figure 1.6: The Tableau Server Sign In window



Figure 1.7: Tableau Server login window

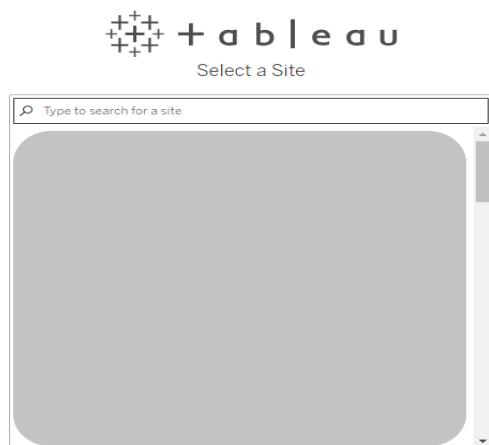


Figure 1.8: Tableau Server site selection

Select Schema Levels X

The schema levels you select determine which dimensions and measures are available for analysis in the worksheet.

[Collapse Fields](#)

<input type="checkbox"/>	Schema	Example Value
<input checked="" type="checkbox"/>	sample4.json	
<input type="checkbox"/>	people	
	age	28
	firstName	Joe
	gender	male
	lastName	Jackson
	number	7349282382

1 schema level selected

Figure 1.9: Example of a JSON file connection

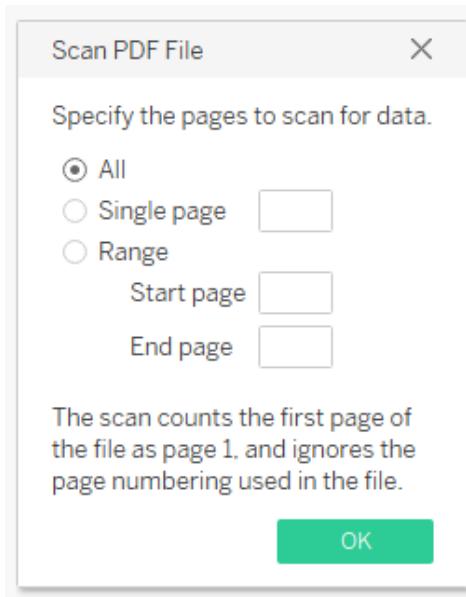


Figure 1.10: Scan PDF File selector

A screenshot of the "Tables" section of the Data connection pane. It includes a checkbox for "Use Data Interpreter" with a descriptive note about cleaning the PDF file workbook. Below are listed tables from the PDF: "Page 2 Table 1", "Page 4 Table 1", "Page 5 Table 1", "Page 5 Table 2", and "New Union".

Figure 1.11: Data connection pane

#	Abs	#
Objectid	Boundary	Shape Area
1	CSS Area	21.3756

Geometry
Polygon

Figure 1.12: Example of a spatial file and a Geometry column

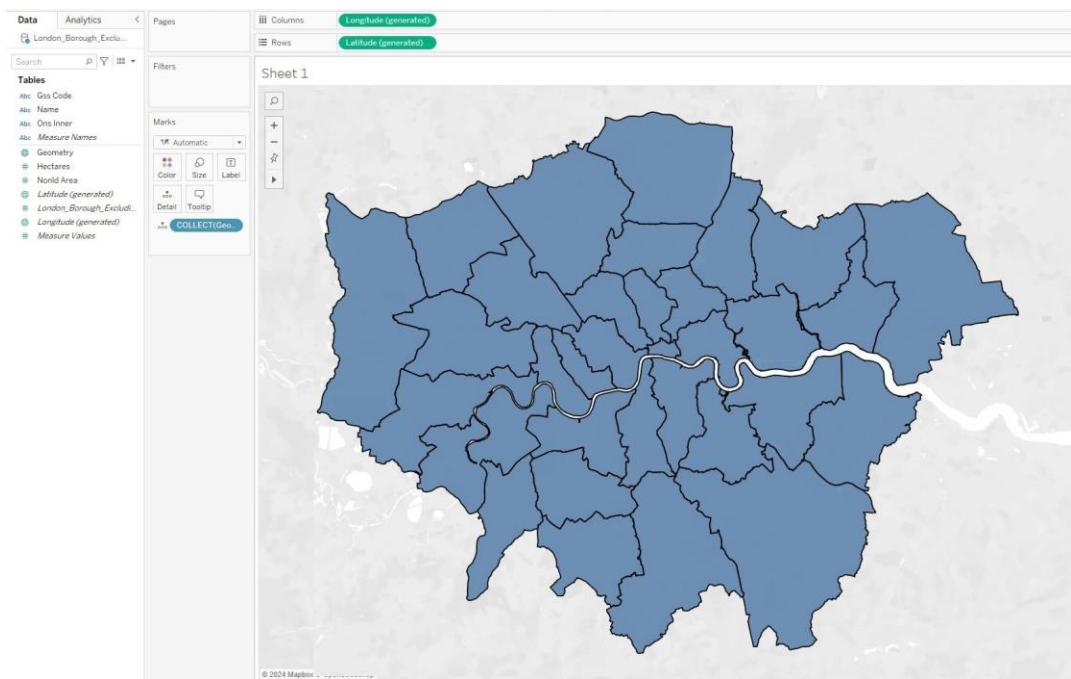


Figure 1.13: Tableau Geometry field showing a map of London boroughs

The screenshot shows the 'Connect' page of Tableau Server. On the left, a sidebar lists connection types: 'Search for Data', 'Tableau Server', 'To a File' (Microsoft Excel, Text file, JSON file, Microsoft Access, PDF file, Spatial file, Statistical file, More...), 'To a Server' (Microsoft SQL Server, MySQL, Oracle, Amazon Redshift, More...), and 'Saved Data Sources' (Sample - EU Superstore, Sample - Superstore, World Indicators). The main content area is titled 'Installed Connectors (74)' and lists various connectors in three columns. A search bar at the top right allows users to search for specific connectors.

Category	Connector
Installed Connectors (74)	Action Vector
	Alibaba AnalyticDB for MySQL
	Alibaba Data Lake Analytics
	Alibaba MaxCompute
	Amazon Athena
	Amazon Aurora for MySQL
	Amazon EMR Hadoop Hive
	Amazon Redshift
	Anaplan
	Apache Drill
	Azure Data Lake Storage Gen2
	Azure SQL Database
	Azure Synapse Analytics
	Box
	Cloudera Hadoop
	Databricks
	Datorama
	Denodo
	Dremio
	Dropbox
	Esri
	Exasol
	Firebird 3
	Google Analytics
	Google BigQuery
	Google Cloud SQL
	Google Drive
	Hortonworks Hadoop Hive
	IBM BigInsights
	IBM DB2
	IBM PDA (Netezza)
	Impala
	Intuit QuickBooks Online
	Kognitio
	Kyvos
	LinkedIn Sales Navigator
	MapR Hadoop Hive (deprecated)
	MariaDB
	Marketo
	MarkLogic
	Microsoft Analysis Services
	Microsoft PowerPivot
	Microsoft SQL Server
	MonetDB
	MongoDB BI Connector
	MySQL
	OData
	OneDrive
	OneDrive and SharePoint Online
	Oracle
	Oracle Eloqua
	Oracle Essbase
	Pivotal Greenplum Database
	PostgreSQL
	Presto
	Progress OpenEdge
	Qubole Presto
	Salesforce
	Salesforce CDP
	SAP HANA
	SAP NetWeaver Business Warehouse
	SAP Sybase ASE
	SAP Sybase IQ
	ServiceNow ITSM
	SharePoint Lists
	SingleStore
	Splunk
	Snowflake
	Spark SQL
	Splunk
	Teradata
	Teradata OLAP Connector
	TIBCO Data Virtualisation
	Vertica
Web Data Connector	
Other Databases (JDBC)	
Other Databases (ODBC)	
Additional Connectors (29) ⓘ	
Action ODBC by Action	
Agiloft by Agiloft	
Altinity Connector for ClickHouse by Altinity Inc	
Amazon DocumentDB by Amazon	
BI Connector by Guidanz Inc	
Couchbase Analytics by Couchbase Analytics	
Exasol JDBC by Exasol	
Firebolt by Firebolt Analytics Inc	
Incora Connector by Incorta	
Jethro ODBC by Jethro Data by Jethro Data	
Kyligence Connector by Kyligence	
Logical Data Warehouse by Data Virtuality	
MarkLogic by MarkLogic	

Figure 1.14: Tableau Server connection options

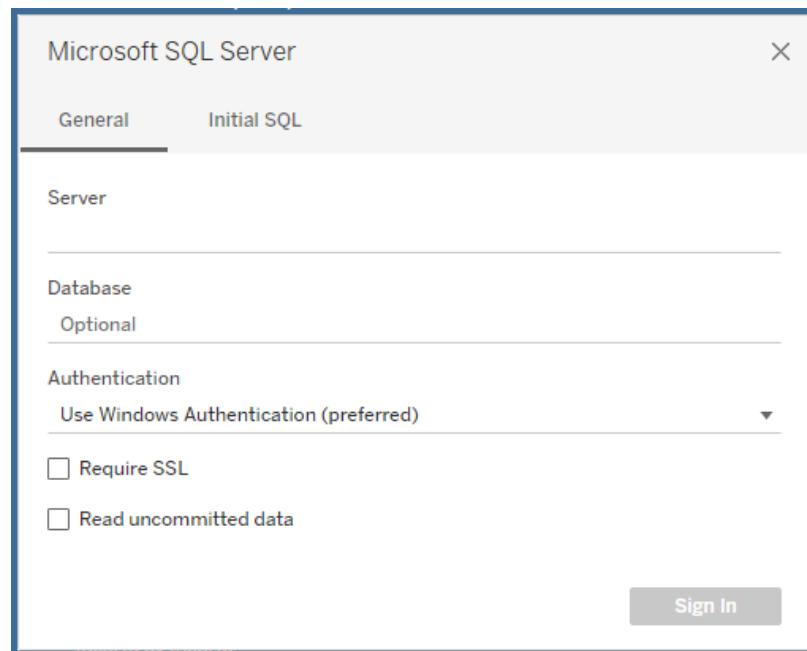


Figure 1.15: Credentials section to SQL Server

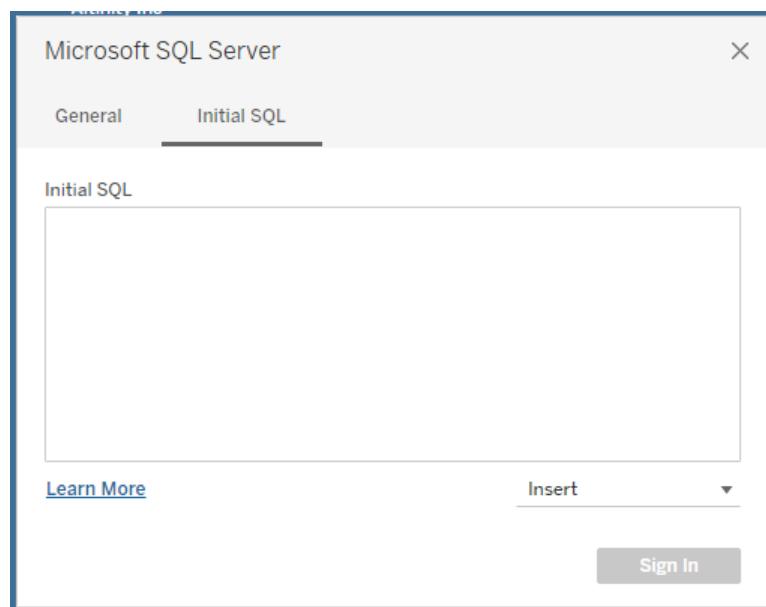


Figure 1.16: SQL query builder

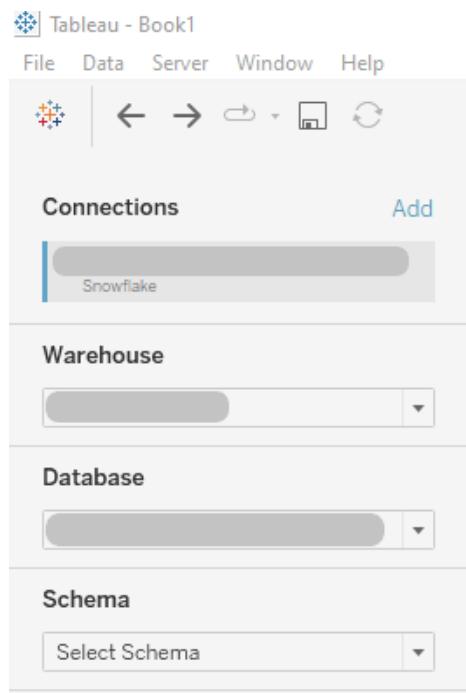


Figure 1.17: Connection pane and tables to be connected

This screenshot shows the Tableau Data pane. It displays a preview of three tables: "Employee_Lookup", "Event Date", and "Event Type". Each table has a small icon next to its name. Below the preview are two buttons: "Update Now" and "Update Automatically".

Abc Employee_Look... Office	Employee_Lookup	Abc Employee_Lookup Event Type

Figure 1.18: The Update Now button to preview the data

Convert to Custom SQL X

```
SELECT "Employee_Lookup"."Email" AS "Email",
      "Employee_Lookup"."Event Date" AS "Event Date",
      "Employee_Lookup"."Event Type" AS "Event Type",
      "Employee_Lookup"."Full Name" AS "Full Name",
      "Employee_Lookup"."Office" AS "Office",
      "Employee_Lookup"."Status" AS "Status"
FROM "EXPENSES"."Employee_Lookup" "Employee_Lookup"
```

Preview Results... Insert Parameter ▾ OK Cancel

Figure 1.19: Example of an Employee Lookup Custom SQL



Figure 1.20: Selection of the Extract type



Figure 1.21: Refresh symbol

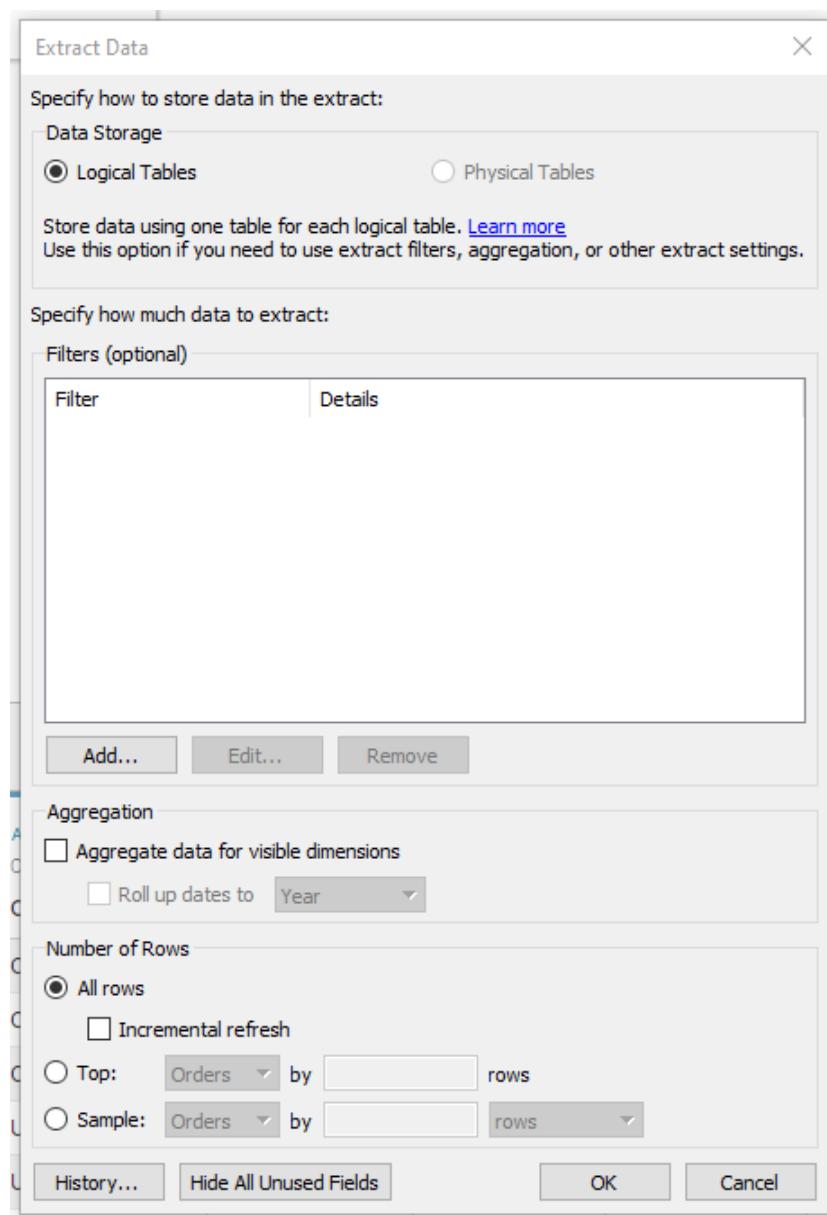


Figure 1.22: Window to add extract filters or incremental refresh

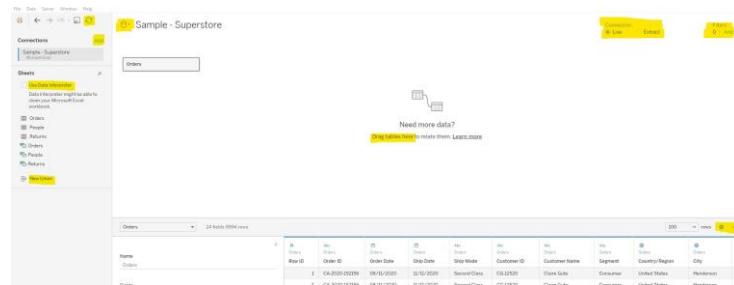


Figure 1.23: Tableau Data Source page

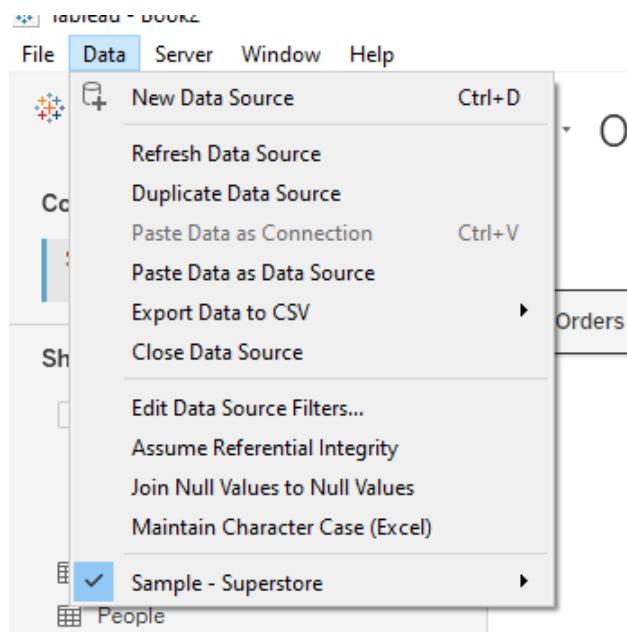


Figure 1.24: Data tab options

lake Analytics	IBM PDA (Netezza)	Salesforce CDP
compute	Impala	SAP HANA
ia	Intuit QuickBooks Online	SAP NetWeaver Business Warehouse
a for MySQL	Kognitio	SAP Sybase ASE
Hadoop Hive	Kyvos	SAP Sybase IQ
ift	LinkedIn Sales Navigator	ServiceNow ITSM
	MapR Hadoop Hive (deprecated)	SharePoint Lists
SAP HANA		X
ke S	To use this connector, you need to download and install the driver first.	
aba	Download Driver ▶	
op	Microsoft SQL Server	Teradata OLAP Connector
	MonetDB	TIBCO Data Virtualisation

Figure 1.25: SAP HANA connection error

Kyvos
LinkedIn Sales Navigator
MapR Hadoop Hive
MariaDB
Marketo
MarkLogic
Microsoft Analysis Services
Microsoft PowerPivot
Microsoft SQL Server
MonetDB
MongoDB BI Connector
MySQL
OData
OneDrive
Oracle
Oracle Eloqua
Oracle Essbase
Pivotal Greenplum Database
PostgreSQL
Presto
Progress OpenEdge
Qubole Presto
Salesforce
Salesforce CDP
SAP HANA
SAP NetWeaver Business Warehouse
SAP Sybase ASE
SAP Sybase IQ
ServiceNow ITSM
SharePoint Lists
SingleStore
Snowflake
Spark SQL
Splunk
Teradata
Teradata OLAP Connector
TIBCO Data Virtualization
Vertica
Web Data Connector

Figure 1.26: Supported sources available in Tableau

The screenshot shows a web interface for 'Practice Resources'. At the top, there's a dark header with the 'Practice Resources' logo, a bell icon, and a 'SHARE FEEDBACK' button. Below the header, the navigation path is 'DASHBOARD > CHAPTER 1'. The main content area has a title 'Connecting to Data' and a section titled 'Summary' containing a text block about connecting to databases. To the right, a large callout box is titled 'Chapter Review Questions' and describes the 'Tableau Certified Data Analyst Certification Guide' by Harry Cooney and Daisy Jones. It includes a 'Select Quiz' dropdown set to 'Quiz 1', a 'SHOW QUIZ DETAILS' link, and an orange 'START' button.

DASHBOARD > CHAPTER 1

Connecting to Data

Summary

This chapter went over the different types of data connections and how a user can connect to databases to get their data. After this chapter, you should have confidence in connecting to data and should be able to move on to the next chapter to learn how to transform data for analysis. It is recommended that you take some time to practice connecting to the different data types and experiencing the connections.

Chapter Review Questions

The Tableau Certified Data Analyst Certification Guide
by Harry Cooney, Daisy Jones

Select Quiz

Quiz 1

SHOW QUIZ DETAILS ▾

START

Figure 1.28 - Chapter Review Questions for Chapter 1

2

Transforming Data

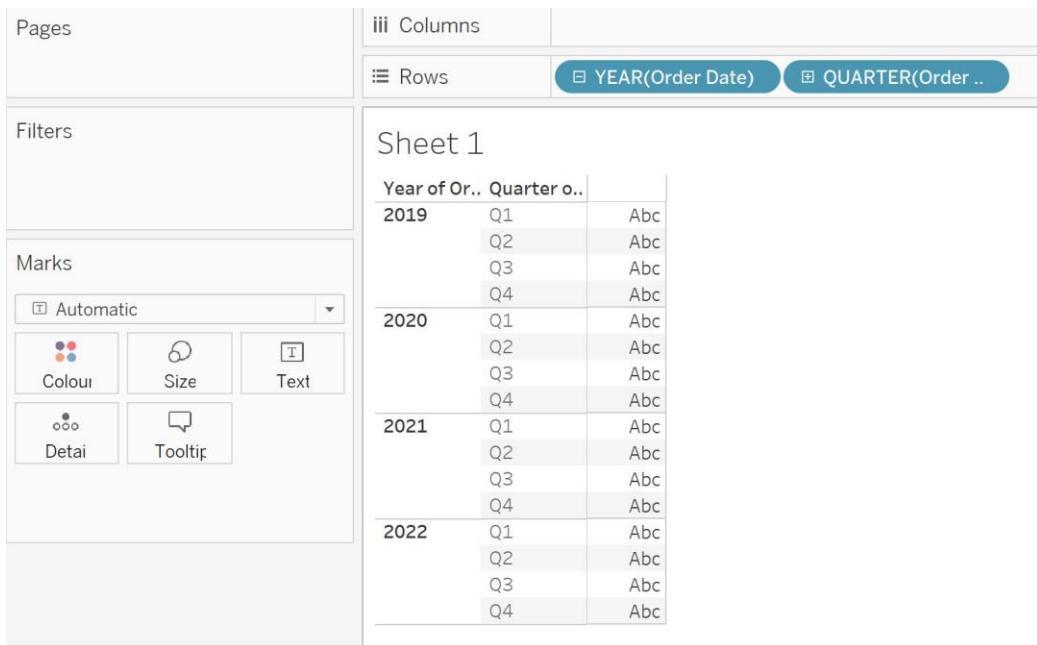


Figure 2.1: The Order Date field displaying date functionality

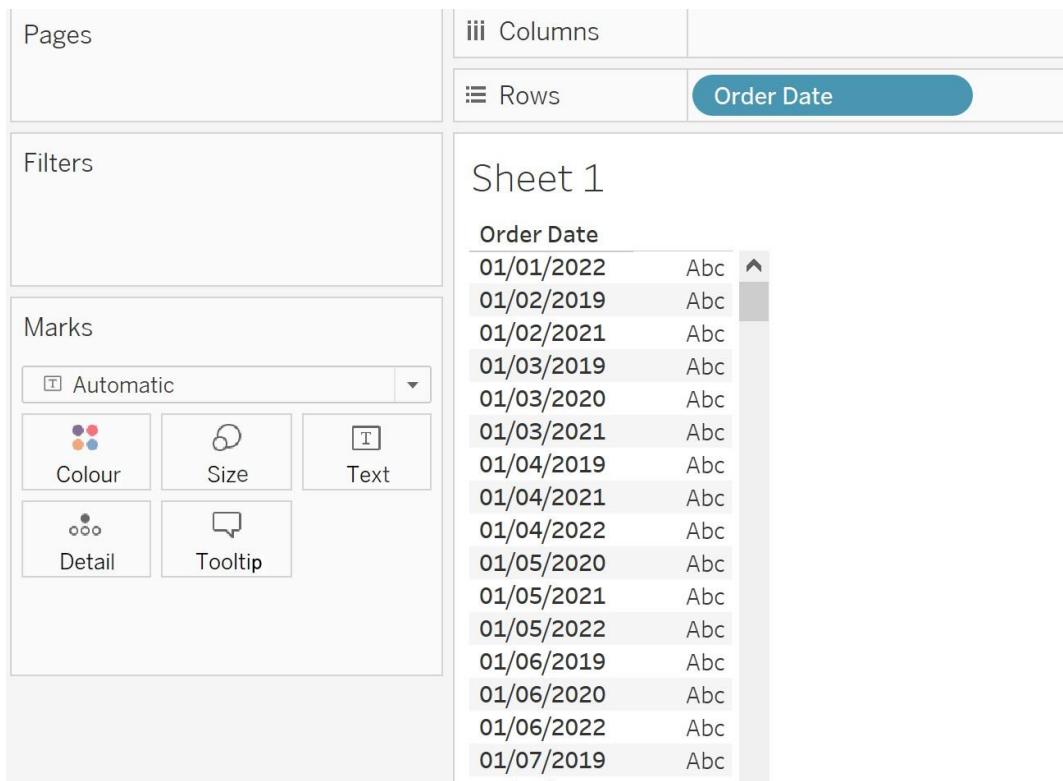


Figure 2.2: The Order Date field displaying string functionality

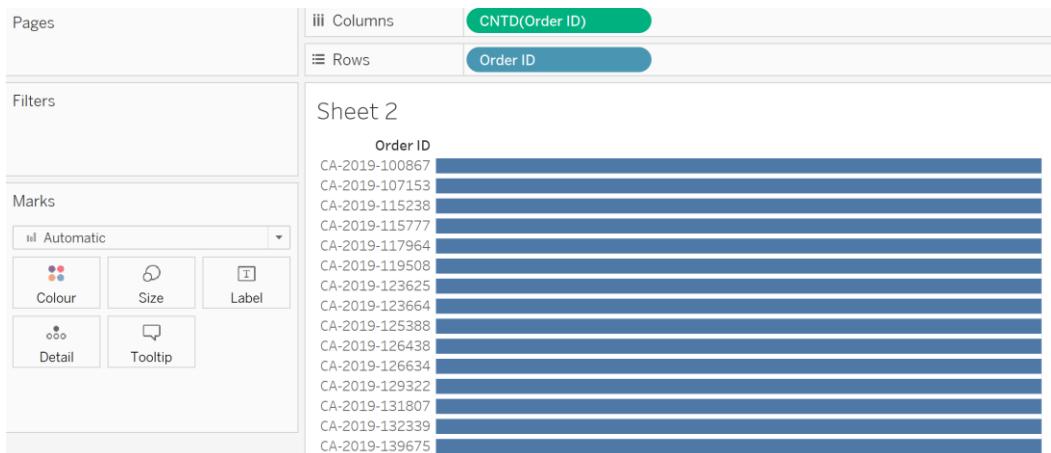


Figure 2.3: Order ID as both a measure and dimension in the view

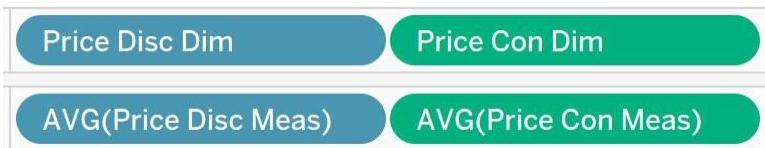


Figure 2.4: Each Price field pill shows a different possible combination. The top left shows price as a discrete dimension, and the top right shows price as a continuous dimension. The bottom two pills show price as measures, with the left discrete and the right continuous

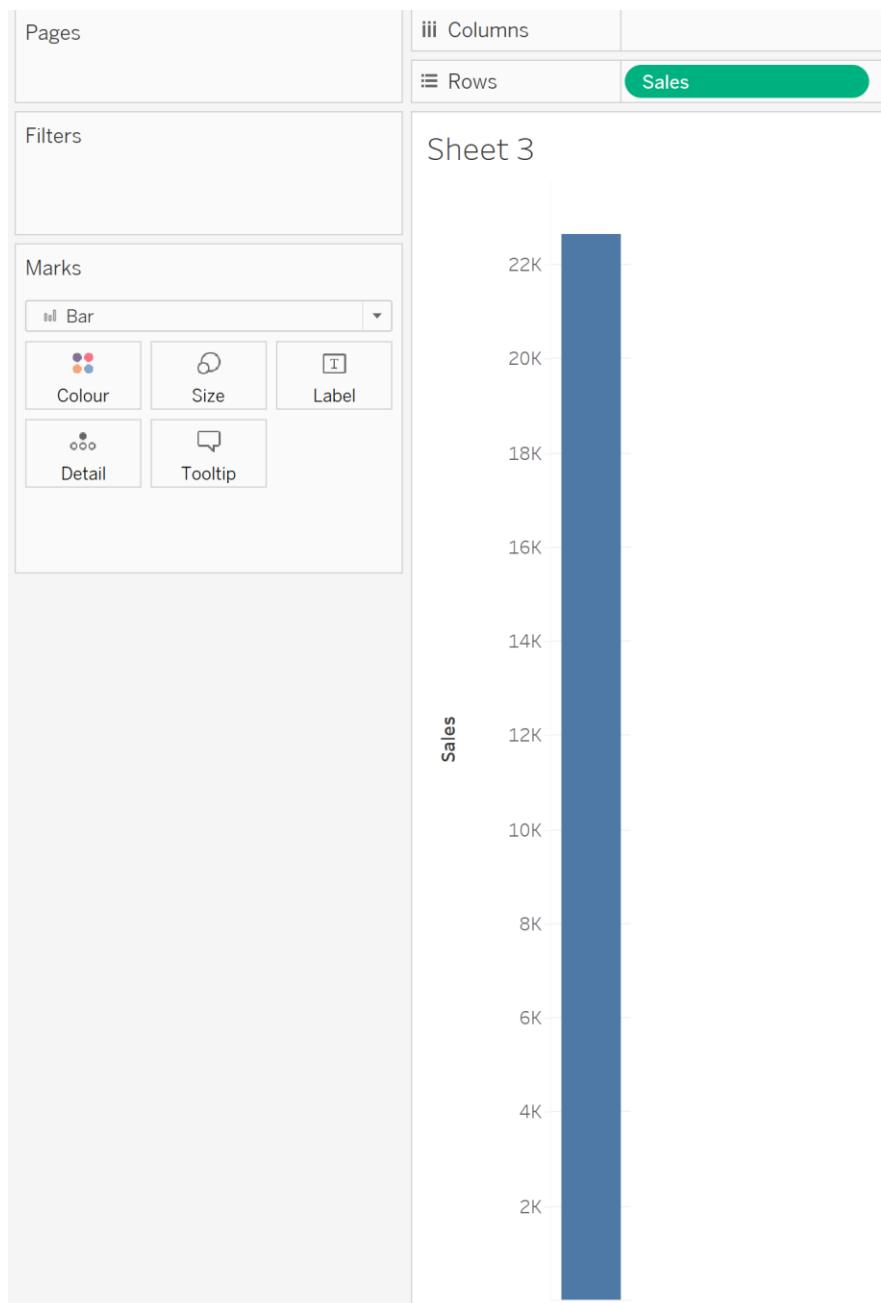


Figure 2.5: Sales as a continuous measure

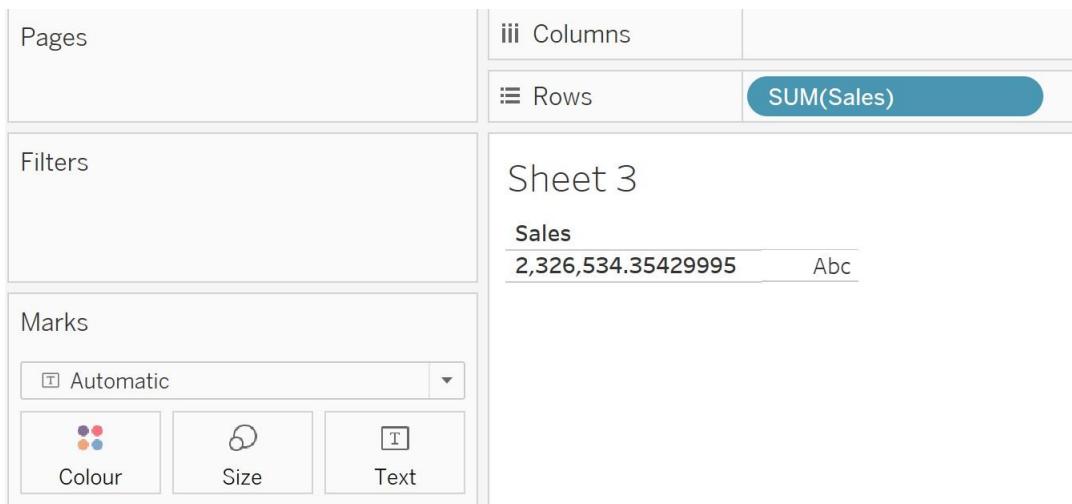


Figure 2.6: Sales as a discrete measure

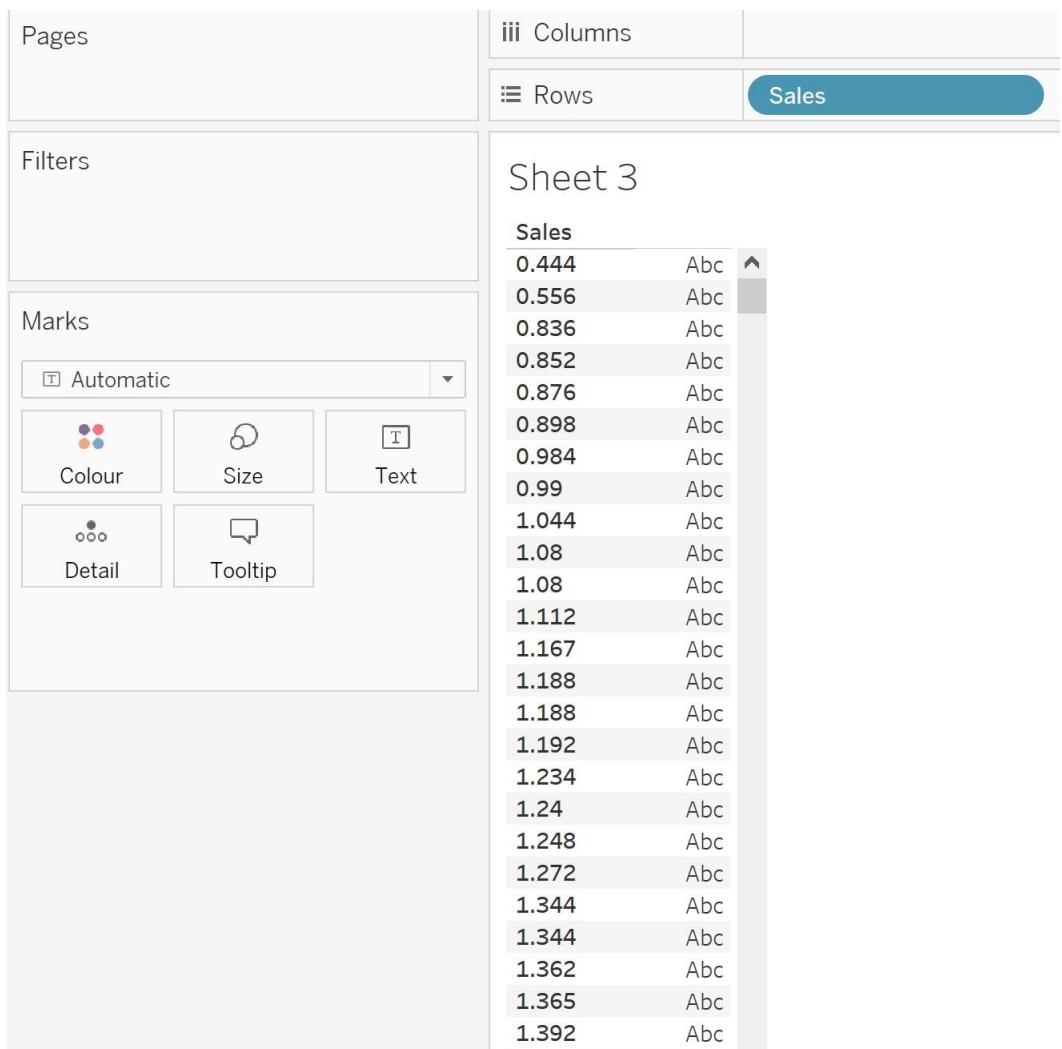


Figure 2.7: Sales as a discrete dimension

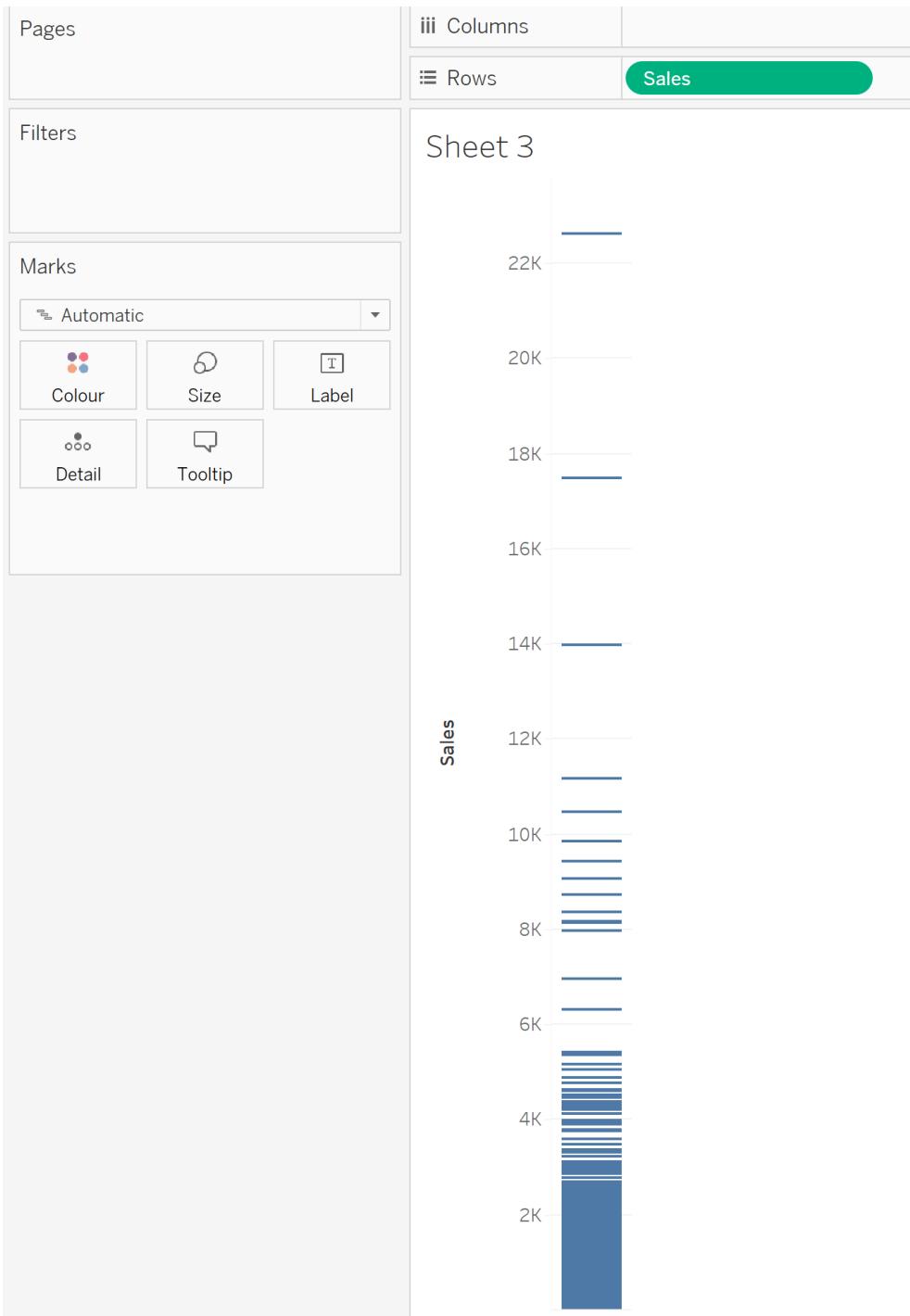


Figure 2.8: Sales as a continuous dimension

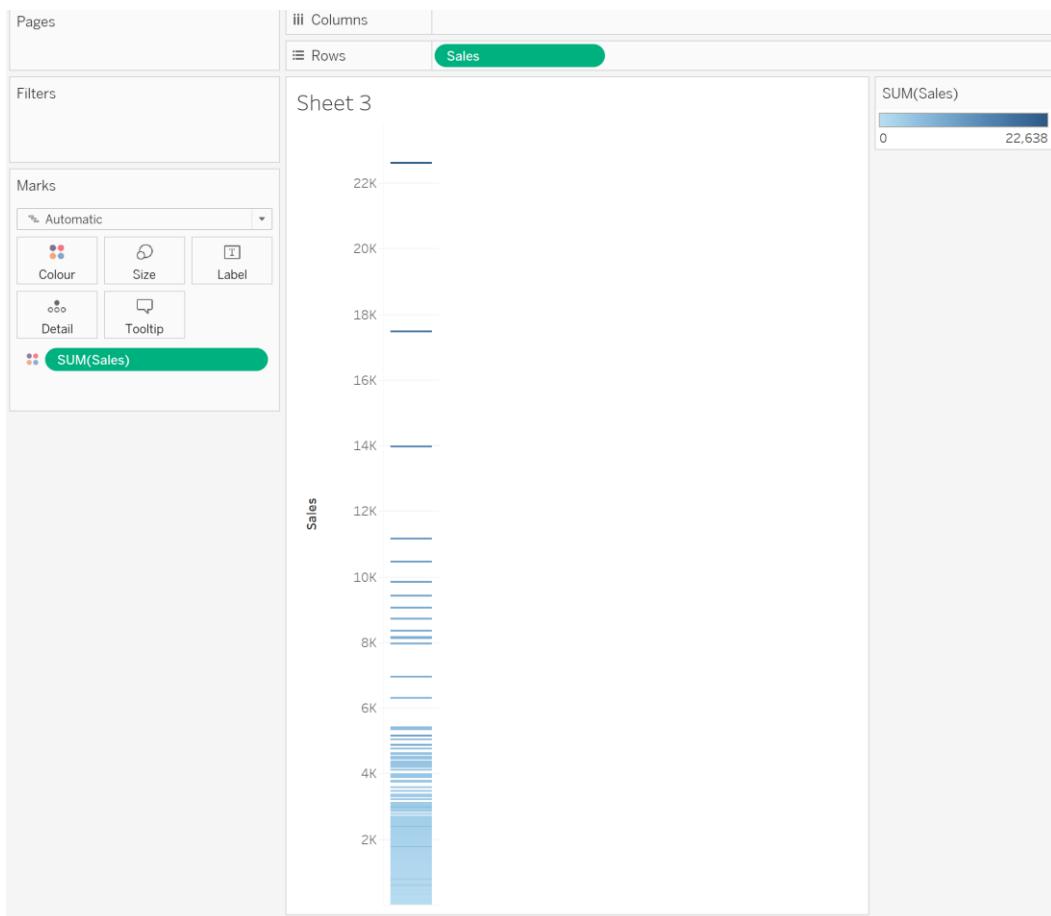


Figure 2.9: A continuous color legend added

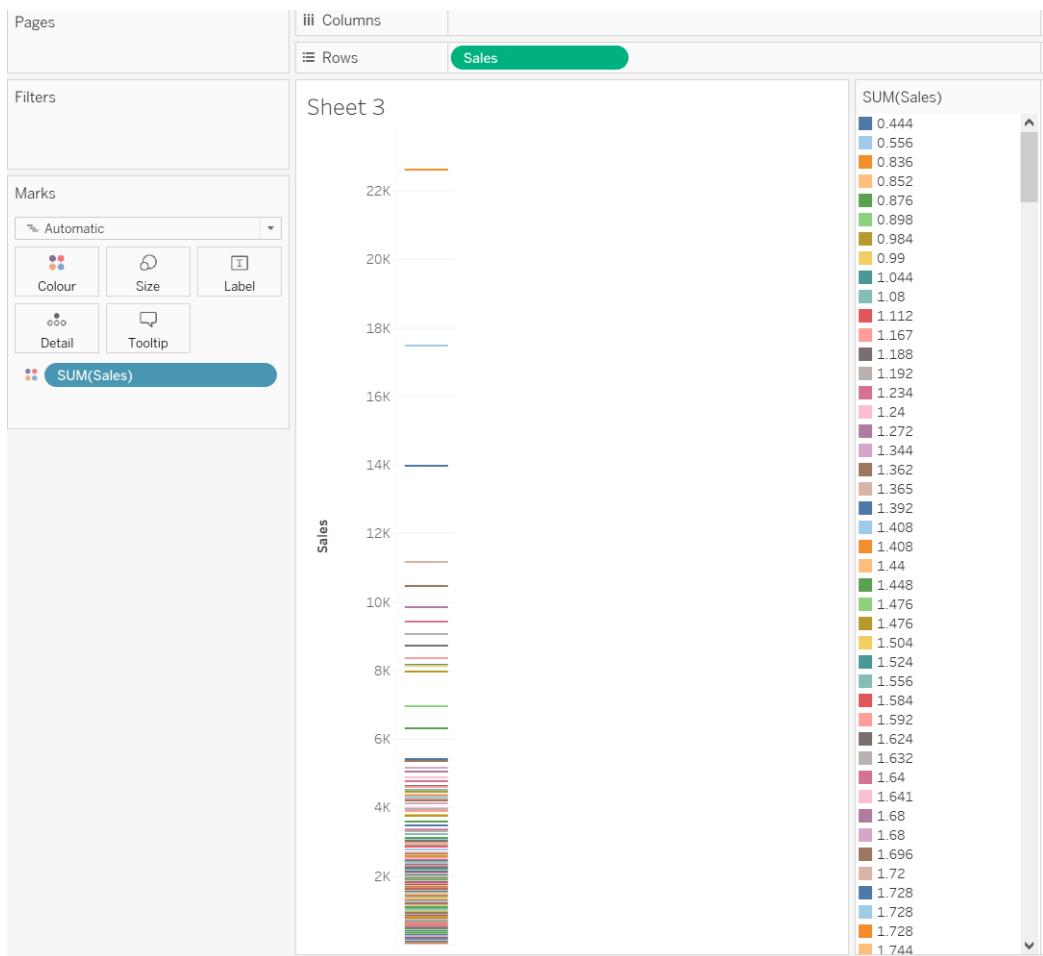


Figure 2.10: The color legend updated to Discrete

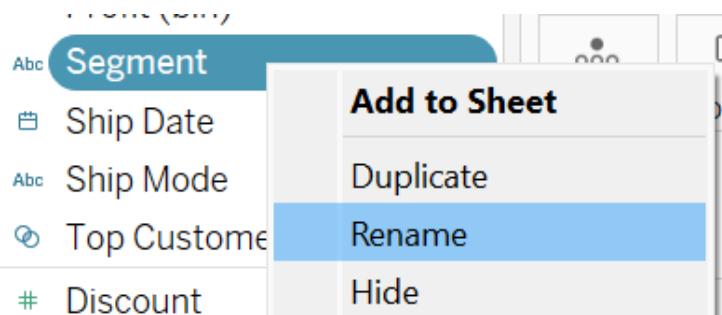


Figure 2.11: Renaming a field in Tableau

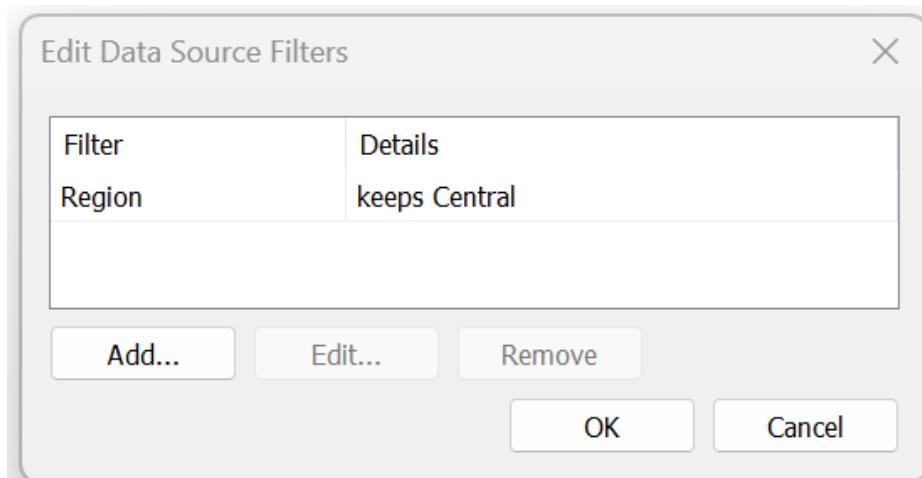


Figure 2.12: The data source filter configuration screen showing a filter applied that keeps the Central region only

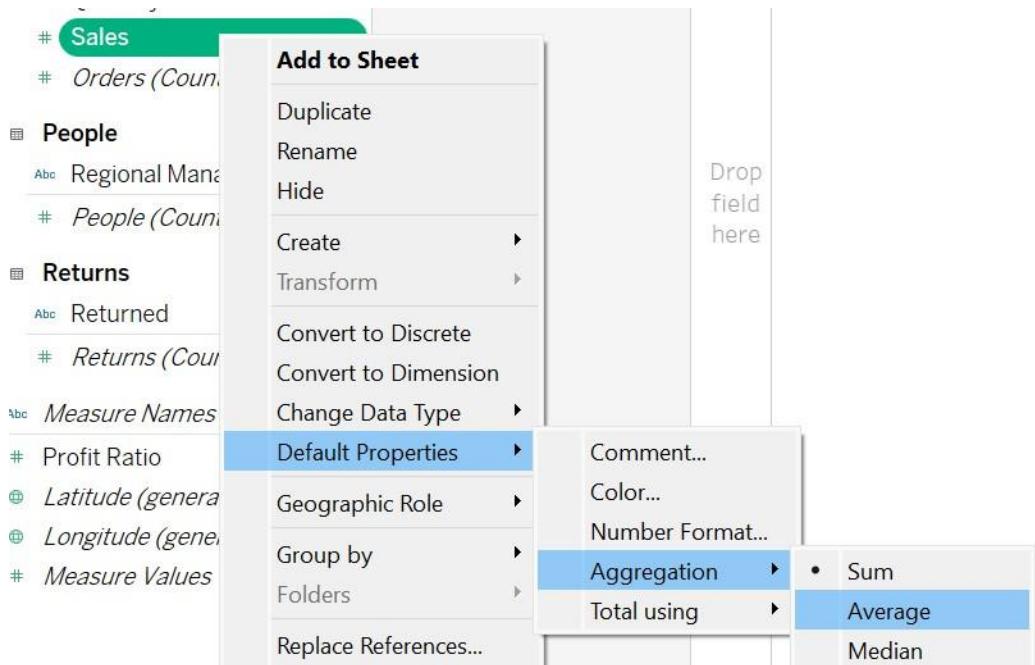


Figure 2.13: Updating the Sales field's default properties by setting its default aggregation as Average

The screenshot shows a data visualization interface with a top navigation bar for 'Pages', 'Columns', 'Rows', and two tabs: 'Customer Name' and 'Customer Name With...'. Below the navigation bar is a section labeled 'Filters'. The main area is titled 'Sheet 4' and contains a table with two columns. The first column is labeled 'Customer Name' and has two rows: 'Aaron Bergman' and 'Aaron Hawkins'. The second column is labeled 'Customer Name ..' and also has two rows: 'Aaron TEST' and 'Aaron Hawkins'. The 'Customer Name With...' tab is active, indicating an alias has been applied to the second column.

Figure 2.14: The Customer Name field is duplicated and the duplicate has been successfully renamed. An alias has been applied to one of the customer name values

Sheet 1

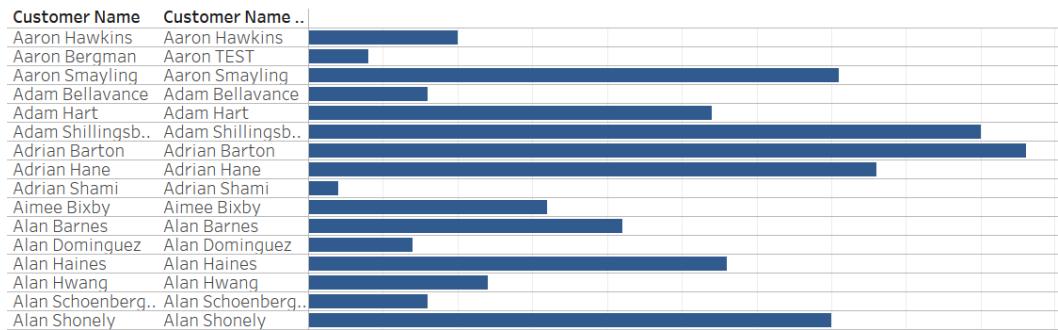


Figure 2.15: Aaron Bergman has been sorted below Aaron Hawkins
and Discount has been added as a bar for each customer

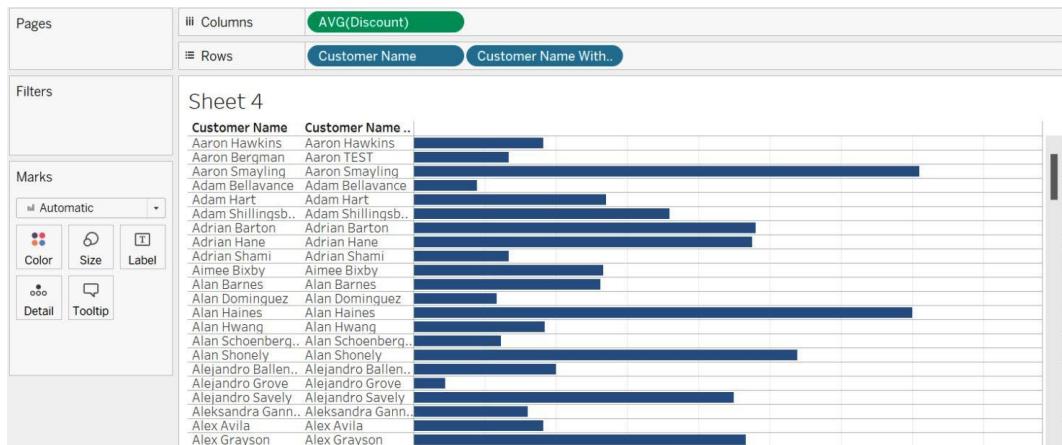


Figure 2.16: A custom sort, number format, and aggregations have been applied to the fields

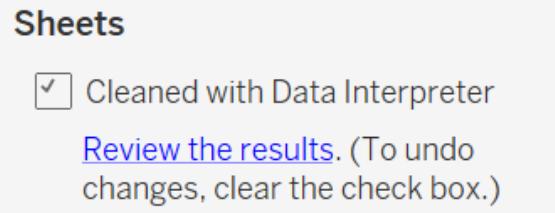


Figure 2.17: Check the box to confirm that Data Interpreter has been used

Key:	
	Data is interpreted as column headers (field names).
	Data is interpreted as values in your data source.
	Data derived from an Excel merged cell is interpreted as value in your data source.
	Data is ignored and not included as part of your data source.
	Data has been excluded from your data source.
Note: To search for all excluded data, use CRTL+F on Windows or Command F on the Mac, and then type '***DATA REMOVED***'.	

Figure 2.18: The Data Interpreter key

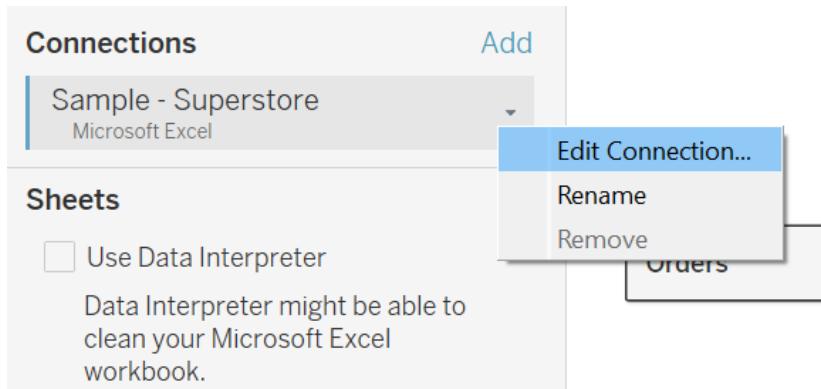


Figure 2.19: The Edit Connection... button leading to the Sample - Superstore file location

The screenshot shows the Tableau interface with a connection to 'Sample - Superstore Messy' via Microsoft Excel. The data source is labeled 'Messy'. The preview pane shows a table with 26 fields and 10195 rows. The first row contains column headers: 'Order ID', 'Ship Mode', 'Customer ID', 'Customer Name', 'Segment', and 'Country/R'. The data below consists of various rows with different values, such as 'US-2020-103800', 'Standard Class', 'DP-13000', 'Darren Powers', 'Consumer', and 'United Sta'. A message at the bottom says 'Need more data? Drag tables here to relate them. [Learn more](#)'.

Figure 2.20: The messy data has been read in directly and has no column headers, other than the title from cell A1. The correct column headers are read in as column values on the first row

The screenshot shows the Tableau interface with a connection to 'Sample - Superstore Messy'. The data source is labeled 'Messy Y10:Z14'. The preview pane shows a table with 2 fields and 4 rows. The first row contains column headers: 'Regional Manager' and 'Region'. The data below consists of three rows: 'Sadie Pawthorne' (Region: West), 'Chuck Magee' (Region: East), and 'Roxanne Rodriguez' (Region: Central). A message at the bottom says 'Need more data? Drag tables here to relate them. [Learn more](#)'.

Figure 2.21: A subtable imported into the canvas

Data Analytics <

- Messy (Sample - Superstore Messy)
- Selected: Sample - Superstore

Search

Folders

- ▼ **Dates**
 - Abc Order Date
 - ABC Ship Date
- Abc Customer Name
- Abc Customer Name With Updated Alias
- ▼ **Location**
 - ⊕ Country/Region
 - ⊕ State/Province
 - ⊕ Region
 - ⊕ City
 - ⊕ Postal Code

Figure 2.22: Date fields have been organized into their own folder

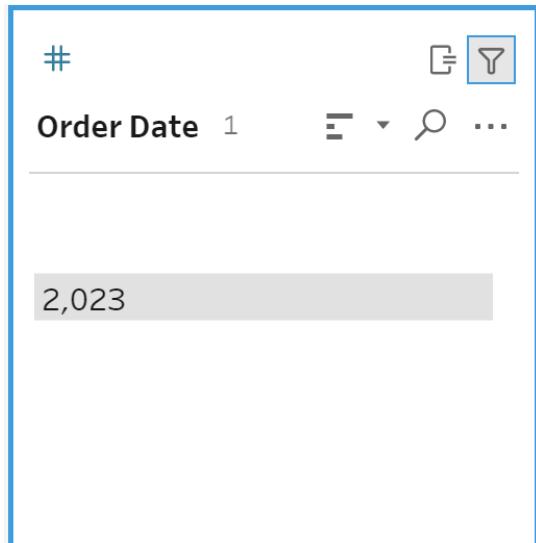


Figure 2.23: Order Date has been converted to a numeric field and filtered to 2023 data only

A screenshot of a Power BI visualization showing three columns. The first column is titled "Order ID" and contains a list of order IDs starting with "CA-2023-105471". The second column is titled "Order Country" and contains two categories: "CA" and "US". The third column is titled "Order Date" and shows the value "2,023". Each column has its own set of filters and search icons at the top. The entire visualization has a blue border.

Order ID	Order Country	Order Date
CA-2023-105471	CA	2,023
CA-2023-106541	US	
CA-2023-107004		
CA-2023-108735		
CA-2023-112109		
CA-2023-115238		
CA-2023-115483		
CA-2023-115777		
CA-2023-119508		
CA-2023-121451		
CA-2023-124626		
CA-2023-125388		

Figure 2.24: Order Country has been created as a new field by splitting Order ID on the first instance of -

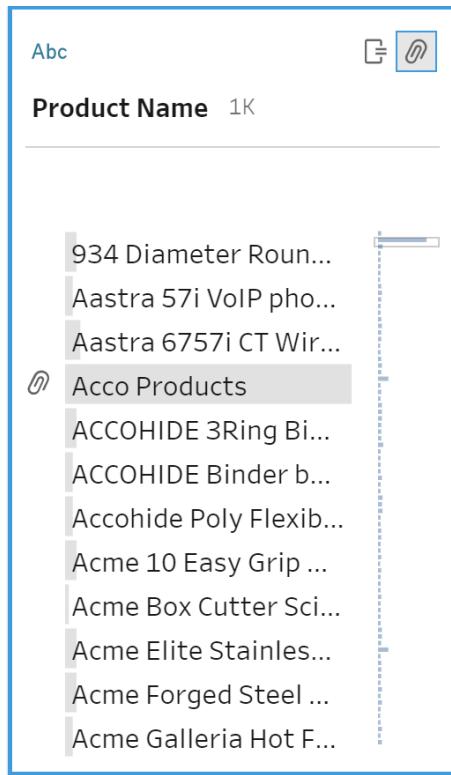


Figure 2.25: The Product Name field has been updated to remove all punctuation and group Acco Products together

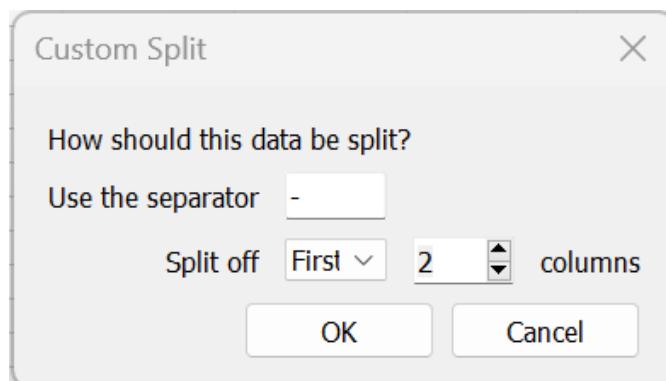


Figure 2.26: The Custom Split configuration window set up to split on - and return the first two results



Figure 2.27: Pivoting four separate regional sales total columns to a single region column, mapped to a sales column

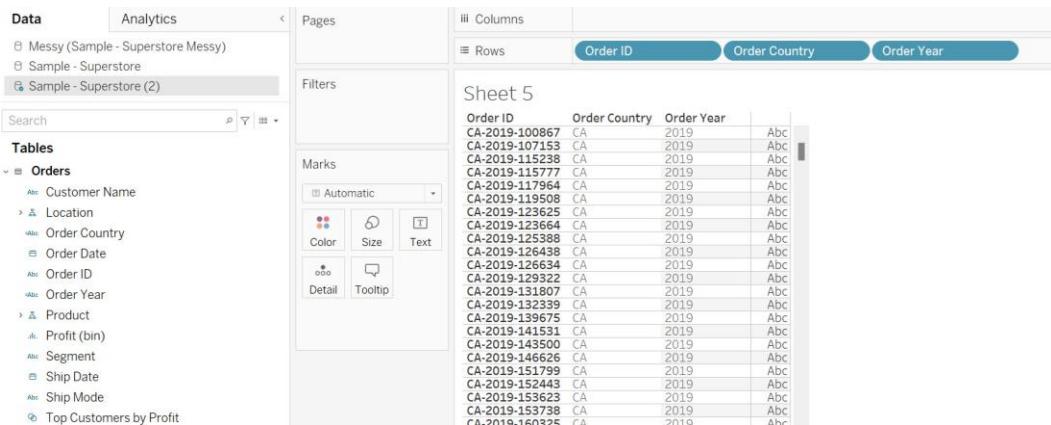


Figure 2.28: The Order ID field split by the hyphen character returning the first two columns

Abc Orders	Abc Orders	Abc Pivot	# Pivot	=Abc Calculation	=Abc Calculation
Sub-Category	Product Name	Metrics	Values	Order Country	Order Year
Paper	Message Book, Wirebound, Fo...	Discount	0.20	US	2019
Paper	Message Book, Wirebound, Fo...	Profit	5.55	US	2019
Paper	Message Book, Wirebound, Fo...	Quantity	2.00	US	2019
Paper	Message Book, Wirebound, Fo...	Sales	16.45	US	2019
Binders	GBC Standard Plastic Binding...	Discount	0.80	US	2019
Binders	GBC Standard Plastic Binding...	Profit	-5.49	US	2019
Binders	GBC Standard Plastic Binding...	Quantity	2.00	US	2019
Binders	GBC Standard Plastic Binding...	Sales	3.54	US	2019

Figure 2.29: The metric fields have been pivoted and the pivot fields have been suitably renamed

Σ

Aggregate 1

Figure 2.30: The Tableau Prep Aggregate step icon is a summation symbol

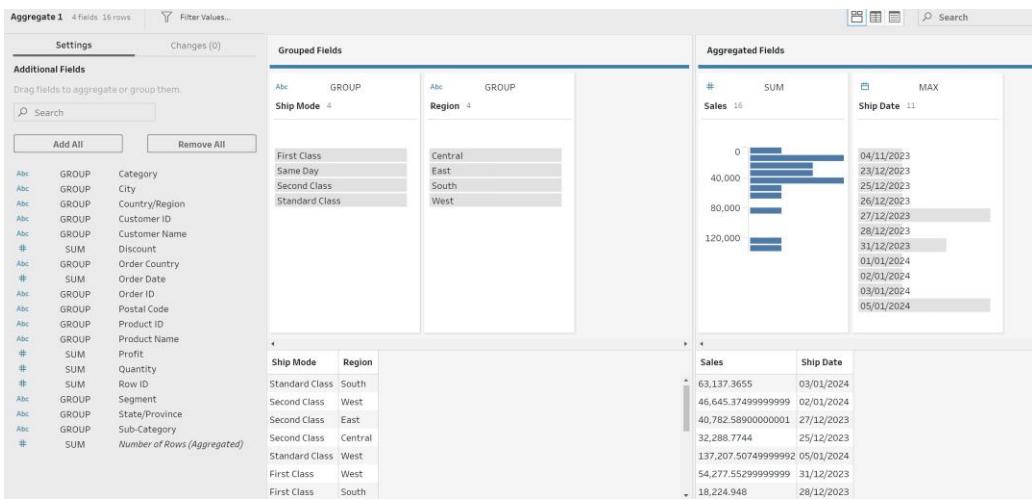


Figure 2.31: Orders data aggregated to ship mode and region level with the most recent ship date and total sales aggregated

Rows to Columns ▾

Figure 2.32: Row to Columns pivot selection

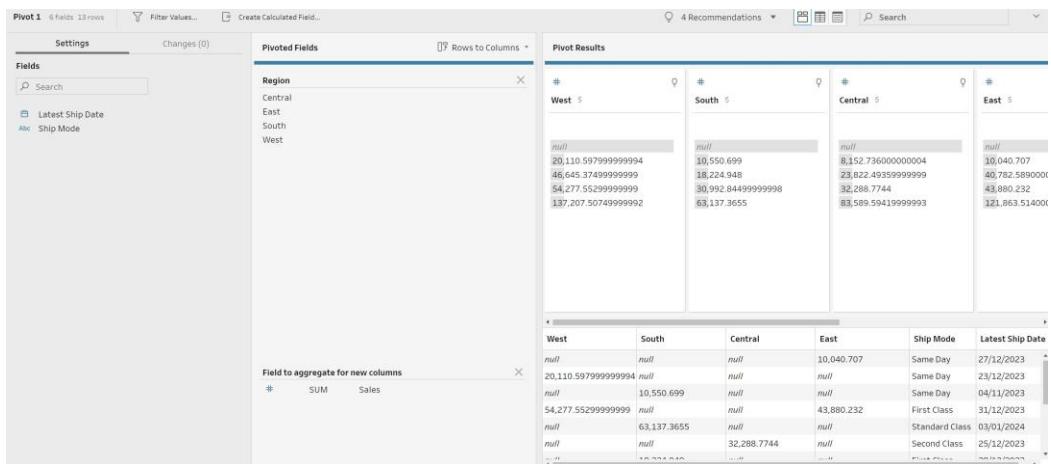


Figure 2.33: Region values have been pivoted from rows to columns with sales values summed to the ship mode level of aggregation

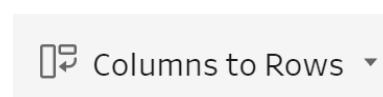


Figure 2.34: Columns to Rows pivot selection

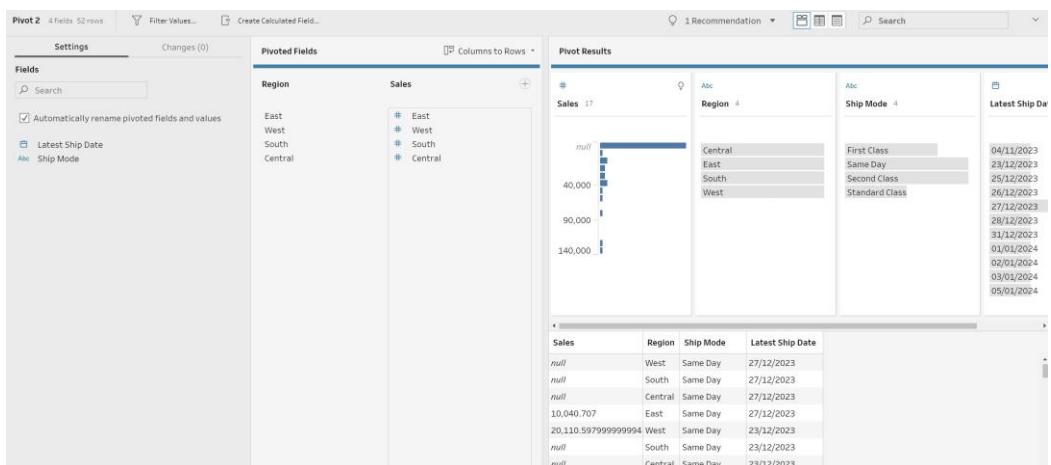


Figure 2.35: Region columns have been pivoted back to create a region and a sales column.
Null values are visible in sales but can be removed in a subsequent clean step

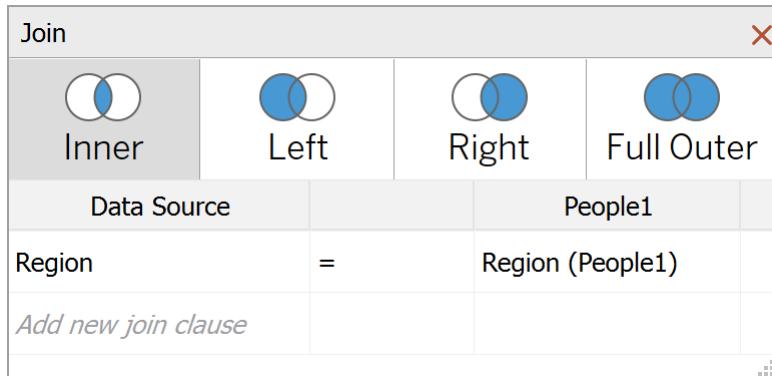


Figure 2.36: The Join configuration window showing an inner join of two data sources where the Region field is common across both



Figure 2.37: Remove the People and Returns tables from the canvas

Orders is made of 2 tables. ⓘ

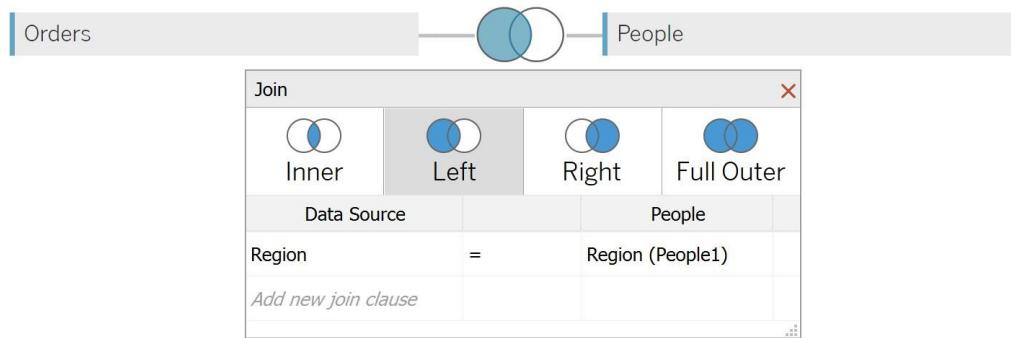


Figure 2.38: Left join created between orders and people tables where region matches region



Figure 2.39: A union on the data source canvas

⌚ Sample - Superstore (copy 2)

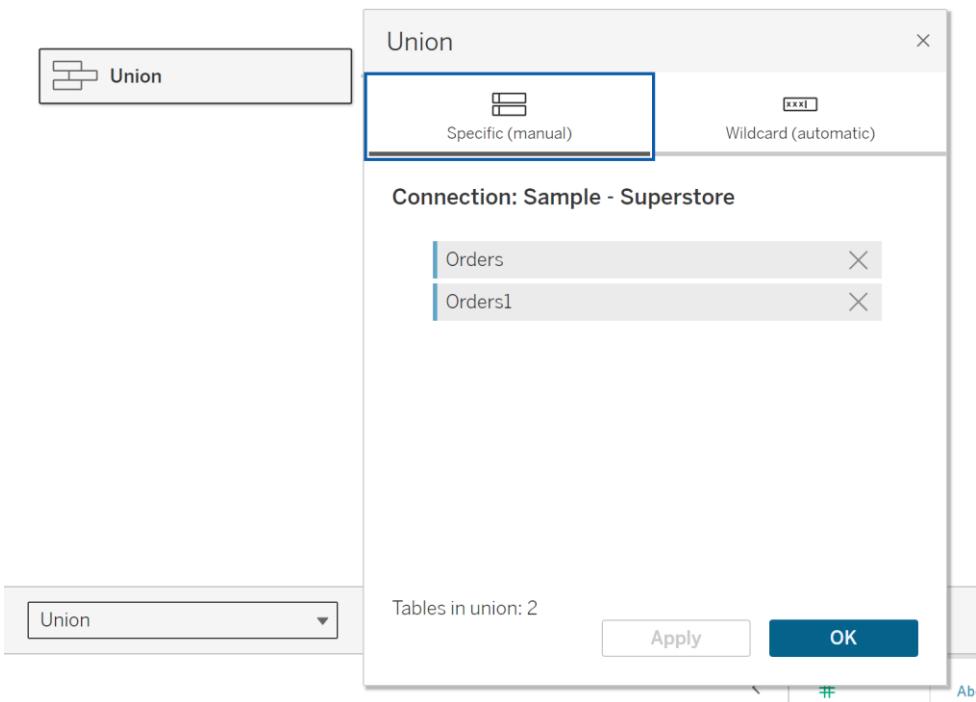


Figure 2.40: Union created that places the Orders table on top of itself

How do relationships differ from joins? [Learn more](#)

Union Operator People

Abc Region = Abc Region (People)

(+) Add more fields

Figure 2.41: Relationship set up between the Union and People tables on the Region field. The Operator can be switched to change the match condition, and Add more fields can be selected to add additional clauses

Sample - Superstore (copy 2)

Union — People

How do relationships differ from joins? [Learn more](#)

Union Operator People

Abc Region = Abc Region (People)

(+) Add more fields

> Performance Options

Abc People	Abc People
Regional Manager	Region (People)
Sadie Pawthorne	West
Chuck Magee	East
Roxanne Rodriguez	Central
Fred Suzuki	South

Figure 2.42: Relationship between the Union and People tables on the common Region field



Figure 2.43: Blended data linking field icons - the top icon shows a field that is linked for the view whereas the bottom shows a field that is not linked for the view



Figure 2.44: Primary versus secondary data source icons, with Orders reflecting the primary and People the secondary

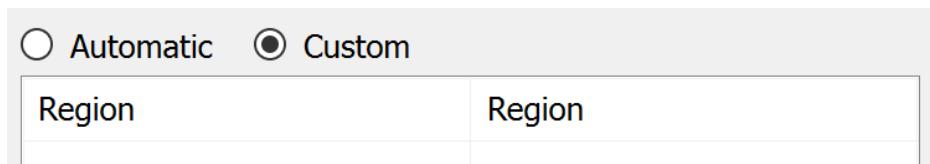


Figure 2.45: Custom blend relationship on the Region field configured

The screenshot shows the Tableau interface with the Data pane open. The Data pane lists several data sources: Messy (Sample - Superstore), Orders, People, Sample - Superstore, Sample - Superstore (2), and Sample - Superstore (copy...). Under Folders, there are 'Region', 'Regional Manager', 'Measure Names', '# People (Count)', and '# Measure Values'. The 'Region' folder is expanded.

The main workspace shows a table named 'Sheet 8' with two columns: 'Region' and 'Region'. The data in the table is:

Region	Region	
Central	Central	Abc
East	East	Abc
South	South	Abc
West	West	Abc

A 'Blend Relationships' dialog box is open in the bottom right. It shows 'Primary data source: Orders' and 'Secondary data source: People'. The 'Region' field is listed under both. The 'Custom' radio button is selected. The 'OK' button is highlighted.

Figure 2.46: Blend relationship set up on Region, primary and secondary data sources are made clear by blue and orange coloring, and the Region linking field can be seen colored red, indicating that it is active

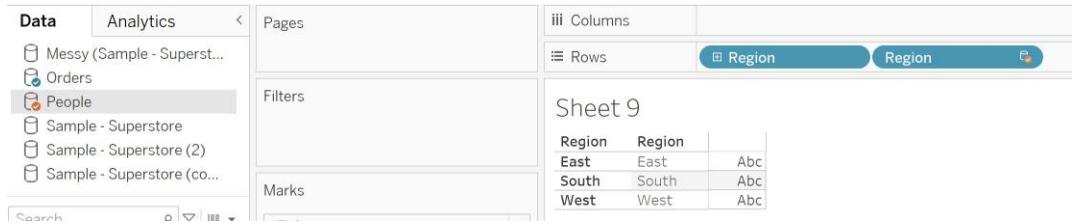


Figure 2.47: As Orders is the primary data source and Central has been filtered for region, it does not show in the view

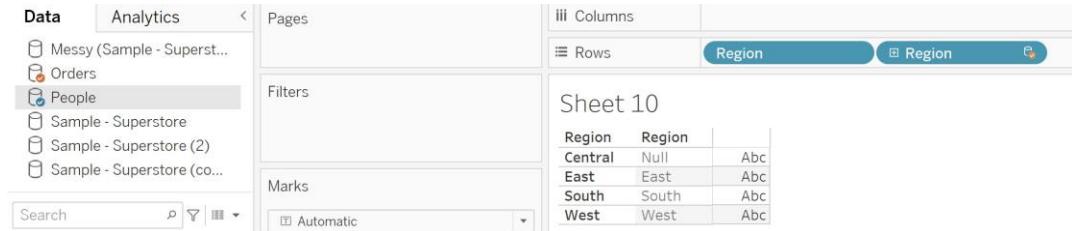


Figure 2.48: The People data source is the primary data source, therefore all regions are shown in the view. Where the Orders data has no match, a Null record is shown

Join 1 6 fields 16 rows Filter Values... Create...

Settings Changes (0)

Applied Join Clauses (+)

Clean 7	=	Clean 4
Region	=	Region

Join Type : left

Click the graphic to change the join type.

Clean 7 Clean 4

Figure 2.49: Join configuration for a left join where the Region field matches

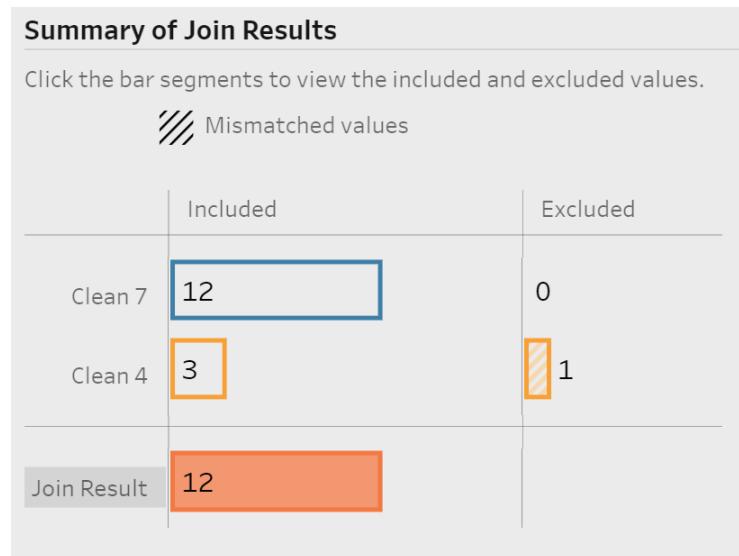


Figure 2.50: A join summary showing that 12 records were kept from the Clean 7 step and three records were kept from the Clean 4 step. One record was excluded from the Clean 4 step (left join). In total, the join therefore results in 12 records

Join Clauses Show only mismatched values ▾

Clean 7

↑ Region

East

South

West

Clean 4

↑ Region

Central

East

South

West

Figure 2.51: Join on the Region field where East, South, and West match across data sources but the Central region is excluded from the right data source (Clean 4 step)

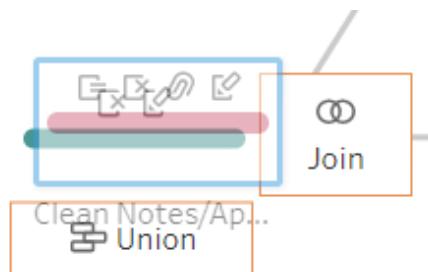


Figure 2.52: When dragging one step over another, there is an option to join or union the data streams by dropping the step on either popup

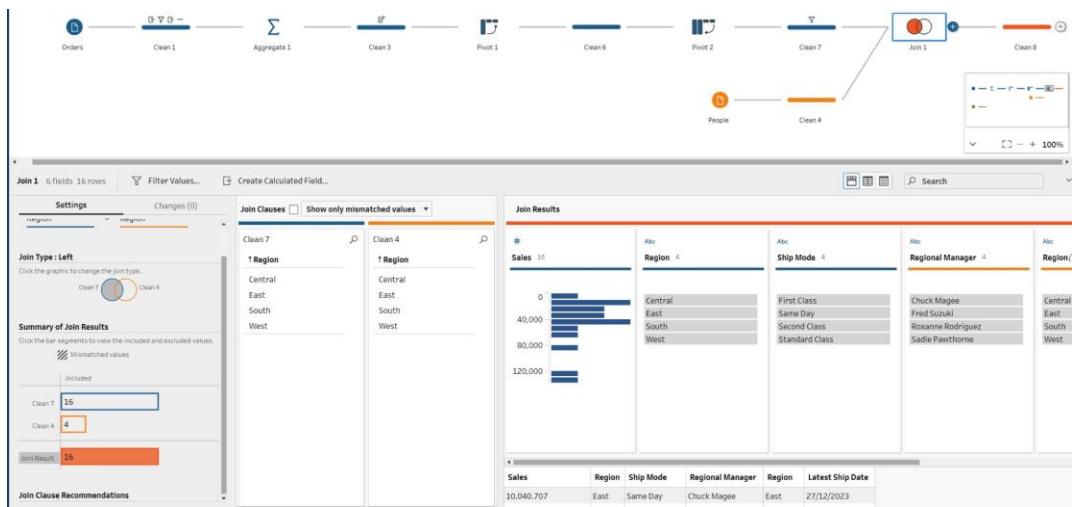


Figure 2.53: Join step added to Tableau Prep to combine the Orders and People tables on the Region field using a left join

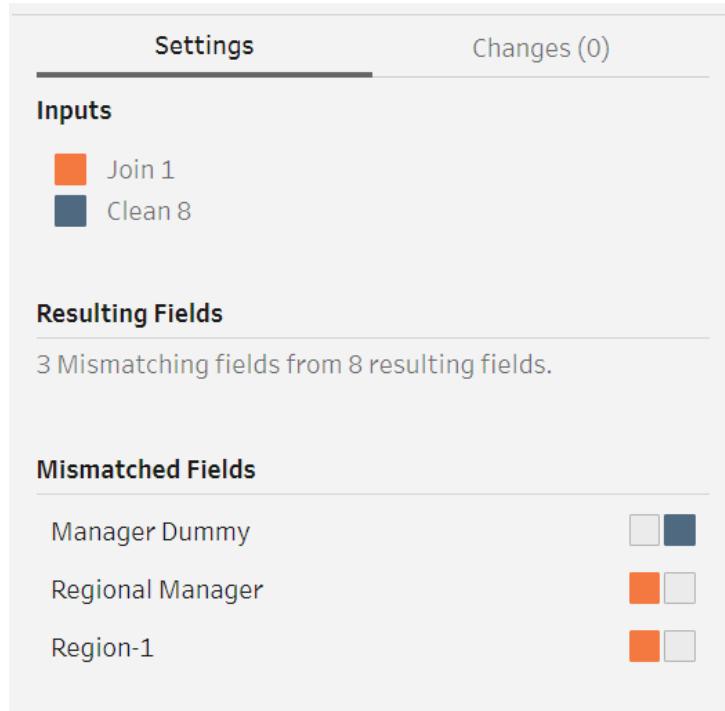


Figure 2.54: Union setting configuration showing a union of two data sources resulting in 8 fields with 3 mismatched. The Manager Dummy field comes from the Clean 8 step, whereas the Regional Manager and Region-1 fields come from the Join 1 step

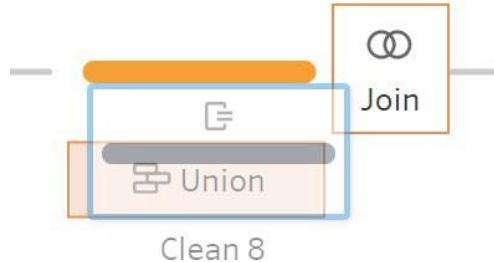


Figure 2.55: When dragging one step over the other, there is an option to join or union the data streams by dropping the step on either popup

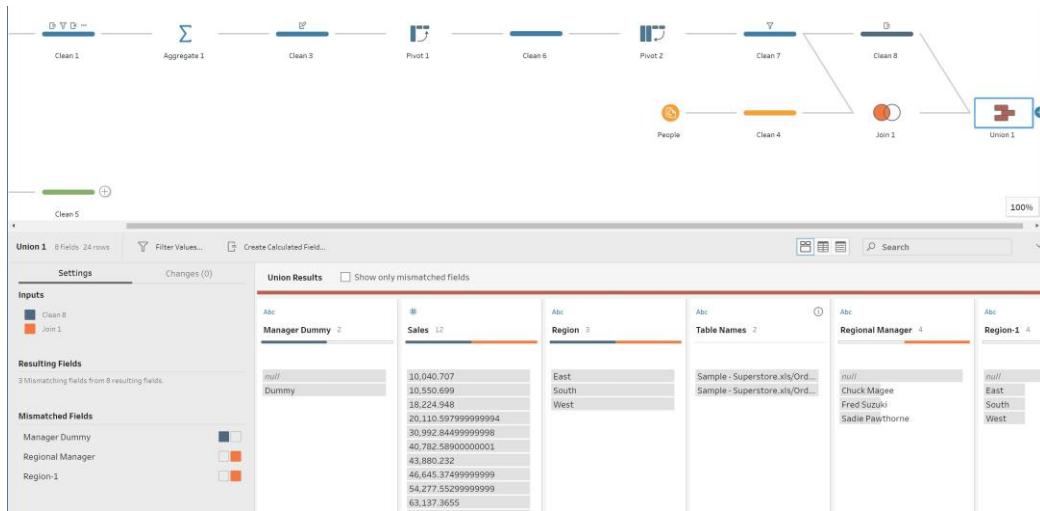


Figure 2.56: Two data streams have been unioned and mismatched fields have been merged or removed

The screenshot shows a web-based learning platform interface. At the top, there's a navigation bar with a logo, 'Practice Resources', a bell icon for notifications, and a 'SHARE FEEDBACK' button. Below the navigation, the path 'DASHBOARD > CHAPTER 2' is visible. The main content area is titled 'Transforming Data' under a 'Summary' section. It contains several paragraphs of text explaining data types, cleaning, transforming, and combining data. To the right, a separate box titled 'Chapter Review Questions' is shown, which includes the title 'The Tableau Certified Data Analyst Certification Guide by Harry Cooney, Daisy Jones', a 'Select Quiz' button, and a 'Quiz 1' section with a 'SHOW QUIZ DETAILS' link and an orange 'START' button.

It is important to consider data quality before conducting analysis in Tableau. If data has not been assessed for consistency, accuracy, and completeness, then the insights derived from it cannot be trusted.

There are multiple data types for fields in Tableau, including string, numeric, Boolean, geographic, date, and date and time. Fields behave differently depending on data type but also depending on color. Blue fields are discrete, which means they essentially consist of a finite number of grouping values. Green fields are continuous, which means there is theoretically an infinite number of values that are possible. Fields can also be either dimensions or measures. Dimensions are used to break up views, whereas measures are used to aggregate metrics.

Tableau Desktop offers a wide range of functionality for cleaning, transforming, and combining data to ensure that it is ready for analysis. Fields can be cleaned by renaming, filtering out unneeded values, setting default properties, and utilizing aliases where needed. Fields can also be grouped into folders for organizational purposes. In addition to these manual data cleansing operations, Tableau Desktop provides **Data Interpreter** to automatically clean Excel, CSV, PDF, and Google Sheets files.

Data sources can also be transformed in Tableau Desktop by splitting fields on specific delimiters to create new fields, and by pivoting the data to make it taller and thinner as opposed to wide.

Multiple sources of data can also be combined in Tableau Desktop via joins and unions to create new, larger data sources, or by blends or relationships to create dynamic data sources that allow tables to retain their original level of detail.

If more advanced data cleaning, transformation, or combination is required, then Tableau Prep is preferable. Tableau Prep includes multiple data cleaning functionalities not available in Tableau Desktop, such as grouping values within a field, updating all values in a field, changing the case of characters, and removing characters for all values within a field. Tableau Prep offers the ability to aggregate data to a higher level of detail and enables more advanced pivoting that can go both ways. Tableau Prep also has enhanced functionality when combining data, such as joins where the join clause is not met and merging mismatched fields when unioning.

Figure 2.58 - Chapter Review Questions for Chapter 2

3

Calculations

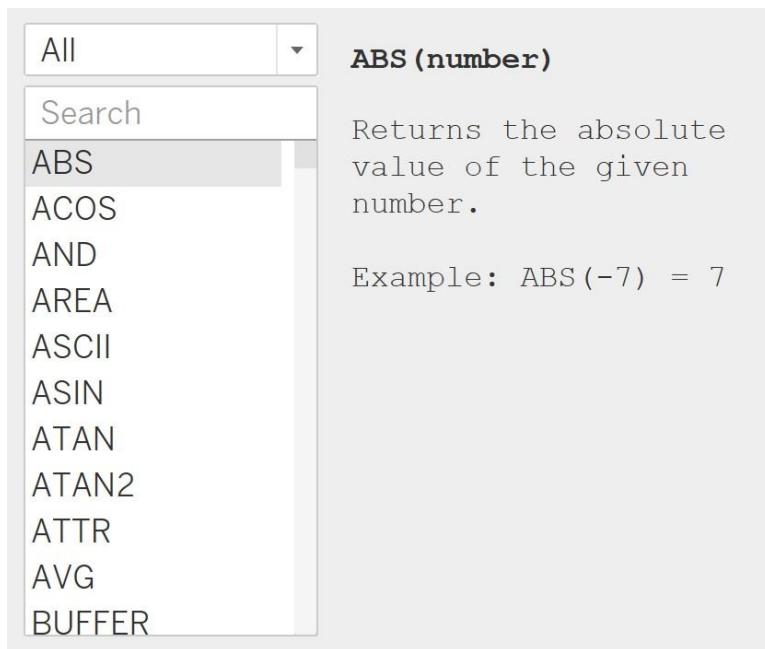


Figure 3.1: Calculated field help section - use the dropdown to select the calculation type category

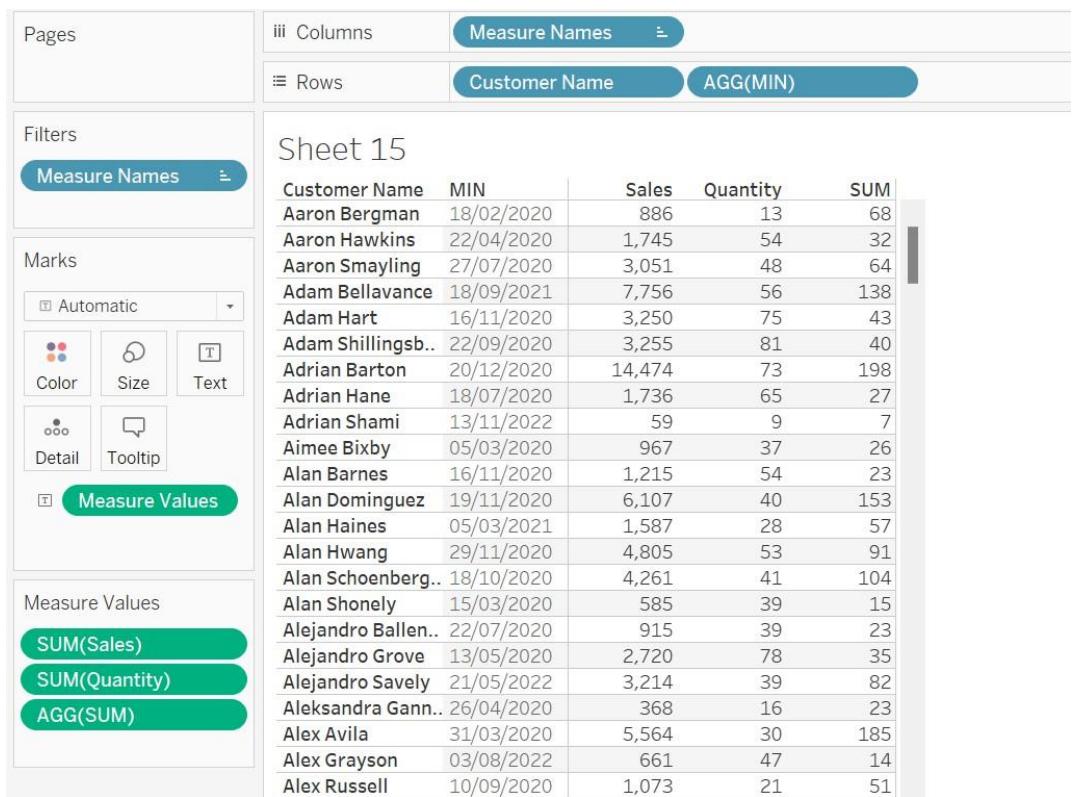


Figure 3.2: The SUM function is used to get the total sales, which is then divided by the total quantity, and the MIN function is used to get the first order date for each customer

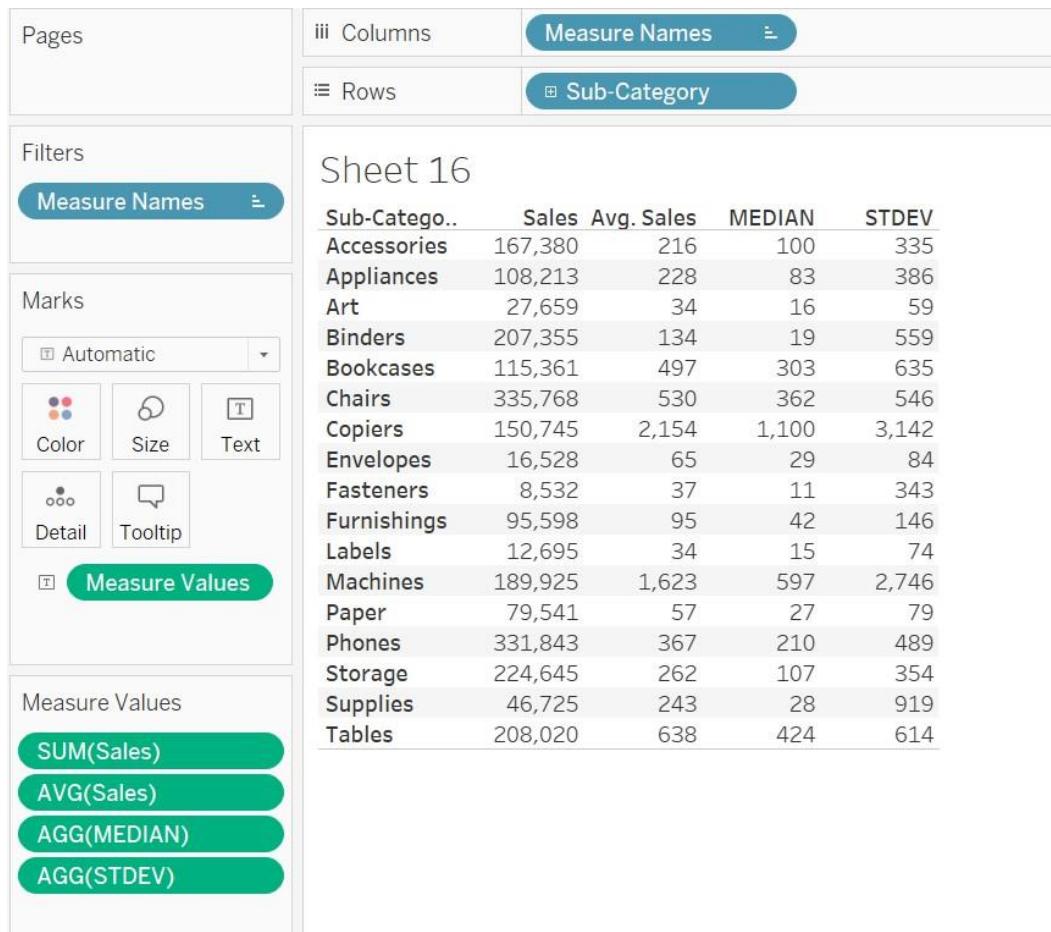


Figure 3.3: Sub-Category table created showing the total and average sales as well as the median and standard deviation created using the MEDIAN and STDEV functions

1.

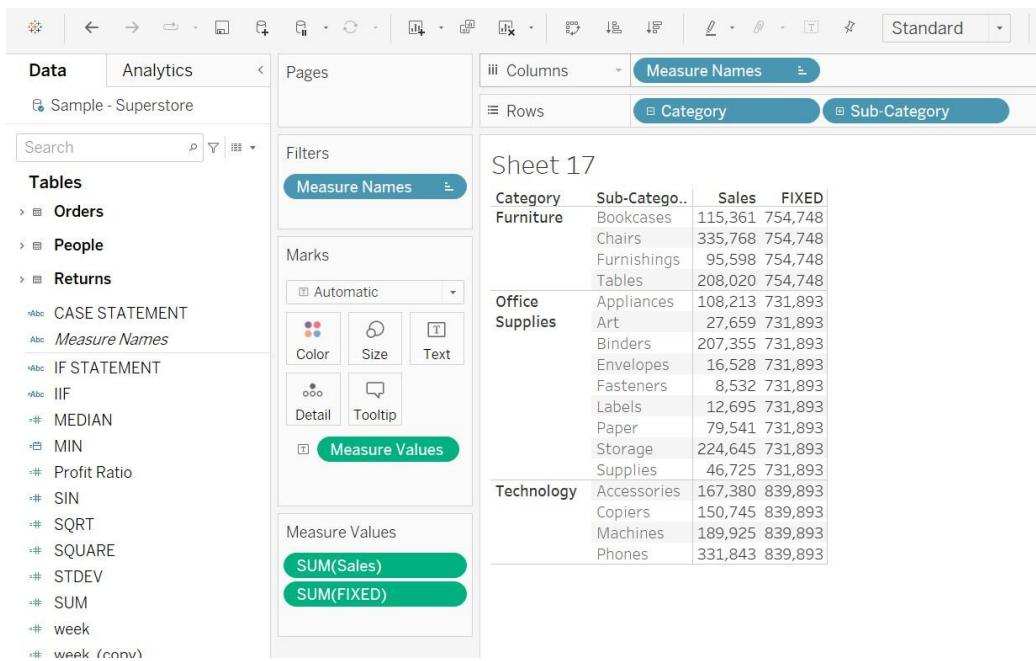


Figure 3.4: The FIXED sales values can be observed to be fixed at the category total level regardless of the level of detail in the view

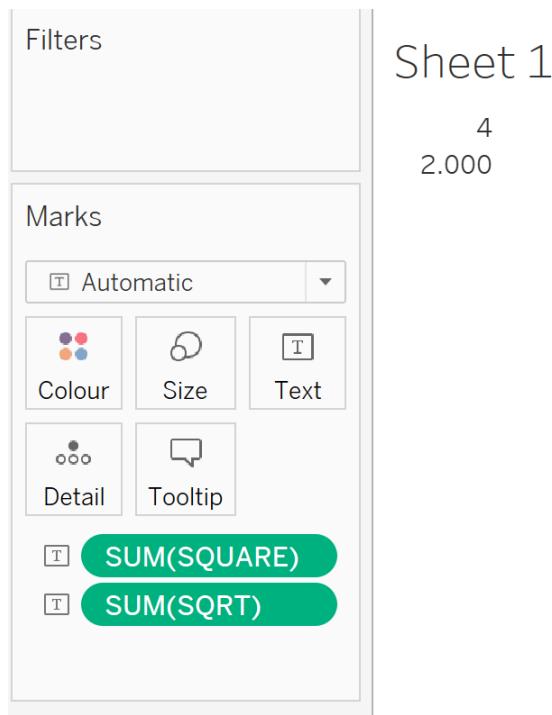


Figure 3.5: SQUARE and SQRT functions used in separate calculated fields with the SQRT column canceling out the SQUARE function

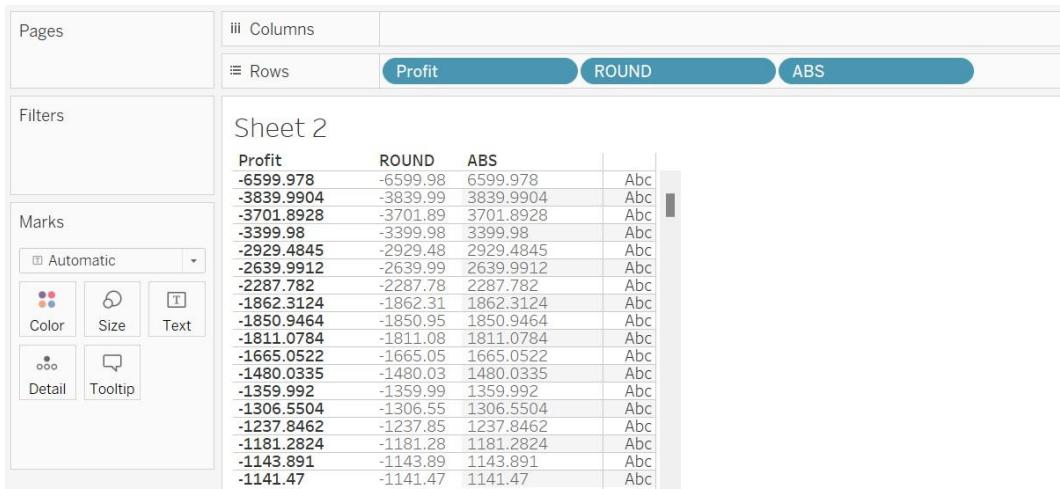


Figure 3.6: ROUND and ABS functions applied to the Profit field and the effects observed

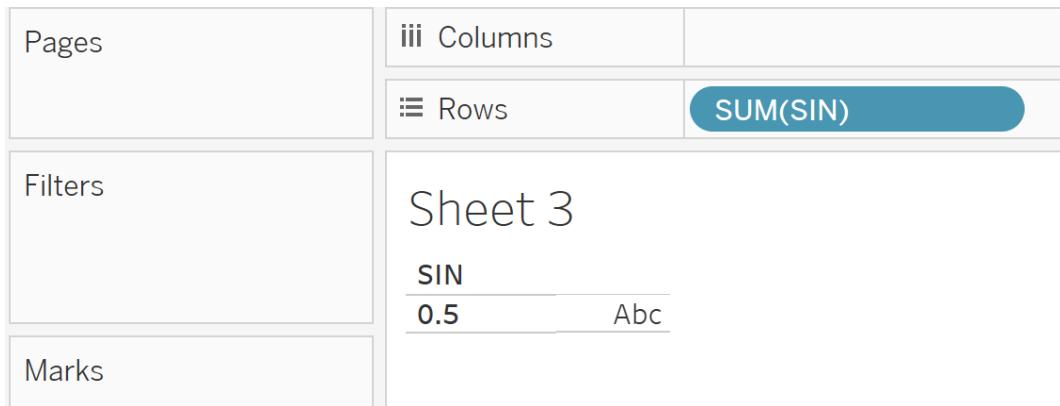


Figure 3.7: Nested functions used to find the sine of a 30-degree angle using the SIN and RADIANS functions

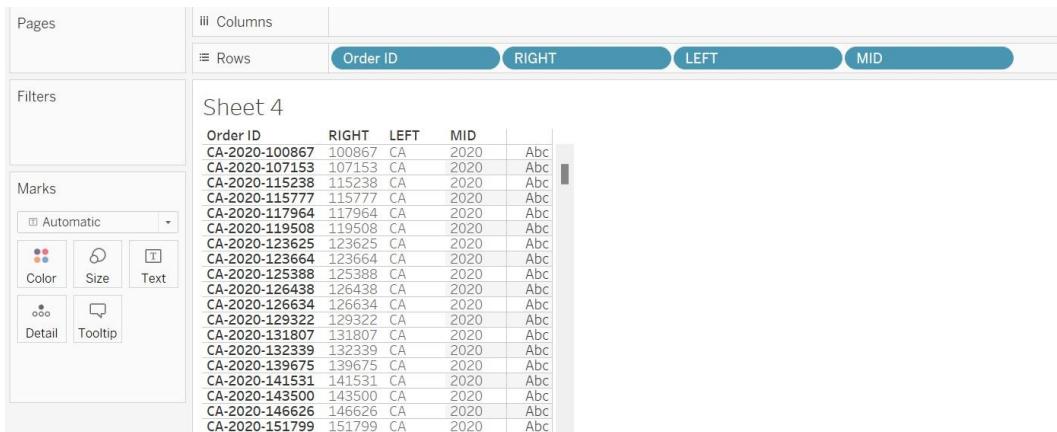


Figure 3.8: Order ID subsections have been parsed out using RIGHT, LEFT, and MID functions

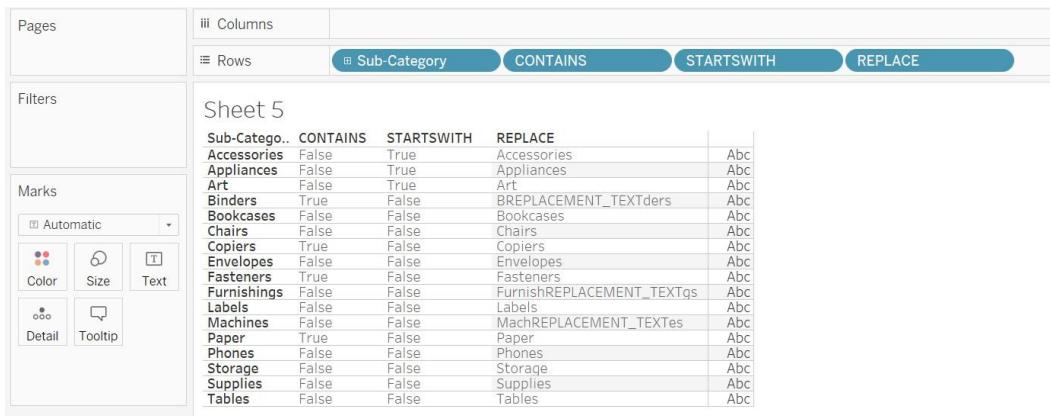


Figure 3.9: Substrings found within, at the start of, and replaced, using the CONTAINS, STARTSWITH, and REPLACE functions

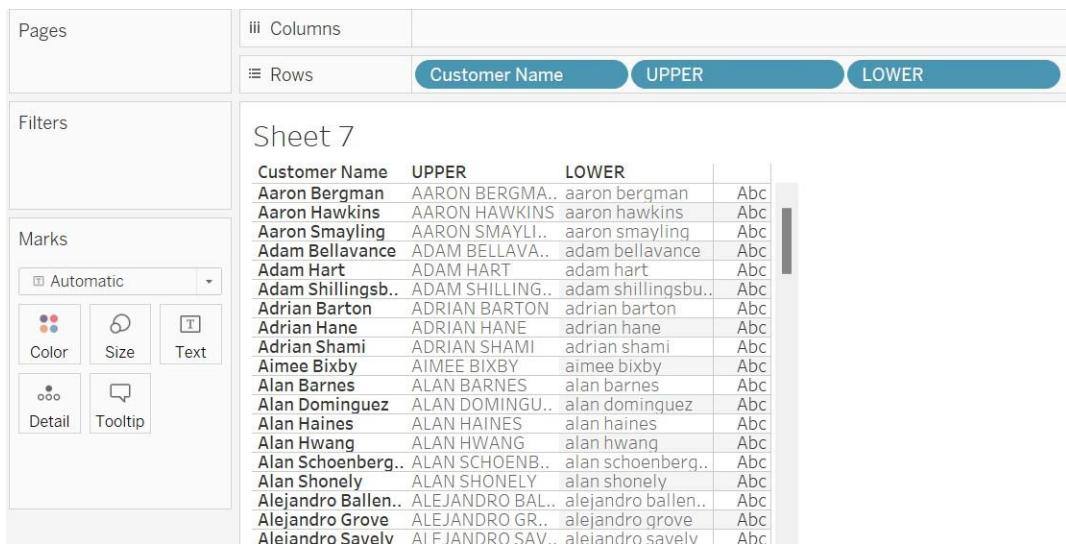


Figure 3.10: Customer names recreated in uppercase and lowercase using the UPPER and LOWER functions

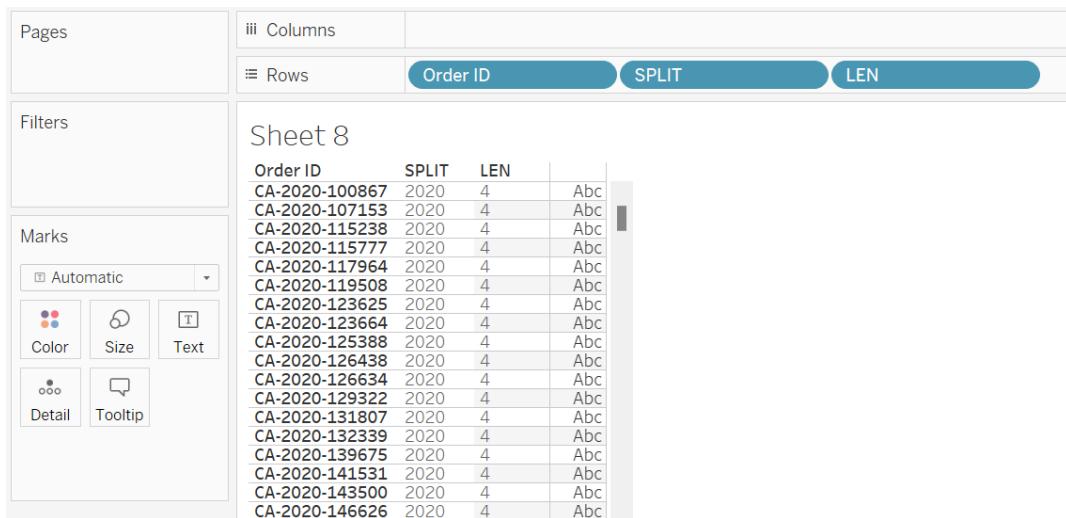


Figure 3.11: Year values parsed out from the Order ID field using the SPLIT function and then the length of each resulting year value checked using the LEN function

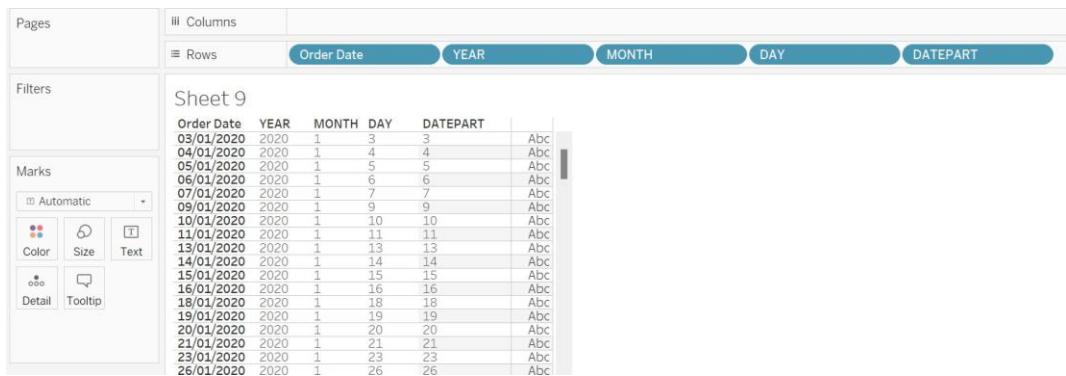


Figure 3.12: Date parts parsed from the Order Date field using the YEAR, MONTH, DAY, and DATEPART functions

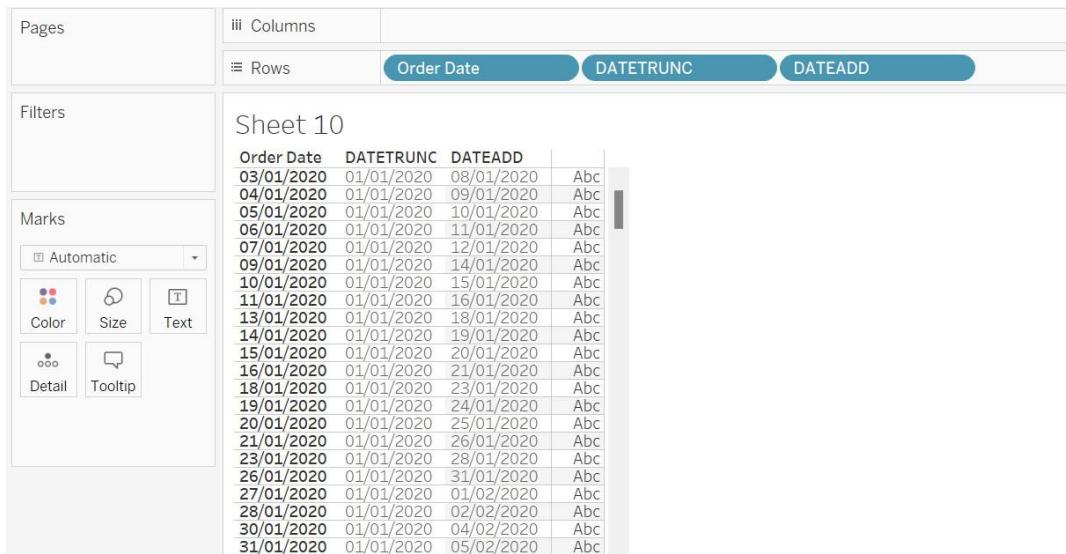


Figure 3.13: Order Date truncated to month level and 5 days added using the DATETRUNC and DATEADD functions

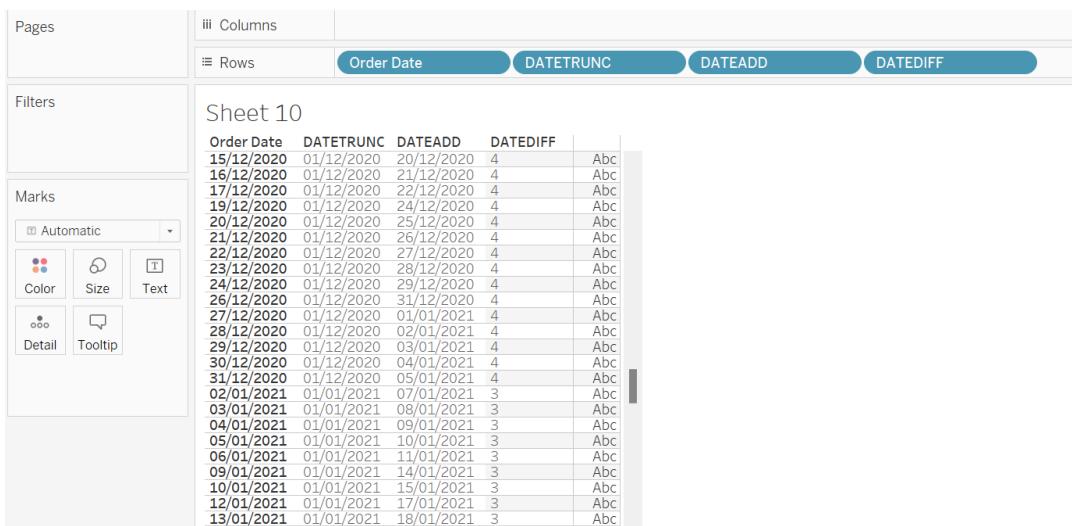


Figure 3.14: The difference in years between the Order Date values in the data and today's date is calculated using the DATEDIFF and TODAY functions

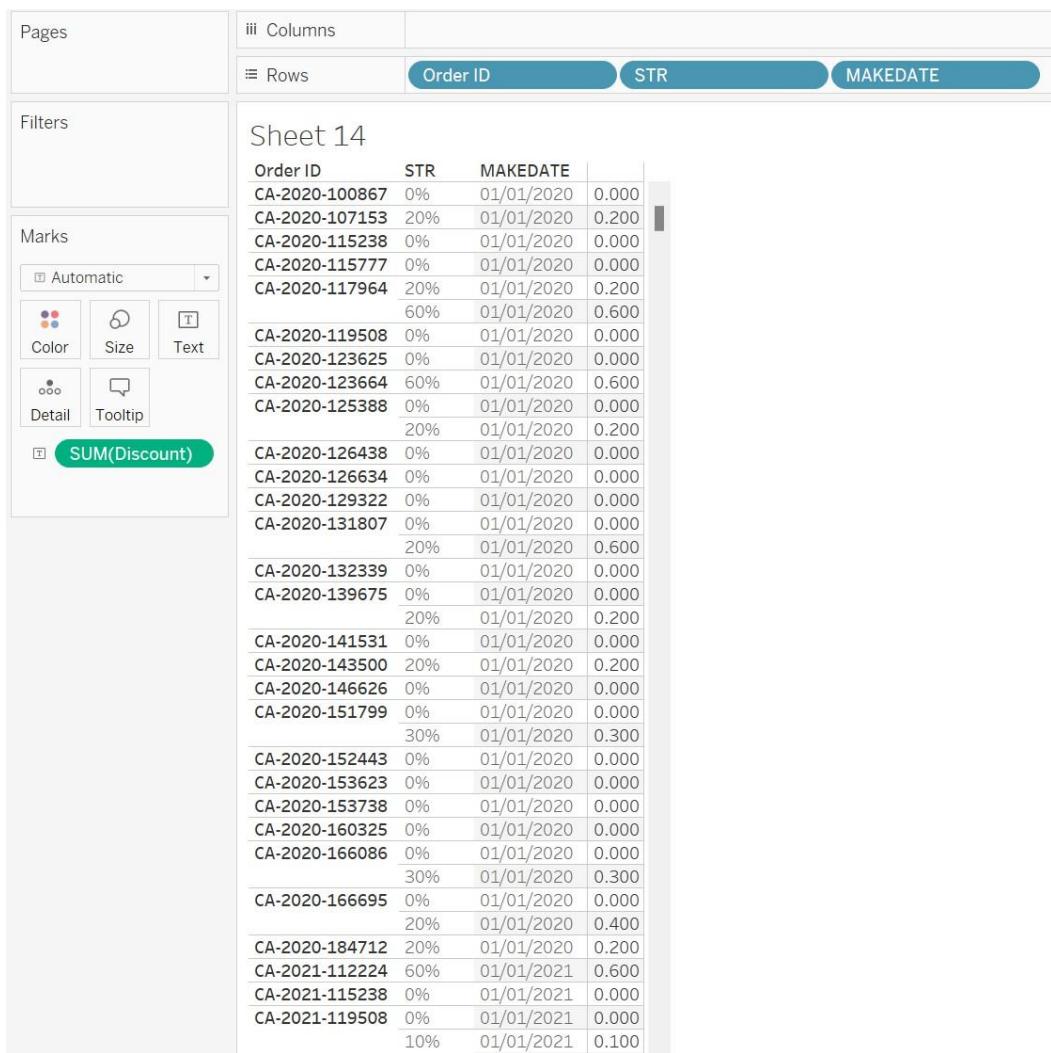


Figure 3.15: STR function used to create a string field for discounts and
MAKEDATE used to create a date field for the order year

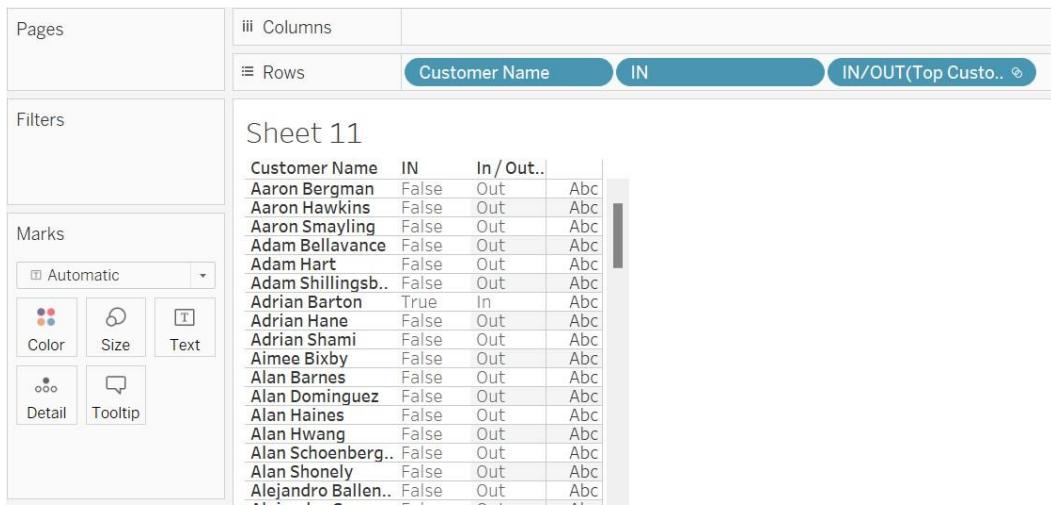


Figure 3.16: The IN function used to look for customer names in the Top Customer by Profit set, then confirmed to match up

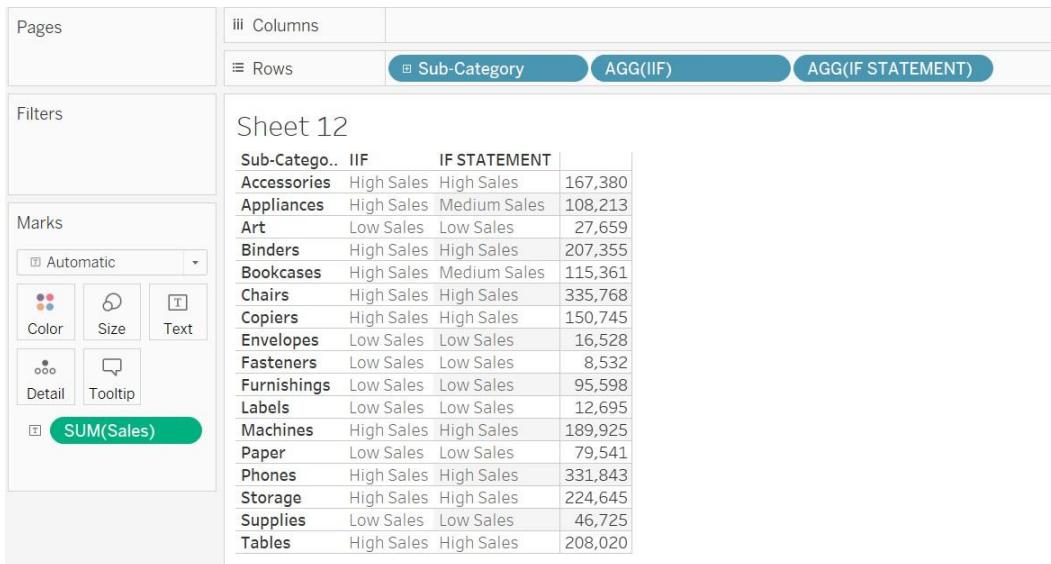


Figure 3.17: IIF function and IF statement created to categorize sub-categories by total sales amounts

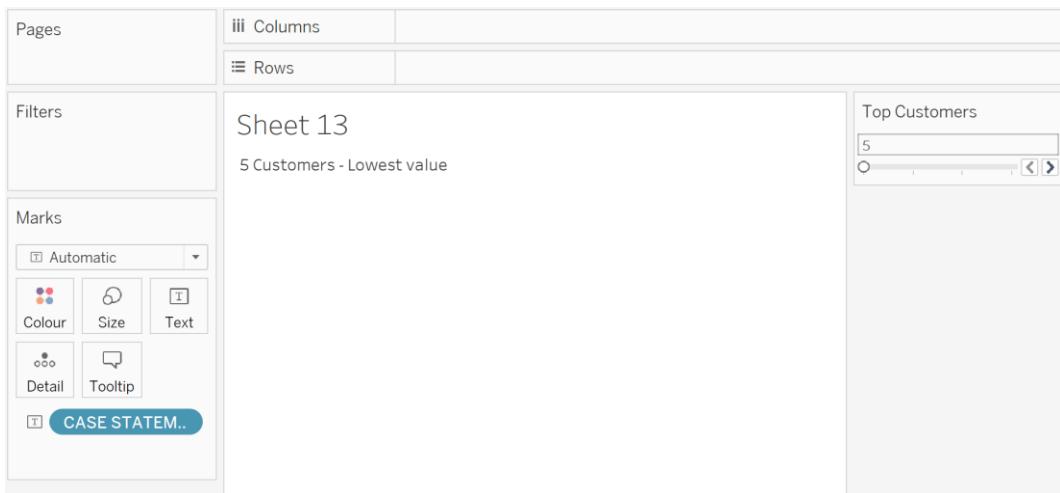


Figure 3.18: CASE statement that returns the number of customers selected in the parameter as well as the lowest or highest value when 5 or 20 is selected

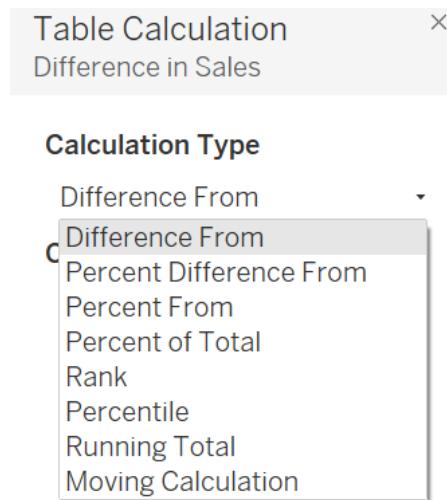


Figure 3.19: Table Calculation configuration window

Calculation Type

- Difference From
- Difference From**
- Percent Difference From
- Percent From
- Percent of Total
- Rank
- Percentile
- Running Total
- Moving Calculation

Figure 3.20: Select the calculation type

Month of Order Date	Segment	Order Date			
		2018	2019	2020	2021
January	Consumer		7,347	-8,248	17,185
	Corporate		1,681	6,103	2,736
	Home Office		-5,091	2,514	5,508
February	Consumer		6,101	6,531	-10,211
	Corporate		1,382	302	5,092
	Home Office		-51	4,195	2,441
March	Consumer		5,550	7,426	10,197
	Corporate		5,225	-2,106	2,348
	Home Office		-27,740	7,669	-5,388
April	Consumer		13,518	-8,551	-5,040
	Corporate		-10,011	12,056	-1,374
	Home Office		2,393	1,050	4,186
May	Consumer		8,060	11,295	-11,115
	Corporate		-3,687	12,997	-4,212
	Home Office		2,110	2,563	2,601
June	Consumer		-13,099	11,064	-3,616
	Corporate		5,433	-1,616	11,907
	Home Office		-2,132	6,099	4,346

Figure 3.21: Table down

Month of O..	Segment	Order Date			
		2018	2019	2020	2021
January	Consumer		7,347	-8,248	17,185
	Corporate		1,681	6,103	2,736
	Home Office		-5,091	2,514	5,508
February	Consumer		6,101	6,531	-10,211
	Corporate		1,382	302	5,092
	Home Office		-51	4,195	2,441
March	Consumer		5,550	7,426	10,197
	Corporate		5,225	-2,106	2,348
	Home Office		-27,740	7,669	-5,388
April	Consumer		13,518	-8,551	-5,040
	Corporate		-10,011	12,056	-1,374
	Home Office		2,393	1,050	4,186
May	Consumer		8,060	11,295	-11,115
	Corporate		-3,687	12,997	-4,212
	Home Office		2,110	2,563	2,601
June	Consumer		-13,099	11,064	-3,616
	Corporate		5,433	-1,616	11,907
	Home Office		-2,132	6,099	4,346

Figure 3.22: Table across

Month of O..	Segment	Order Date			
		2018	2019	2020	2021
January	Consumer		7,347	-8,248	17,185
	Corporate	-21,510	1,681	6,103	2,736
	Home Office	6,614	5,091	2,514	5,508
February	Consumer	-5,370	6,101	6,531	-10,211
	Corporate	-4,405	1,382	302	5,092
	Home Office	-7,791	-51	4,195	2,441

Figure 3.23: Table across then down

		Order Date			
Month of O..	Segment	2018	2019	2020	2021
January	Consumer		2,661	-13,025	11,079
	Corporate	-5,226	-10,893	3,458	-10,991
	Home Office	3,906	-7,866	-6,454	-3,633
February	Consumer	-2,440	8,752	12,770	-2,949
	Corporate	-1,984	-6,704	-12,933	2,370
	Home Office	-1,015	-2,448	1,445	-1,206
March	Consumer	11,701	17,302	20,533	28,239
	Corporate	-763	-1,037	-10,619	-18,467
	Home Office	21,608	-11,357	-1,532	-9,318
April	Consumer	-23,606	17,651	1,431	1,779
	Corporate	5,023	-18,505	2,102	5,768
	Home Office	-9,077	3,327	-7,630	-2,119
May	Consumer	7,764	13,431	23,677	8,376
	Corporate	-3,677	-15,424	-13,772	-6,820
	Home Office	-7,455	-1,657	-12,091	-5,278

Figure 5.24: Table down then across

Month of O..	Segment	2018	2019	2020	2021
January	Consumer				
	Corporate	-5,226	-10,893	3,458	-10,991
	Home Office	3,906	-2,866	-6,454	-3,683
February	Consumer				
	Corporate	-1,984	-6,704	-12,933	2,370
	Home Office	-1,015	-2,448	1,445	-1,206
March	Consumer				
	Corporate	-763	-1,087	-10,619	-18,467
	Home Office	21,608	-11,357	-1,582	-9,318
April	Consumer				
	Corporate	5,023	-18,505	2,102	5,768
	Home Office	-9,077	3,327	-7,680	-2,119

Figure 3.25: Pane down

Month of O..	Segment	Order Date			
		2018	2019	2020	2021
January	Consumer	-5,226	8,667	5,610	20,181
	Corporate		-10,893		
	Home Office	3,906	-2,866	-6,454	-3,683
February	Consumer		9,101	15,683	1,277
	Corporate	-1,984	-6,704	-12,933	2,370
	Home Office	-1,015	-2,448	1,445	-1,206
March	Consumer		-15,296	19,870	22,397
	Corporate	-763	-1,087	-10,619	-18,467
	Home Office	21,608	-11,357	-1,582	-9,318
April	Consumer		17,571	6,627	538
	Corporate	5,023	-18,505	2,102	5,768
	Home Office	-9,077	3,327	-7,680	-2,119

Figure 3.26: Pane down then across

Month of O..	Segment	Order Date			
		2018	2019	2020	2021
January	Consumer		7,347	-8,248	17,185
	Corporate	-21,510	1,681	6,103	2,736
	Home Office	-6,614	5,091	2,514	5,508
February	Consumer		6,101	6,531	-10,211
	Corporate	-4,405	1,382	302	5,092
	Home Office	-7,791	-51	4,195	2,441
March	Consumer		5,550	7,426	10,197
	Corporate	-23,935	5,225	-2,106	2,348
	Home Office	16,140	-27,740	7,669	-5,388
April	Consumer		13,518	-8,551	-5,040
	Corporate	5,097	-10,011	12,056	-1,374
	Home Office	-9,748	2,393	1,050	4,186

Figure 3.27: Pane across then down

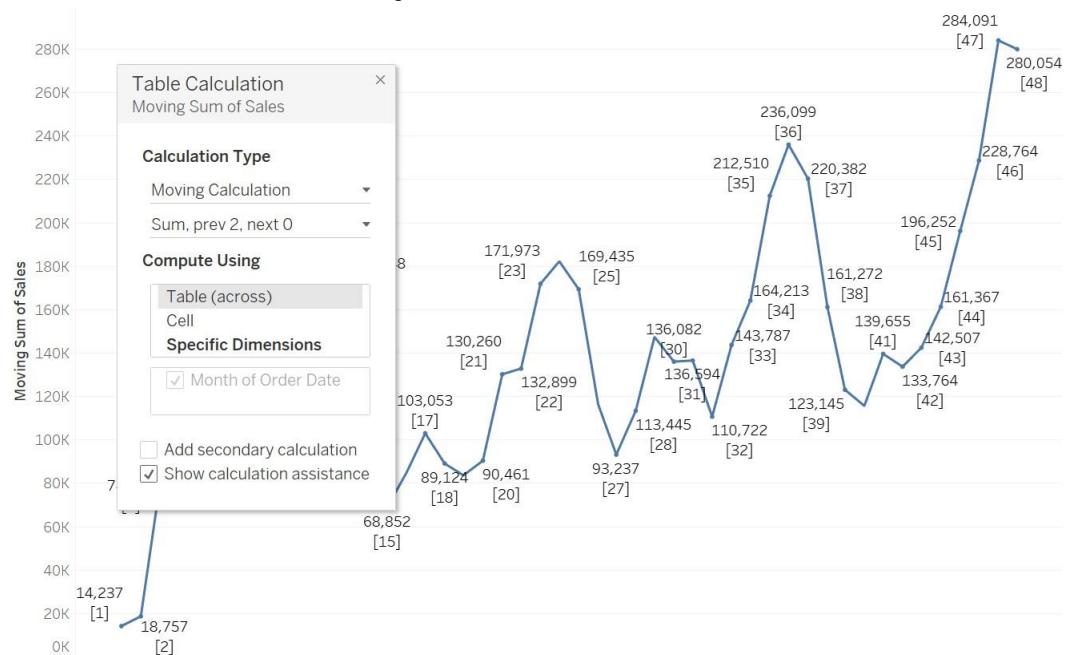


Figure 3.28: Table calculation of moving sum

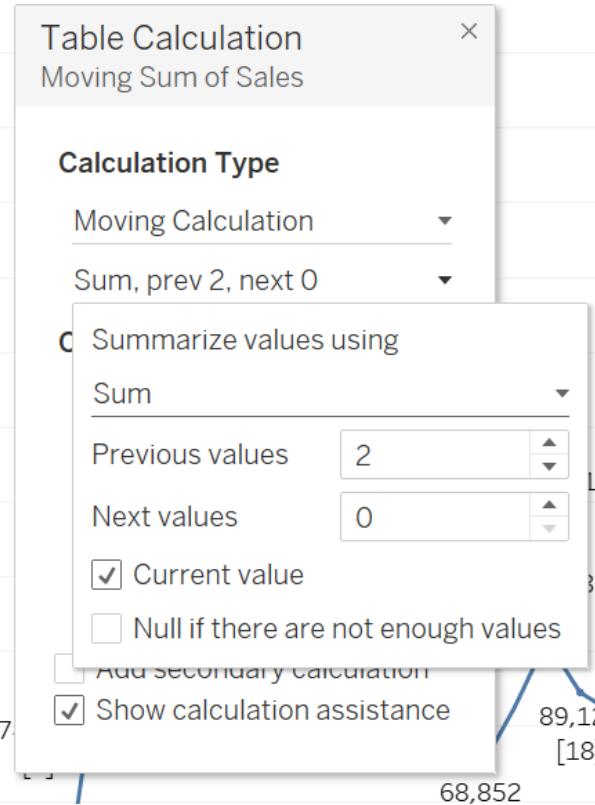


Figure 3.29: Table Calculation pane

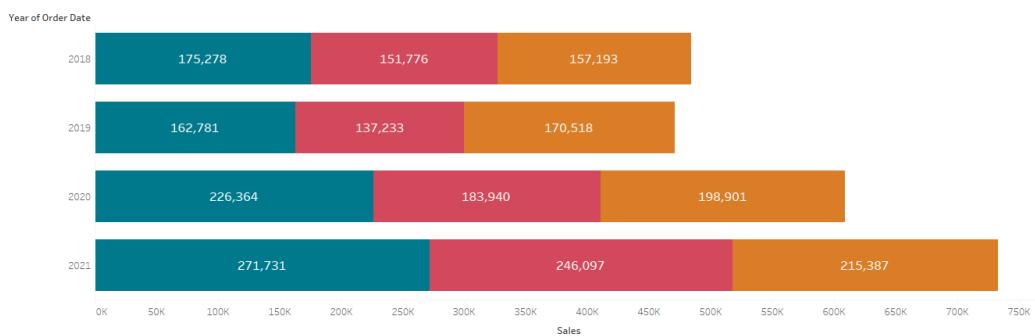


Figure 3.30: Example of a sum of sales table

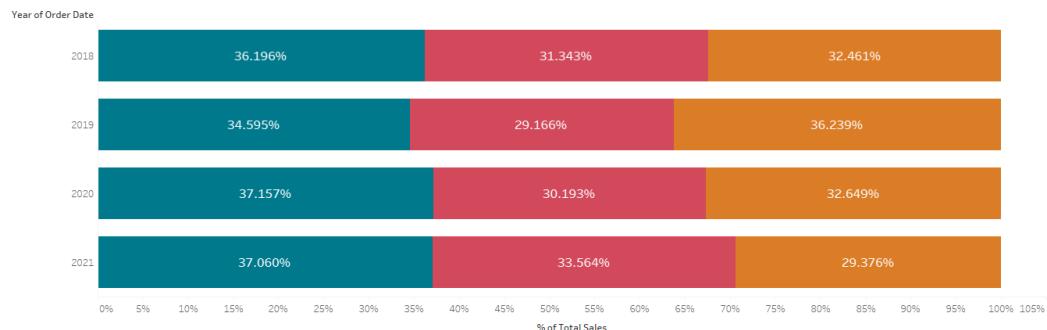


Figure 3.31: Example of a Percent of Total calculation on categories by sales

Year of Order Date	Segment	Running Sum of Sales along Table (Down)
2018	Consumer	266,097
	Corporate	394,532
	Home Office	484,247
2019	Consumer	750,783
	Corporate	879,541
	Home Office	954,780
2020	Consumer	1,251,644
	Corporate	1,458,750
	Home Office	1,563,986
2021	Consumer	1,895,890
	Corporate	2,137,738
	Home Office	2,297,201

Figure 3.32: Example of Running Sum

Year of Order Date	Segment	Running Sum of Sales restarting every Year of Order Date
2018	Consumer	266,097
	Corporate	394,532
	Home Office	484,247
2019	Consumer	266,536
	Corporate	395,293
	Home Office	470,533
2020	Consumer	296,864
	Corporate	503,970
	Home Office	609,206
2021	Consumer	331,905
	Corporate	573,753
	Home Office	733,215

Figure 3.33: Running sum restarting every year

Year of Order Date	Segment	Difference in Sales from the Previous along Year of Order Date, Segment
2018	Consumer	
	Corporate	-137,662
	Home Office	-38,719
2019	Consumer	176,820
	Corporate	-137,779
	Home Office	-53,518
2020	Consumer	221,625
	Corporate	-89,758
	Home Office	-101,871
2021	Consumer	226,669
	Corporate	-90,057
	Home Office	-82,385

Figure 3.34: Difference from the previous value

Year of Order Date	Segment	Percentile of Sales along Table (Down)
2018	Consumer	72.73%
	Corporate	27.27%
	Home Office	9.09%
2019	Consumer	81.82%
	Corporate	36.36%
	Home Office	0.00%
2020	Consumer	90.91%
	Corporate	54.55%
	Home Office	18.18%
2021	Consumer	100.00%
	Corporate	63.64%
	Home Office	45.45%

Figure 3.35: Percent ranking

Year of Order Date	Month of Order Date	Index	Sales	Profit	Profit Ratio
2018	January	1	29	-9	-31.54%
	April	2	7	2	33.75%
	May	3	16	8	49.00%
	July	4	5	-12	-250.00%
	August	5	14	7	48.00%
	September	6	24	5	21.11%
	November	7	216	37	17.19%
	December	8	153	-2	-1.39%
2019	February	9	44	11	25.82%
	March	10	74	19	26.03%
	April	11	48	9	17.74%
	May	12	71	28	39.93%
	June	13	43	21	49.00%
	July	14	52	-1	-1.46%
	August	15	37	12	32.13%
	September	16	23	-7	-30.40%
	October	17	32	-22	-70.00%
	November	18	29	7	25.37%
	December	19	100	21	20.42%
	February	20	11	5	47.00%
2020	March	21	65	26	40.27%

Figure 3.36: Example table of rankings

Year of Order Date	Month of Order Date	Index	Sales	Profit	Profit Ratio
2018	January	1	14,237	2,450	17.21%
	February	2	4,520	862	19.08%
	March	3	55,691	499	0.90%
	April	4	28,295	3,489	12.33%
	May	5	23,648	2,739	11.58%
	June	6	34,595	4,977	14.39%
	July	7	33,946	-841	-2.48%
	August	8	27,909	5,318	19.05%
	September	9	81,777	8,328	10.18%
	October	10	31,453	3,448	10.96%
	November	11	78,629	9,292	11.82%
	December	12	69,546	8,984	12.92%
2019	January	13	18,174	-3,281	-18.05%
	February	14	11,951	2,814	23.54%
	March	15	38,726	9,732	25.13%
	April	16	34,195	4,187	12.25%
	May	17	30,132	4,668	15.49%
	June	18	24,797	3,336	13.45%
	July	19	28,765	3,289	11.43%
	August	20	36,898	5,356	14.52%
	September	21	64,596	8,209	12.71%
	October	22	31,405	2,817	8.97%
	November	23	75,973	12,475	16.42%
	December	24	74,920	8,017	10.70%
2020	January	25	18,542	2,825	15.23%
	February	26	22,979	5,005	21.78%
	March	27	51,716	3,612	6.98%
	April	28	38,750	2,978	7.68%
	May	29	56,988	8,662	15.20%
	June	30	40,345	4,750	11.77%
	July	31	39,262	4,433	11.29%
	August	32	31,115	2,062	6.63%
	September	33	73,410	9,329	12.71%
	October	34	59,688	16,243	27.21%
	November	35	79,412	4,011	5.05%
	December	36	96,999	17,885	18.44%
2021	January	37	43,971	7,140	16.24%
	February	38	20,301	1,614	7.95%

Figure 3.37: Table highlighting the first 25 rows

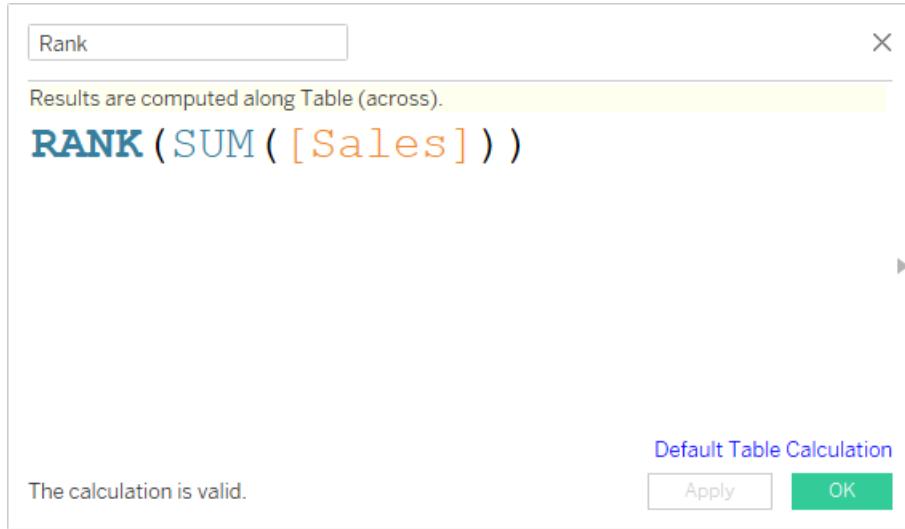


Figure 3.38: Tableau calculation for RANK

Year of Order Date	Segment	Sales	First along Table (Down)	Last along Table (Down)
2018	Consumer	266,097	0	11
	Corporate	128,435	-1	10
	Home Office	89,716	-2	9
2019	Consumer	266,536	-3	8
	Corporate	128,757	-4	7
	Home Office	75,239	-5	6
2020	Consumer	296,864	-6	5
	Corporate	207,106	-7	4
	Home Office	105,235	-8	3
2021	Consumer	331,905	-9	2
	Corporate	241,848	-10	1
	Home Office	159,463	-11	0

Figure 3.39: Example of the First and Last functions

The screenshot shows a web page from the Tableau Practice Resources site. At the top, there's a navigation bar with a bell icon and a "SHARE FEEDBACK" button. The main content area has a dark header "Chapter Review Questions" and a sub-header "The Tableau Certified Data Analyst Certification Guide by Harry Cooney, Daisy Jones". Below this, a section titled "Select Quiz" shows "Quiz 1" with a "SHOW QUIZ DETAILS" link and a "START" button. The main content area contains several paragraphs of text about calculated fields, aggregation, numerical functions, string functions, date functions, and conditional logic.

Tableau allows for the creation of additional fields to supplement existing data sets using its calculated fields feature. Calculated fields can range from using simple pieces of logic to manipulate or transform existing fields to complex conditional statements and calculations fixing values at specific levels of aggregation.

Data types in calculated fields must be consistent and so must the aggregation of fields used. When the fields referenced in calculations are not aggregated, then the logic is applied row by row. When the fields are aggregated, then the aggregation takes place first, followed by the logic applied. Calculated fields can also be created without any reference to existing fields; for example, if a single string was to be referenced as a field, that string could be typed into and saved as a calculated field.

Aggregation in calculated fields allows you to pre-aggregate measures as well as to conduct logic on aggregated measures such as dividing one total value by another. Advanced mathematical aggregations can also be applied for statistical analysis. If an aggregation needs to be fixed regardless of the level of detail on the view, then Tableau's fixed level of detail calculations can be used.

The numerical functions available in Tableau's calculated fields are for transforming existing numeric inputs as well as formatting or updating the values of existing numerical inputs. There is also a multitude of trigonometry functions available in Tableau.

String functions in Tableau allow users to extract parts of a string based on indexes and positions. Whitespace can also be trimmed from either side of a string input. Substrings within strings can be identified as present and replaced if need be and the exact position of a substring can also be identified. There are also functions for splitting out parts of a string and returning the length as well as the ASCII code of a character.

Date fields can be created in Tableau from fields already in a date format, from integers representing days, months, and years, and also from strings if the format Tableau requires to read the string is supplied. Date parts can also be extracted from strings, both as names and integers. The difference between two dates can easily be calculated and so can new dates, given a starting date and the desired interval.

Tableau does not always read field types in the desired format, so there are a variety of functions available to convert fields from one format to another. This can also be useful for any temporary conversions required for logic within calculations that may not be desired at the data source level.

Conditional logic in Tableau can be as simple as identifying null values, dates, or items in a list. However, this can be expanded out to IF statements and CASE statements that have multiple outputs given multiple possible conditions.

Figure 3.41 - Chapter Review Questions for Chapter 3

4

Grouping and Filtering

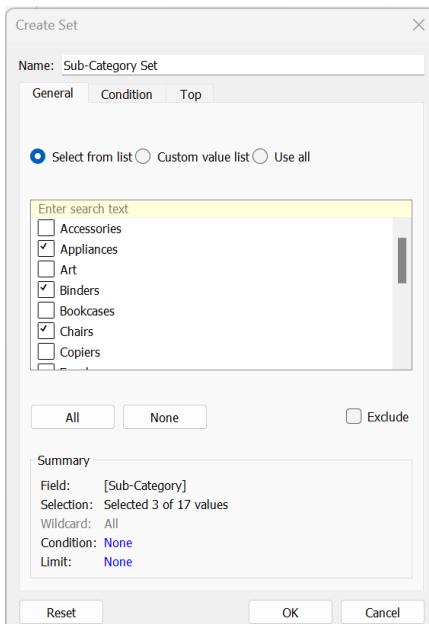


Figure 4.1: The interface to create the new Sub-Category Set set field with Appliances, Binders, and Chairs as set members

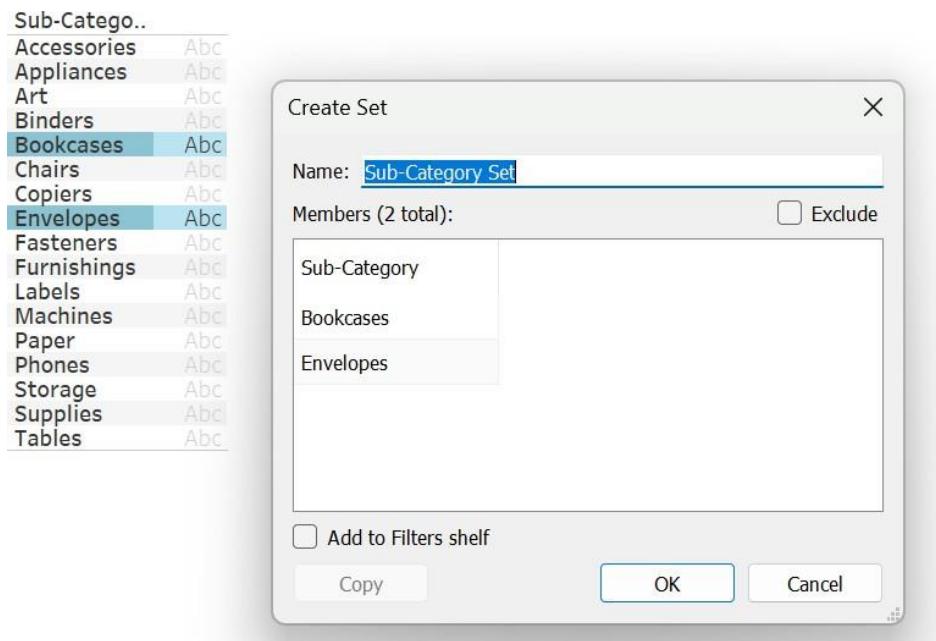


Figure 4.2: The interface popup when creating a fixed set via a selection of values on the view

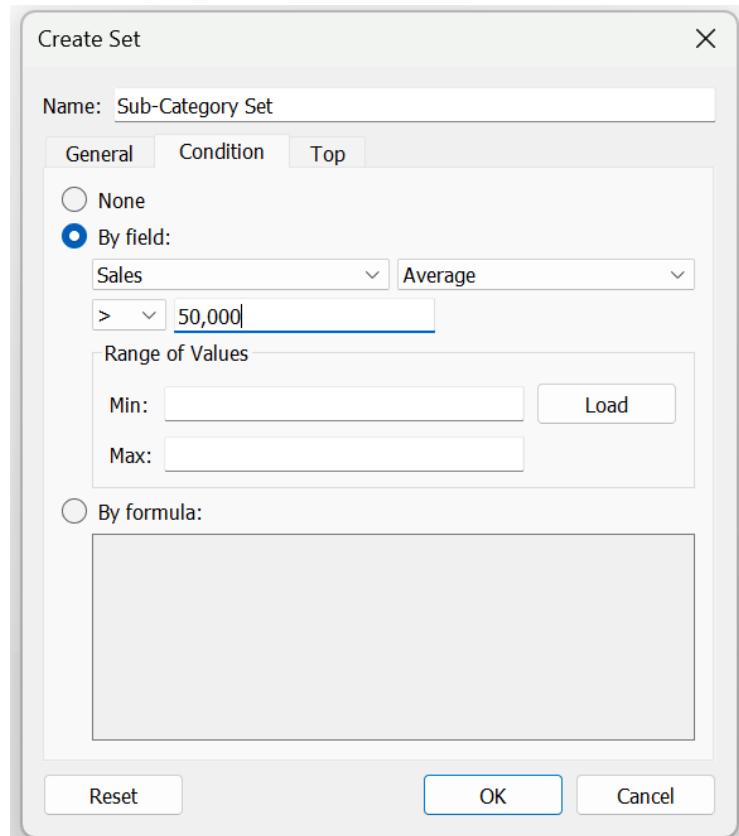


Figure 4.3: The interface configuration for a conditional set that selects sub-category members, based on average sales being greater than 50,000

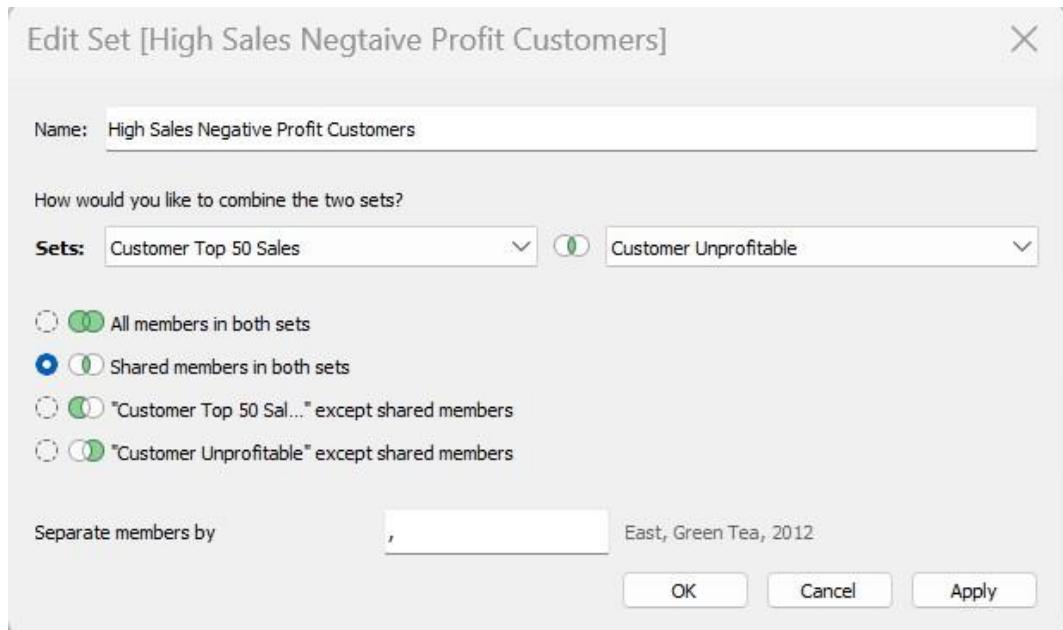


Figure 4.4: A combined set configuration to create a set that includes only members that are both in the top 50 in terms of total sales but have less than zero total profit



Figure 4.5: Outliers removed using a set on Customer Name

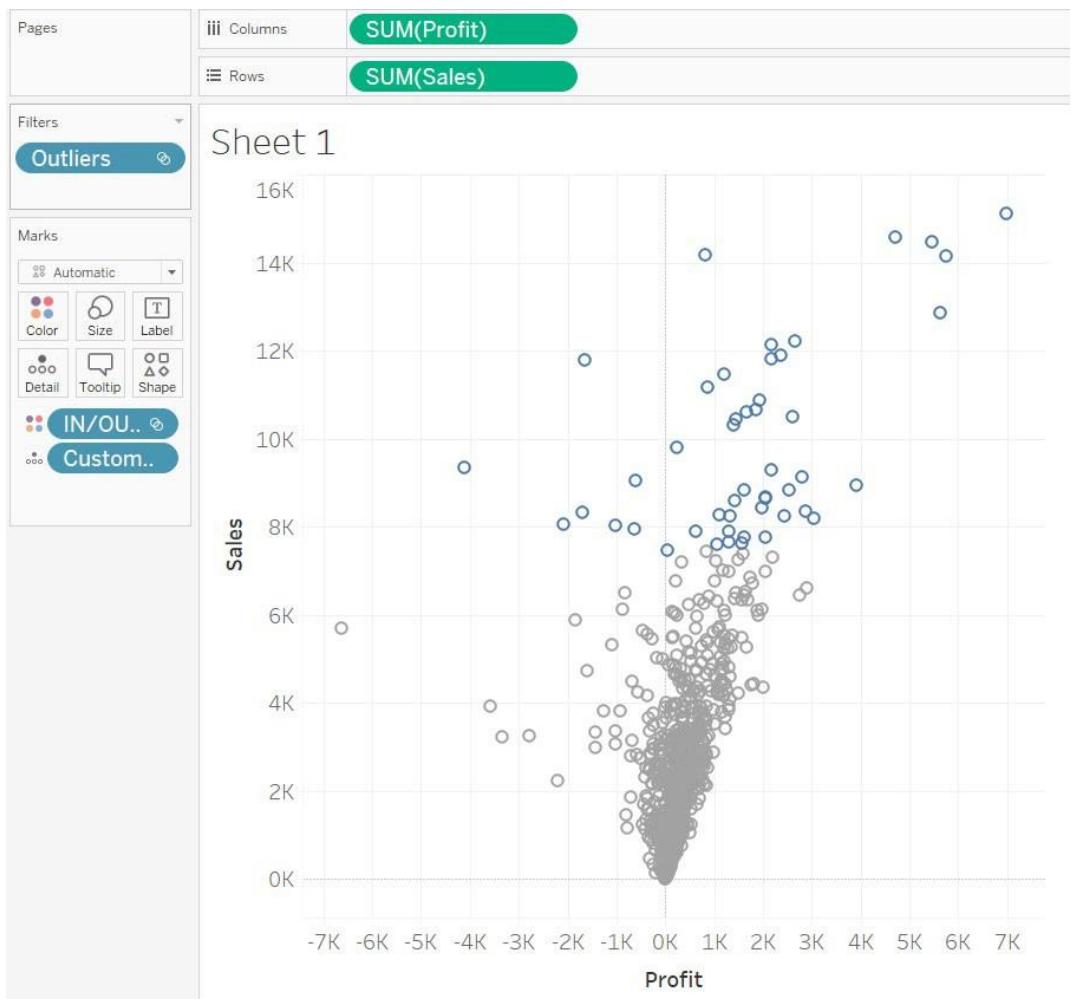


Figure 4.6: The customers in the top 50 sales colored differently from the rest



Figure 4.7: The unprofitable customers are colored differently from profitable customers

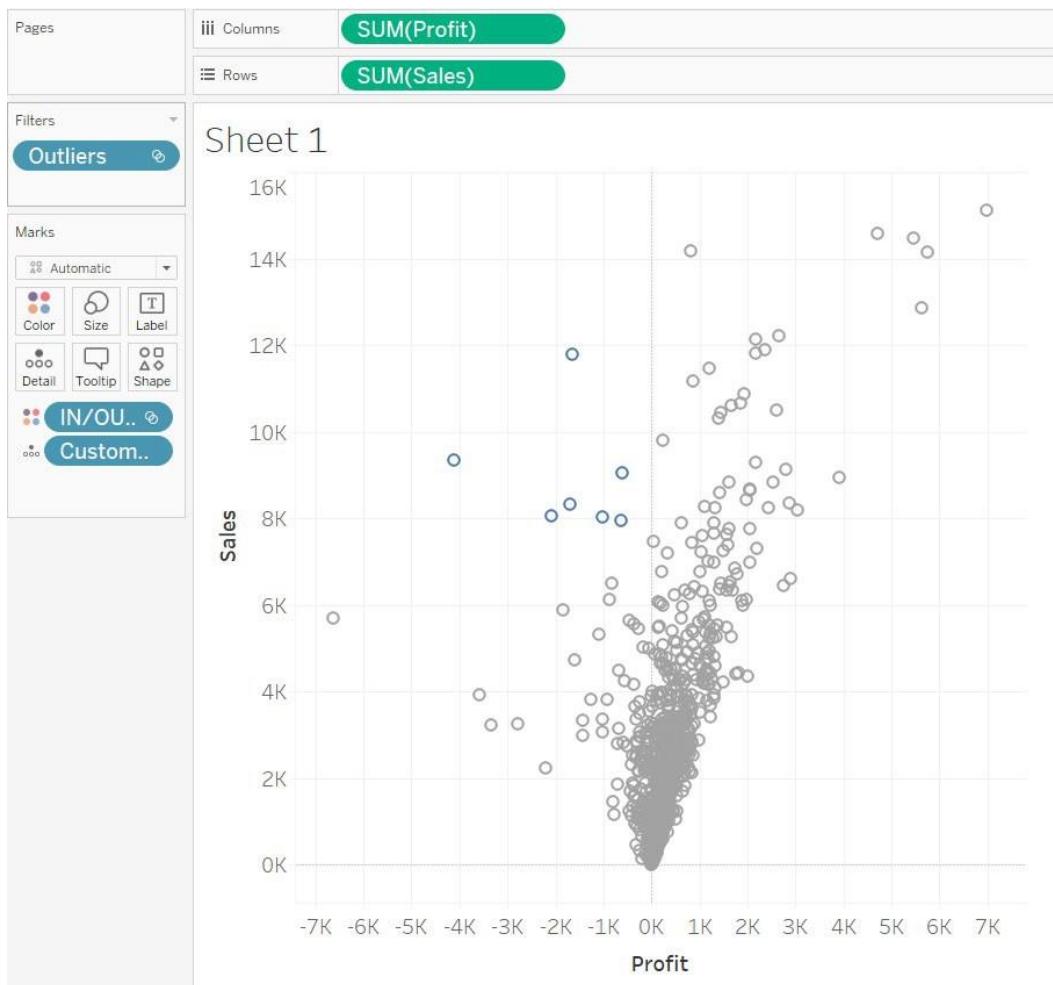


Figure 4.8: Customers with high sales but who are unprofitable are colored differently

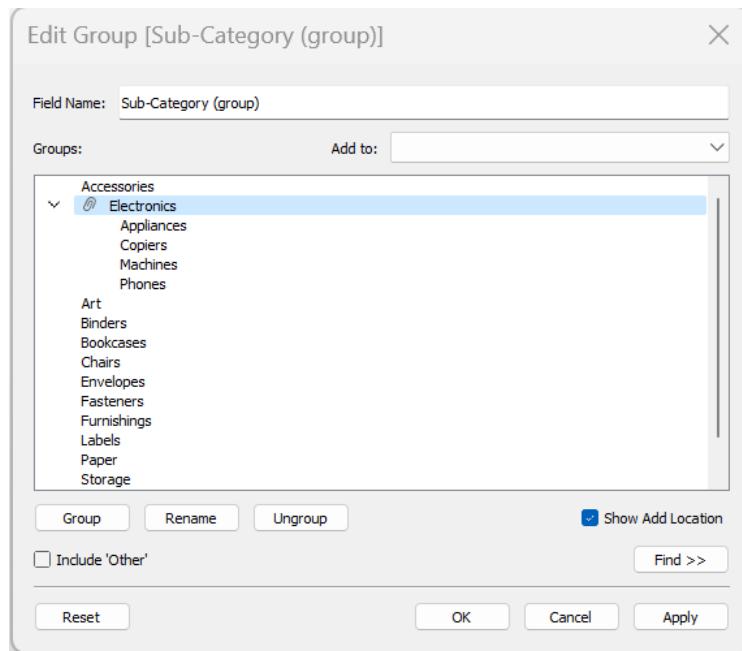


Figure 4.9: The Edit Group user interface showing the creation of a new Sub-Category (group) field that has grouped Appliances, Copiers, Machines, and Phones into a higher-level Electronics grouping

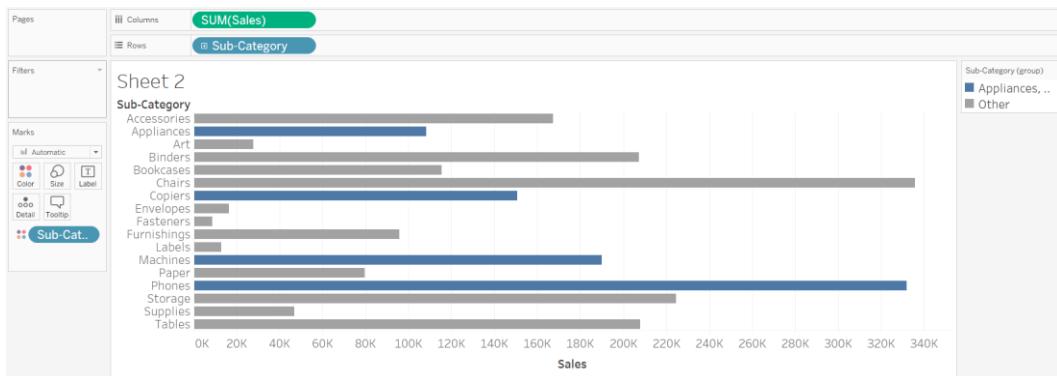


Figure 4.10: The Sub-Category grouping is created and colors the bar chart

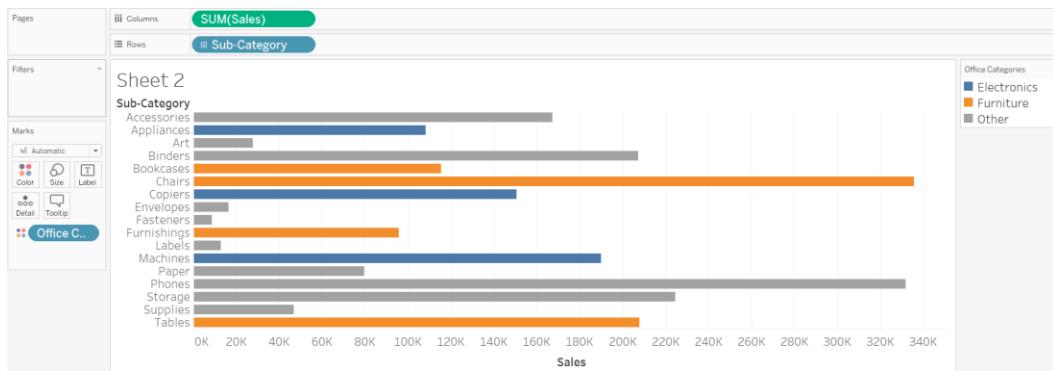


Figure 4.11: The named group field with two groupings and the other grouping coloring the bar chart



Figure 4.12: Dragging and dropping the Postal Code field on top of the City field creates a hierarchy from City to Postal Code

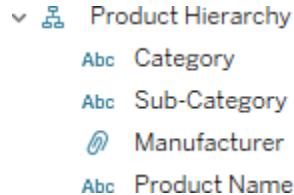


Figure 4.13: Product Hierarchy recreated from scratch

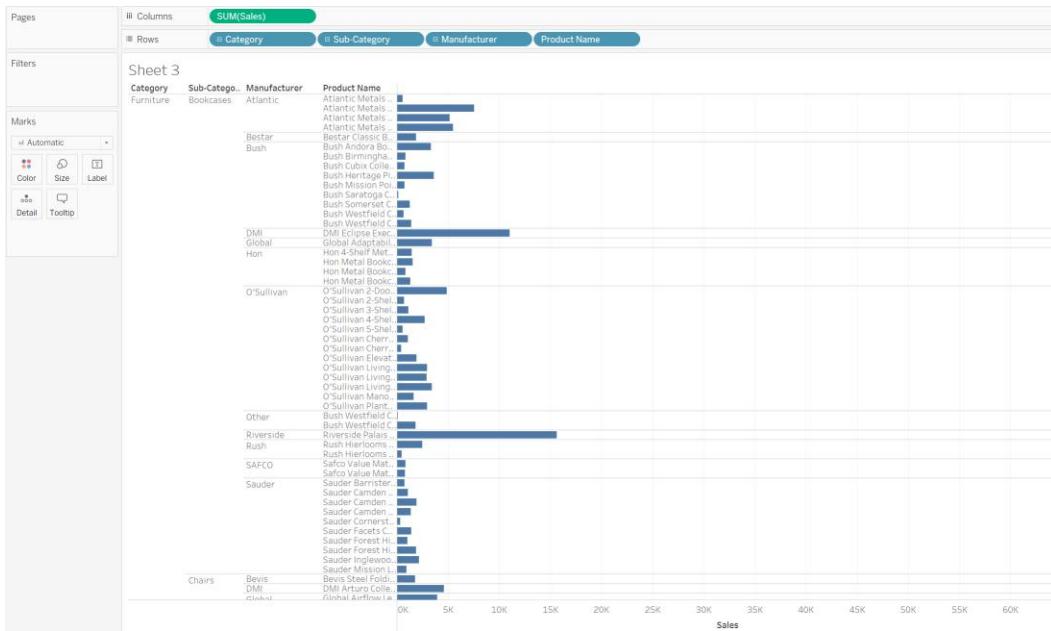


Figure 4.14: A hierarchy added to the view and the levels drilled down and up

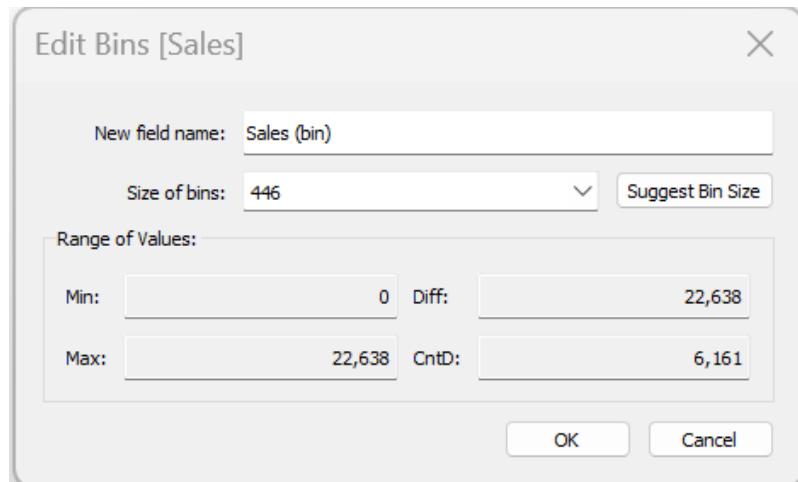


Figure 4.15: The Edit Bins [Sales] user interface allowing you to name the bin field and setting the bin size

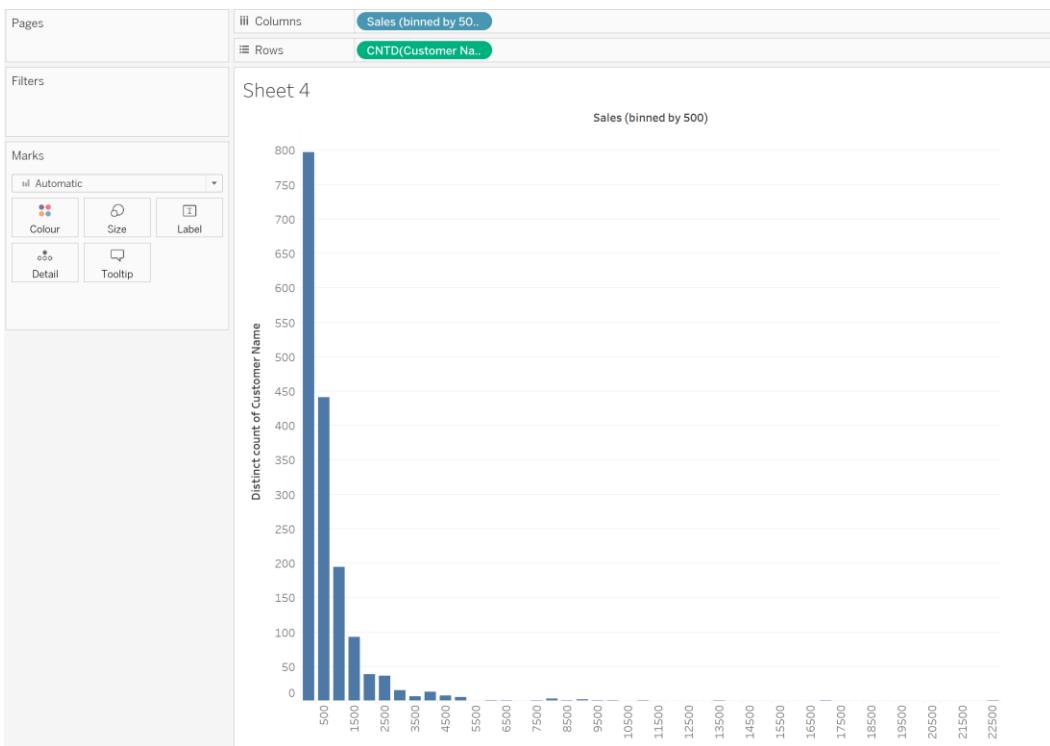


Figure 4.16: The bin field created and the number of customers in each bin displayed

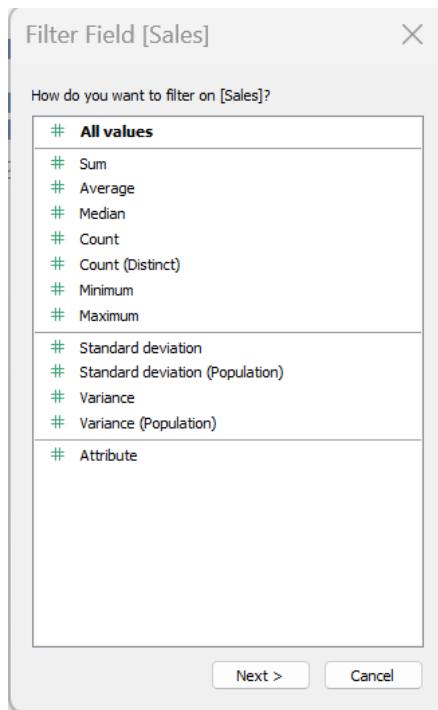


Figure 4.17: The Measure filter aggregation methods available

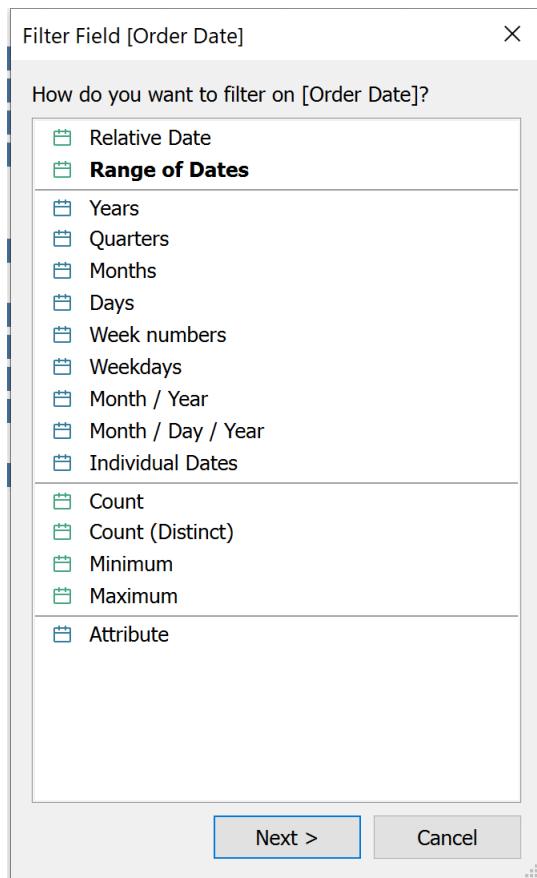


Figure 4.18: The date filter methods available

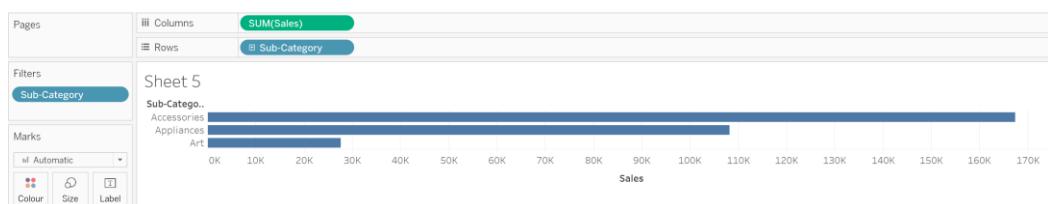


Figure 4.19: A Sub-Category filter created directly from the view by selecting data points

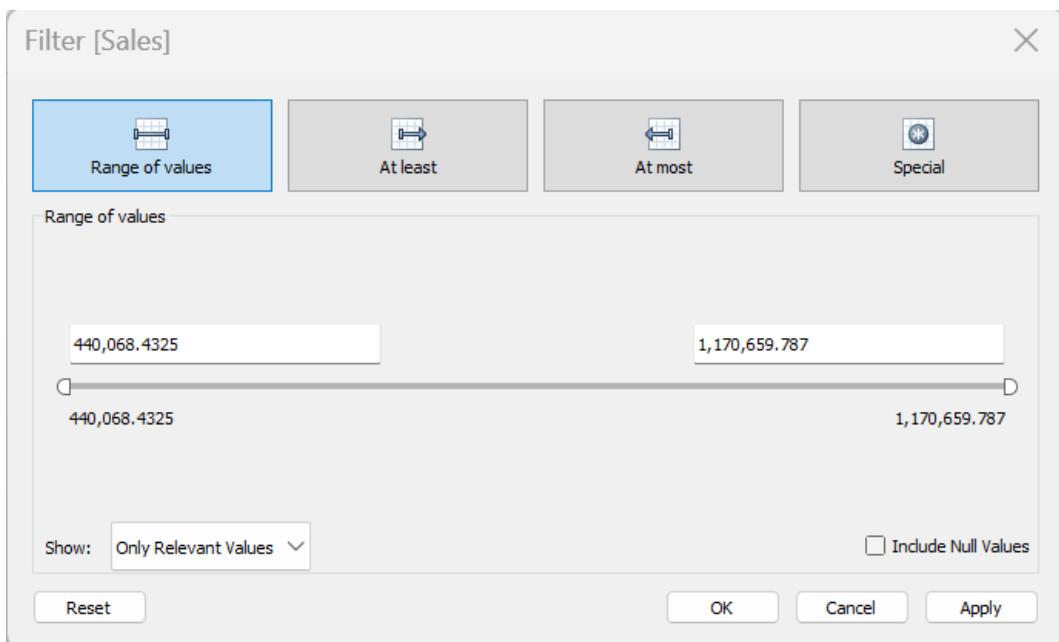


Figure 4.20: The measure filter configuration

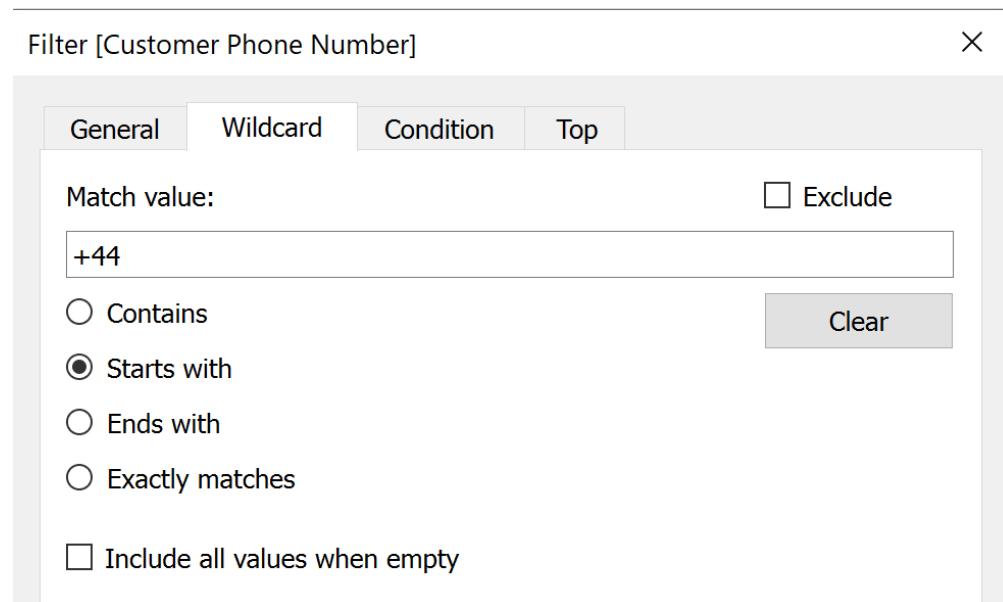


Figure 4.21: Wildcard filter configuration to limit data in the view to UK phone numbers only

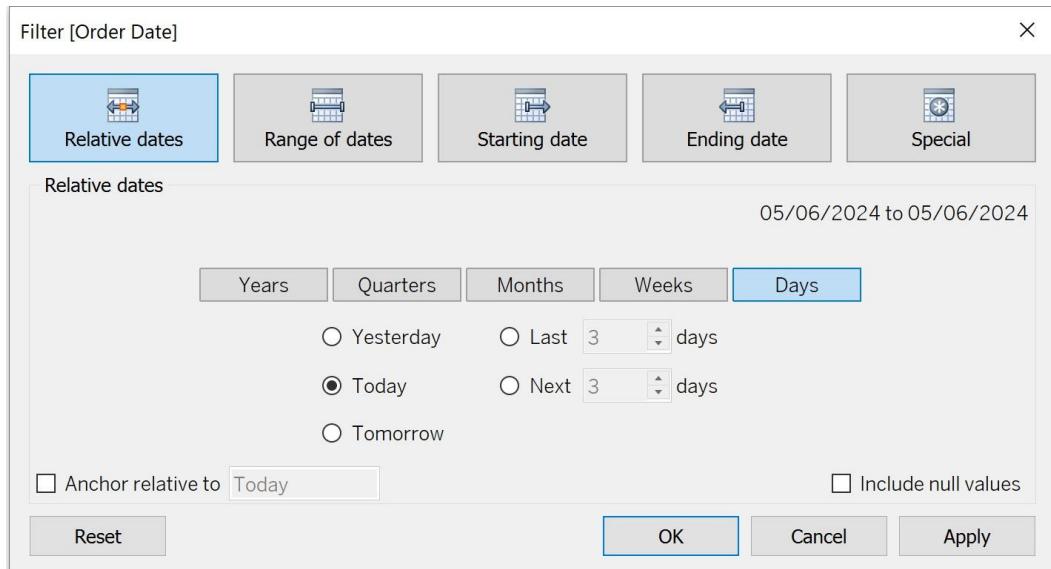


Figure 4.22: Relative date filter configuration allows you to select an anchor date, as well as the period relative to that date, to filter the data to

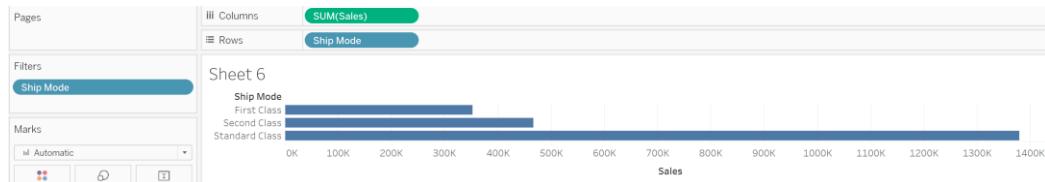


Figure 4.23: Ship Mode filtered to modes with the word Class as a suffix

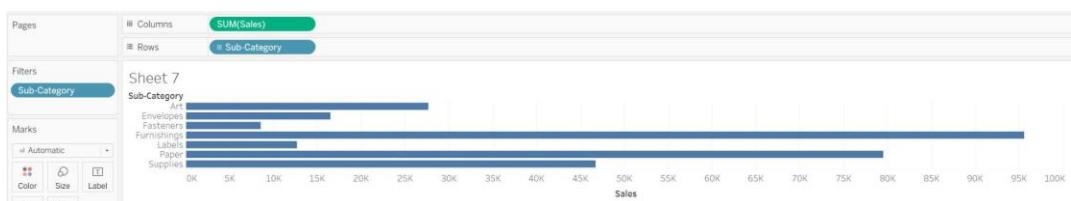


Figure 4.24: The bar chart filtered to sub-categories with less than 100,000 sales

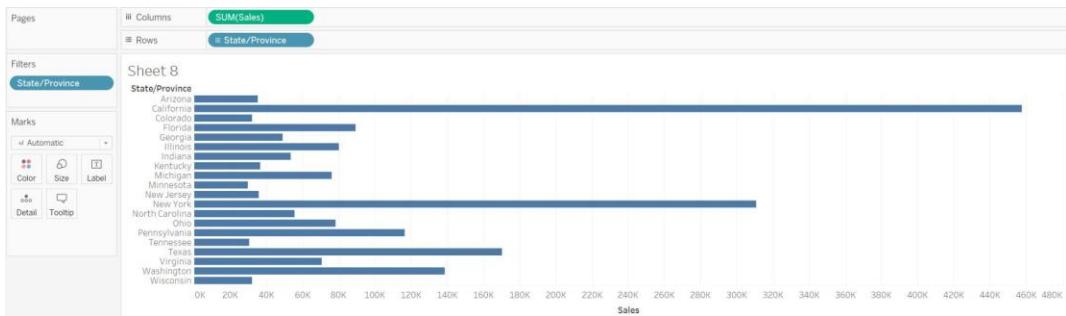


Figure 4.25: The top 20 states/provinces by sales bar chart created



Figure 4.26: Data showing for January 2020 only using relative state filter logic

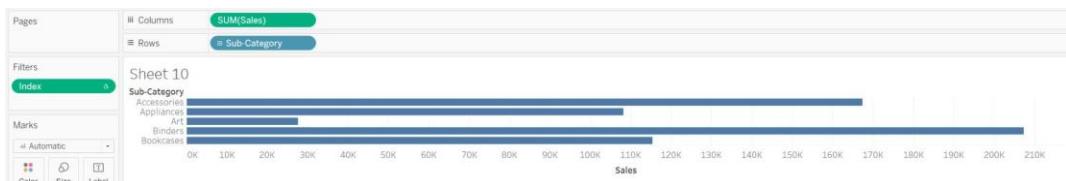


Figure 4.27: Only the top five bars (positionally) in the view are visible

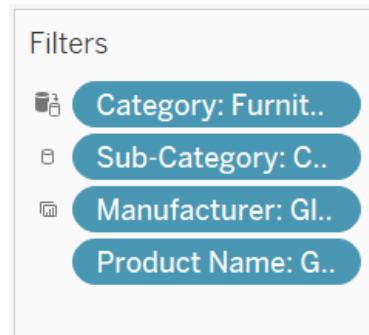


Figure 4.28: Filter icons, with Category applied to All Using Related Data Source, Sub- Category applied to All Using This Data Source, Manufacturer applied to Selected Worksheets, and Product Name applied to the current worksheet only

A screenshot of the Tableau interface. On the left, there's a sidebar with 'Pages', 'Filters' containing 'Category: Furniture', and 'Marks'. In the center, there's a 'Rows' shelf with a 'Category' filter applied. On the right, there's a 'Columns' shelf with a 'Category' filter applied. Below the shelves, there's a 'Category List' pane showing 'Category' with 'Furniture' and 'Abc' listed.

Figure 4.29: The Category filter applied to the selected worksheet

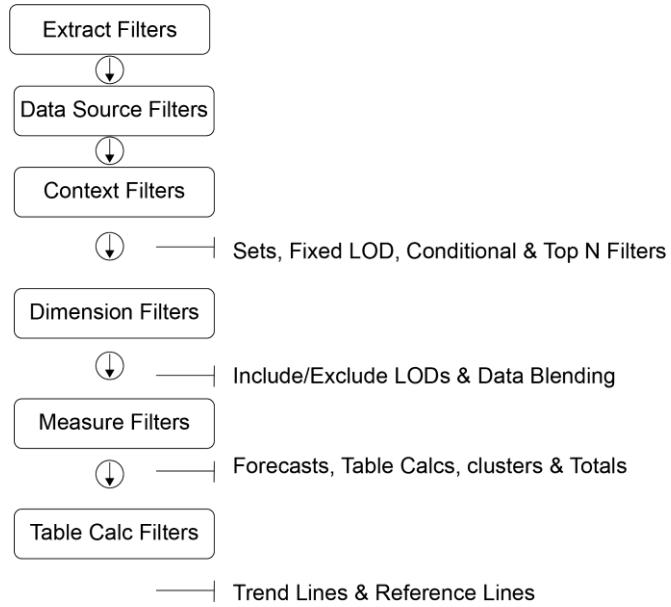


Figure 4.30: Tableau's order of operations - filters are shown in the boxes with other operations to the right

The screenshot shows the Tableau Data Filter dialog box. At the top, there are tabs for General, Wildcard, Condition, and Top. The General tab is selected, showing the radio button for "Select from list" is checked. Below this is a search bar labeled "Enter search text" with the word "Furniture" typed in. There is also a checkbox labeled "Exclude" which is unchecked. At the bottom of the dialog are four buttons: Reset, OK, Cancel, and Apply.

Filter [Category]

General Wildcard Condition Top

Select from list Custom value list Use all

Enter search text
Furniture

All None Exclude

Summary

Field: [Category]
Selection: Selected 0 of 1 values
Wildcard: All
Condition: None
Limit: None

Reset OK Cancel Apply

Figure 4.31: The Category data source filter added, pre-filtering the data to Furniture only

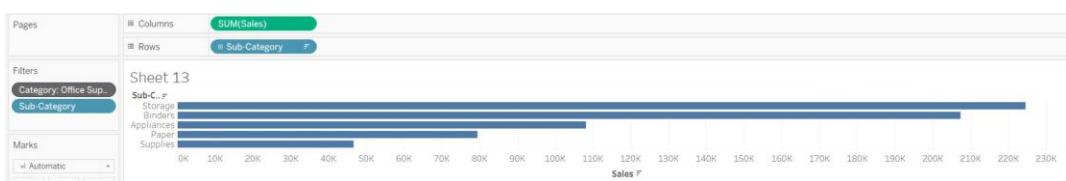


Figure 4.32: The Category filter has been added to context and now occurs before the sub-category top N filter

Create Parameter X

Name
Sub-Category Parameter

Properties

Data type	String	Display format	Accessories																		
Current value	Accessories	Value when workbook opens	Current value																		
Allowable values		<input type="radio"/> All <input checked="" type="radio"/> List <input type="radio"/> Range																			
<table border="1"><tr><th>Value</th><th>Display As</th></tr><tr><td>Accessories</td><td>Accessories</td></tr><tr><td>Appliances</td><td>Appliances</td></tr><tr><td>Art</td><td>Art</td></tr><tr><td>Binders</td><td>Binders</td></tr><tr><td>Bookcases</td><td>Bookcases</td></tr><tr><td>Chairs</td><td>Chairs</td></tr><tr><td>Copiers</td><td>Copiers</td></tr><tr><td>- .</td><td>- .</td></tr></table>		Value	Display As	Accessories	Accessories	Appliances	Appliances	Art	Art	Binders	Binders	Bookcases	Bookcases	Chairs	Chairs	Copiers	Copiers	- .	- .	<input checked="" type="radio"/> Fixed <input type="radio"/> When workbook opens Add values from ▾ Remove Selected	
Value	Display As																				
Accessories	Accessories																				
Appliances	Appliances																				
Art	Art																				
Binders	Binders																				
Bookcases	Bookcases																				
Chairs	Chairs																				
Copiers	Copiers																				
- .	- .																				
		Cancel OK																			

Figure 4.33: A parameter created from the Sub-Category field set to a string type by default, with the allowable values taken as a list from the Sub-Category field

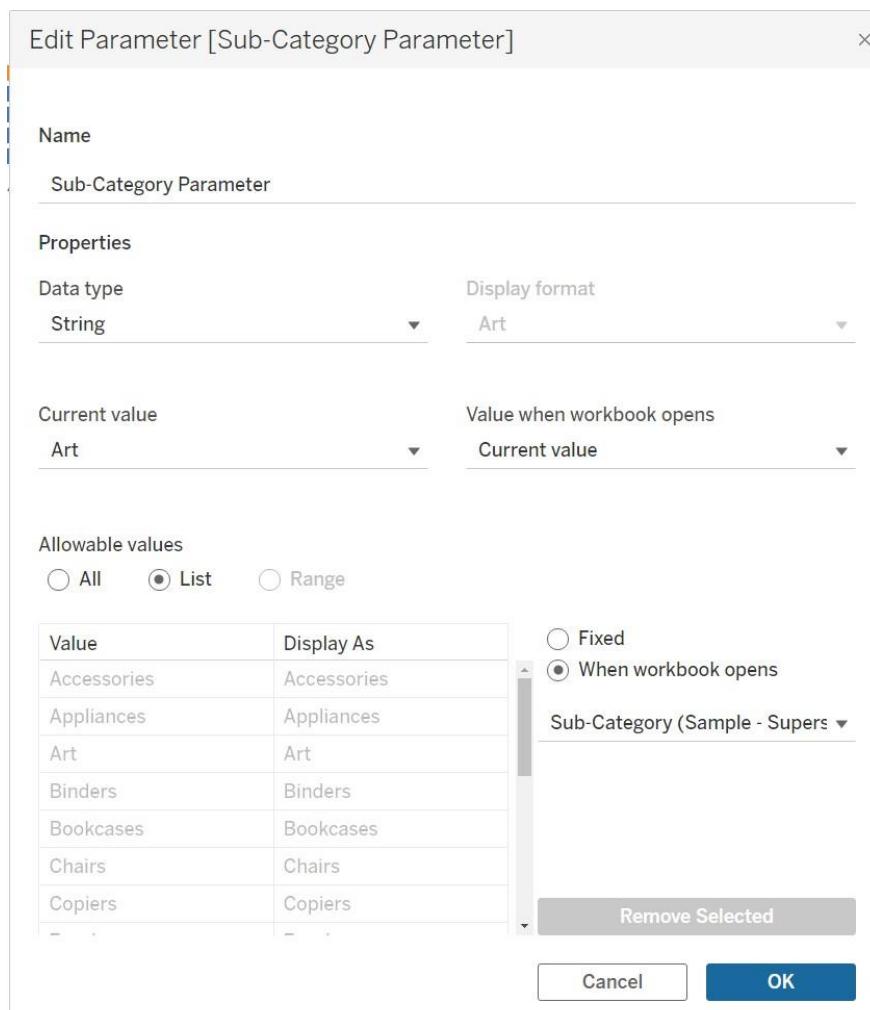


Figure 4.34: The Sub-Category parameter created and edited to update the values when the workbook opens

Create Parameter X

Name
Top N

Properties

Data type Integer	Display format 10
----------------------	----------------------

Current value
10

Value when workbook opens
Current value

Allowable values

All List Range

Range of values

<input checked="" type="checkbox"/> Minimum	1	<input checked="" type="radio"/> Fixed
<input checked="" type="checkbox"/> Maximum	50	<input type="radio"/> When workbook opens
<input checked="" type="checkbox"/> Step size	1	Add values from ▾

Cancel OK

Figure 4.35: The integer parameter created from scratch, with allowable values between 1 and 50 and the default set to 10

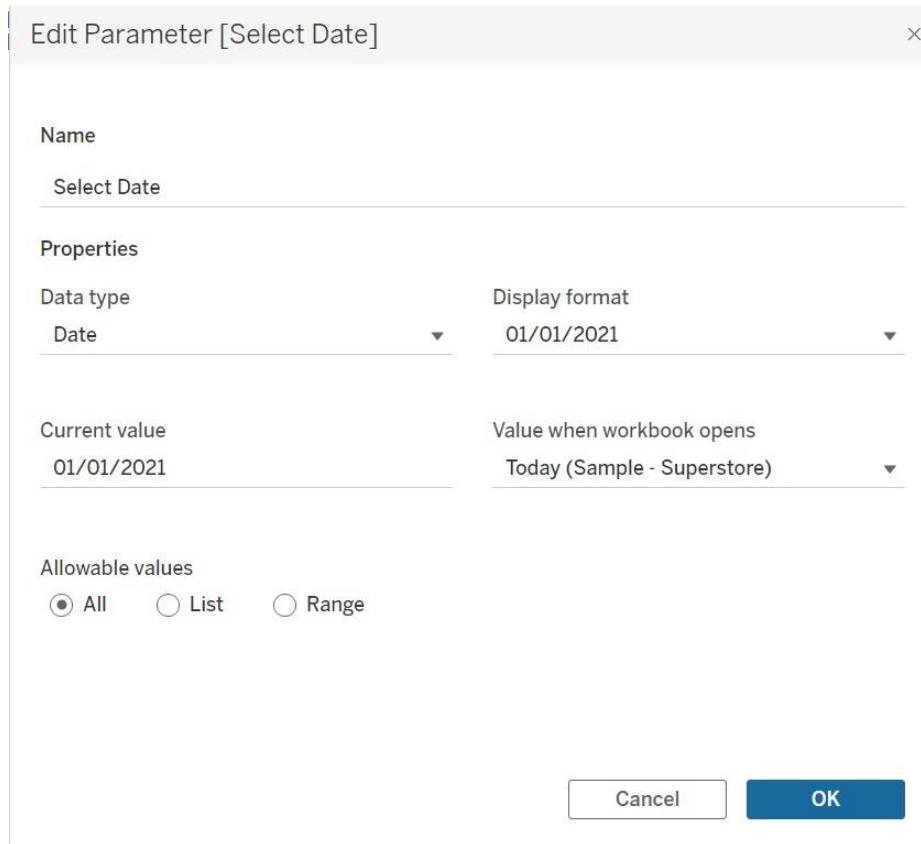


Figure 4.36: The date parameter created that has a default value dynamically set to today's date

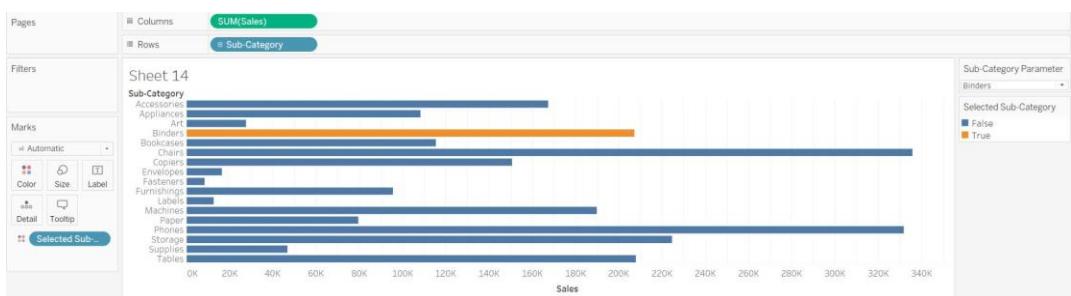


Figure 4.37: The Sub-Category parameter used in a calculated field, which is applied to Color to highlight the selected sub-category

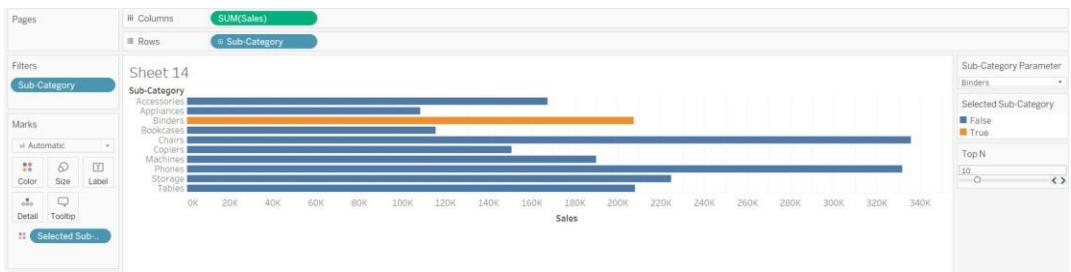


Figure 4.38: The Top N parameter is used to filter the number of sub-categories displayed in the view

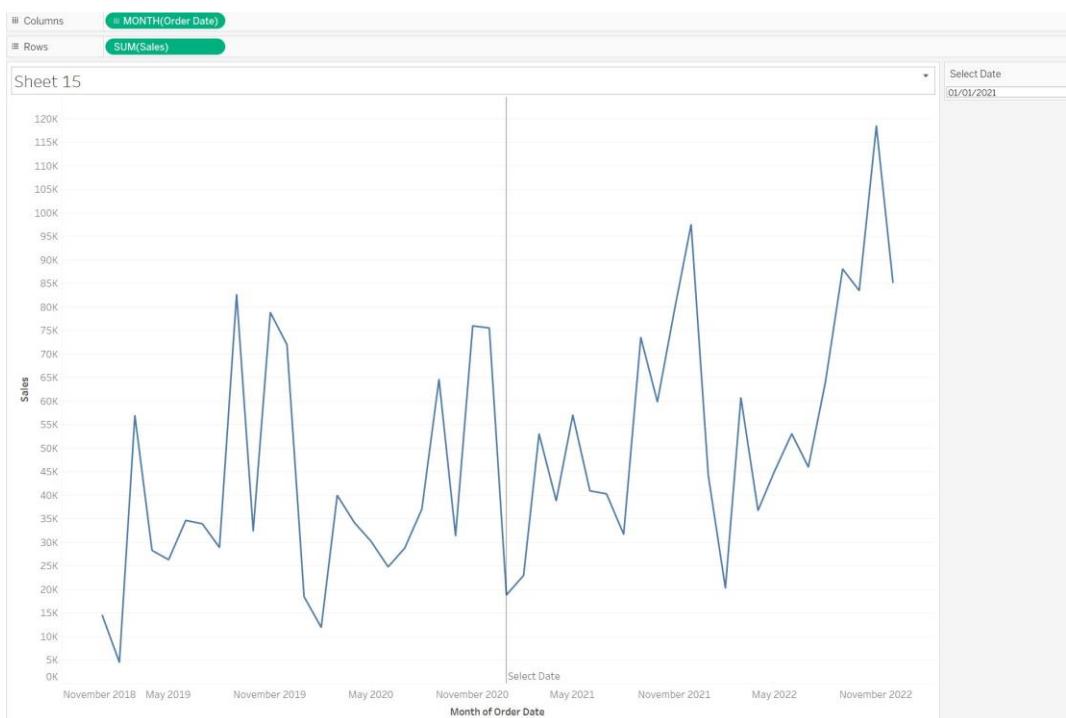


Figure 4.39: The customizable reference line created using a date parameter

The screenshot shows a dark-themed dashboard titled 'Practice Resources'. At the top right are a bell icon and a 'SHARE FEEDBACK' button. Below the title, the path 'DASHBOARD > CHAPTER 4' is visible. A section titled 'Grouping and Filtering' contains a 'Summary' heading and two paragraphs of text. To the right, a box titled 'Chapter Review Questions' displays the title, author information, a 'Select Quiz' button, and a 'Quiz 1' section with a 'START' button.

Grouping and Filtering

Summary

In Tableau, grouping data, filtering, and enhancing user interactivity with customizable values is made easy with built-in functionality.

Grouping in Tableau can be done at the field level by grouping hierarchical fields into the hierarchical field type. This enhances functionality in the view, allowing users to drill up and down levels of hierarchy. Values within a field can be easily be manually grouped together into a new field using Tableau group functionality, and the new field can be used in exactly the same way as the original field. Values within fields can also be defined based on conditions, resulting in a new Boolean-type field called a set. Sets can then be combined together to create more complex interlocking conditions for values within a field. Fields can also be created on numeric data by binning the values into consistent ranges, allowing users to see the distribution of values across a field.

There are a multitude of filter options available in Tableau, both in terms of type and the order in which the filter occurs. Types of filters include numeric measure filters that allow for minimum and maximum values, as well as specific range filtering. Dimension fields allow for basic inclusion and exclusion filtering, as well as filtering by wildcard matches in the text, a specific user-defined condition, and the top or bottom values by a given aggregated field. Dates can be filtered in the same way, as both measures and dimensions, but they also provide a relative date filtering option in which an anchor date can be set. Table calculations can also be used as filters, with the filter values available dependent on the table calculation configuration. Filters can be set to occur at different points in Tableau's order of operations, with extract filters running first, followed by data source filters, followed by context filters, and then dimension, measure, and table calculation filters in succession.

Tableau's parameters provide the ability for end users to set specific values that Tableau can then use in calculation logic, top or bottom N filtering, or reference lines. Parameters can be limited to a specific set of available values for end users, any value between a given range, or any value possible.

Chapter Review Questions

The Tableau Certified Data Analyst Certification Guide
by Harry Cooney, Daisy Jones

Select Quiz

Quiz 1

SHOW QUIZ DETAILS ▾

START

Figure 4.41 - Chapter Review Questions for Chapter 4

5 Charts

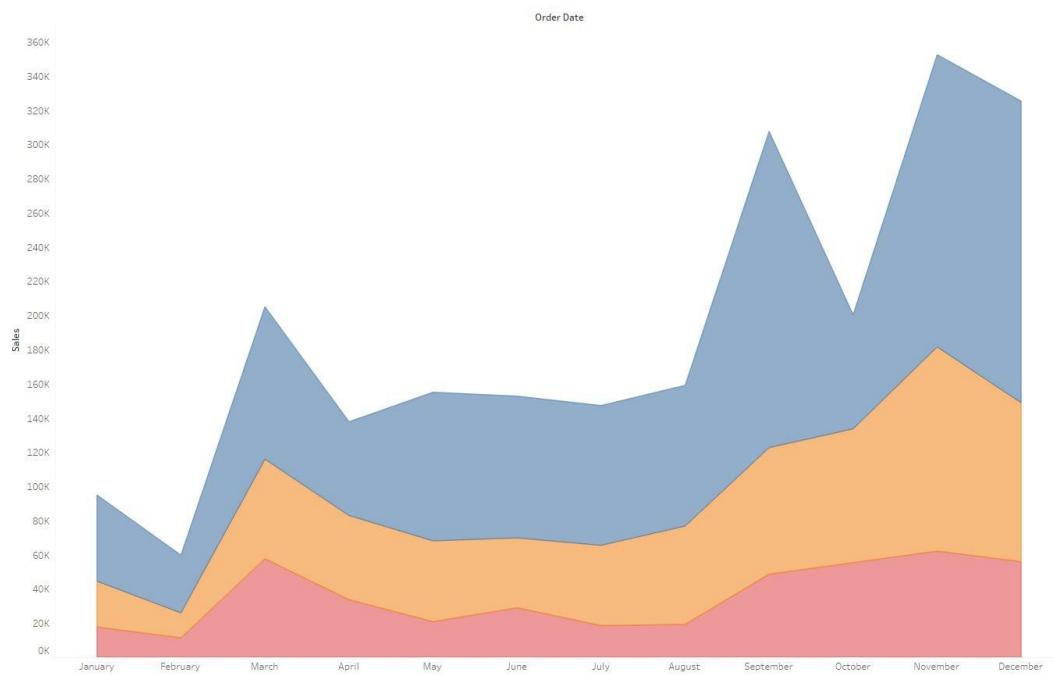


Figure 5.1 - Example of an area chart

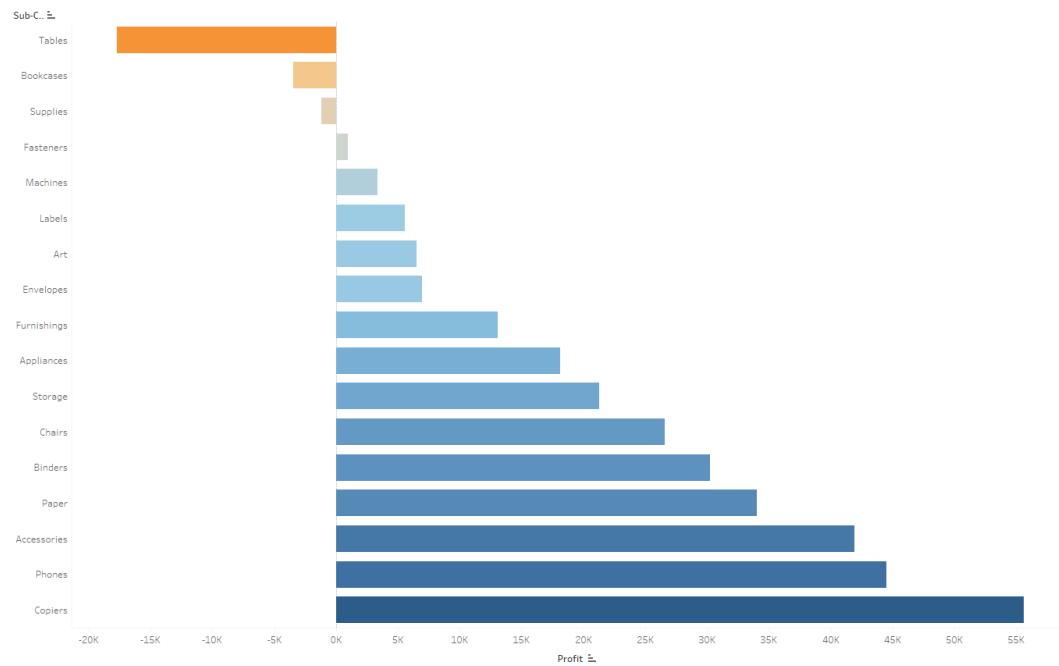


Figure 5.2 - Example of a bar chart

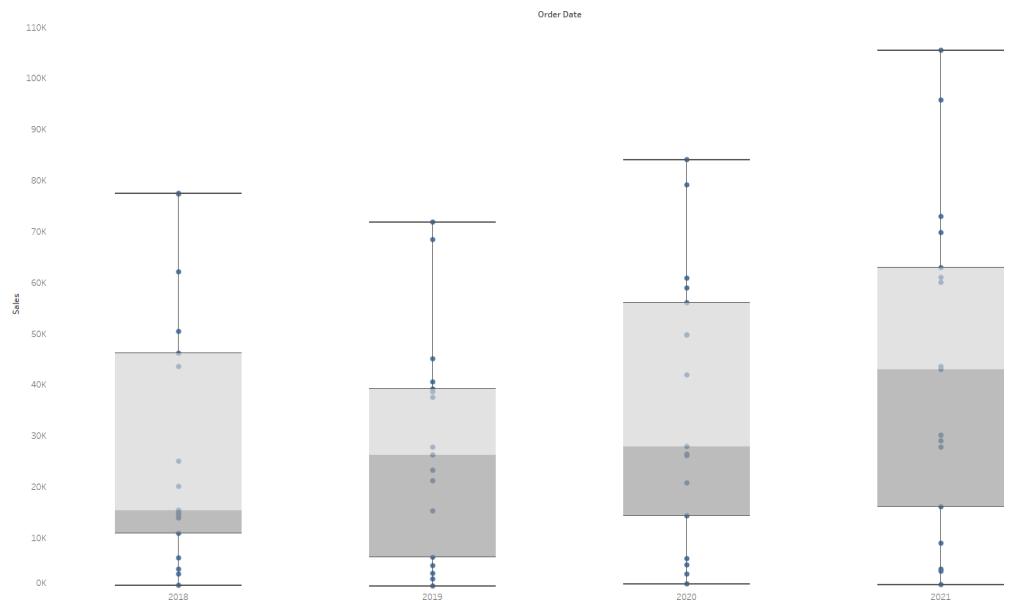


Figure 5.3 - Example of a box plot

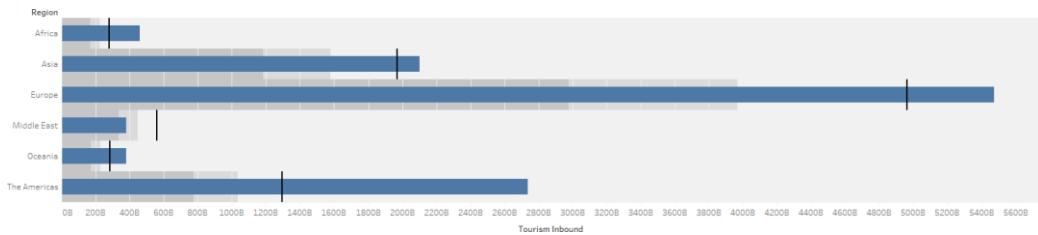


Figure 5.4 - Example of a bullet graph



Figure 5.5 - Calculation window for Boolean



Figure 5.6 - Example of a heatmap

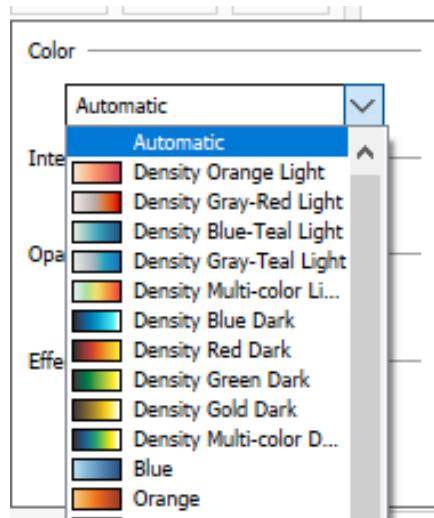


Figure 5.7 - Density color choices

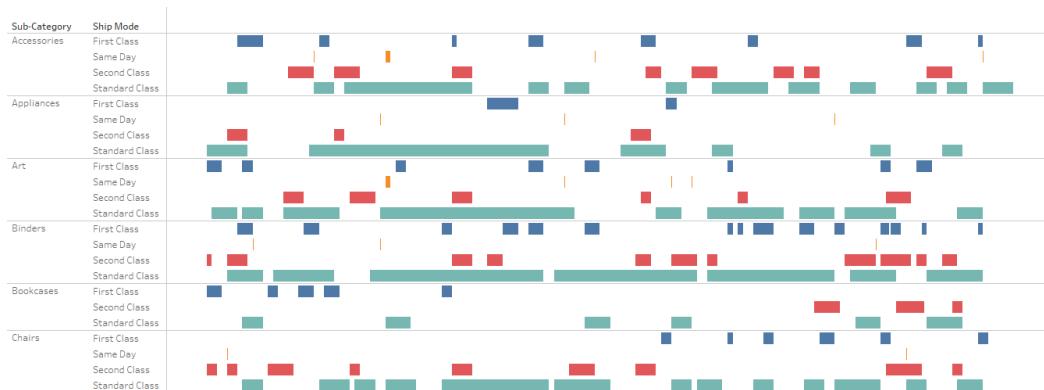


Figure 5.8 - Example of a Gantt chart

X

`DATEDIFF('day', [Order Date], [Ship Date])`

The calculation is valid.
Apply
OK

Figure 5.9 - Calculation window for Gantt chart

Sub-Catego..	Order Date															
	2018				2019				2020				2021			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Accessories																
Appliances	Orange					Orange										
Art																
Binders								Orange								
Bookcases	Orange				Orange											
Chairs																
Copiers																
Envelopes																
Fasteners																
Furnishings																
Labels																
Machines	Orange			Orange												
Paper																
Phones																
Storage																
Supplies																
Tables	Orange			Orange		Orange										

Figure 5.10 - Example of a highlight table

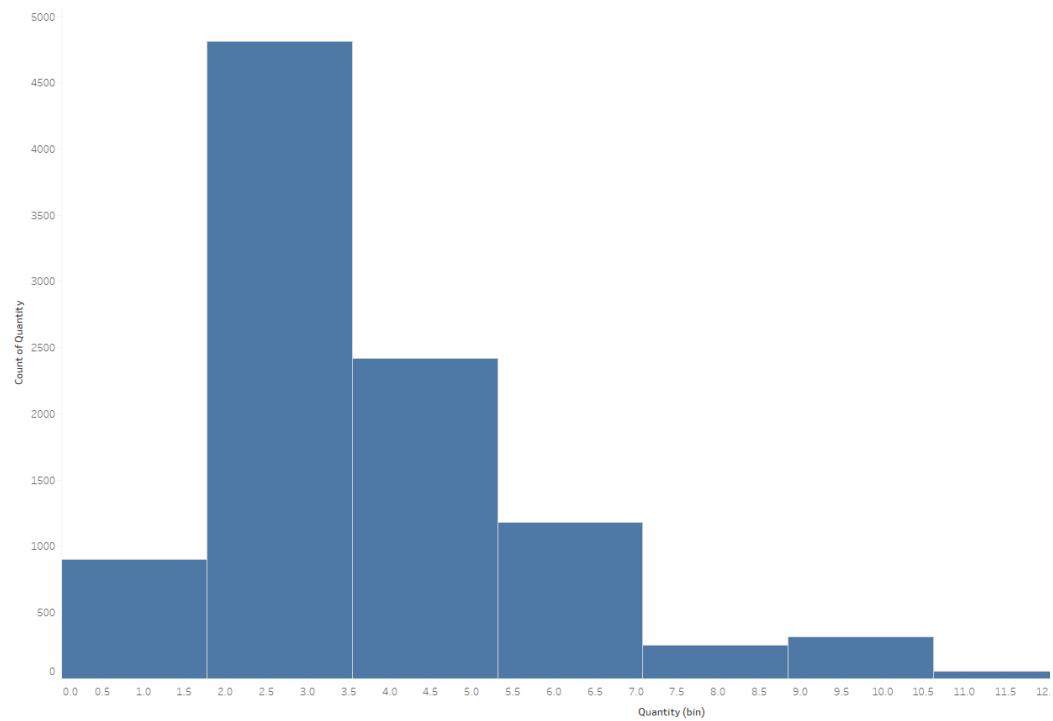


Figure 5.11 - Example of a histogram

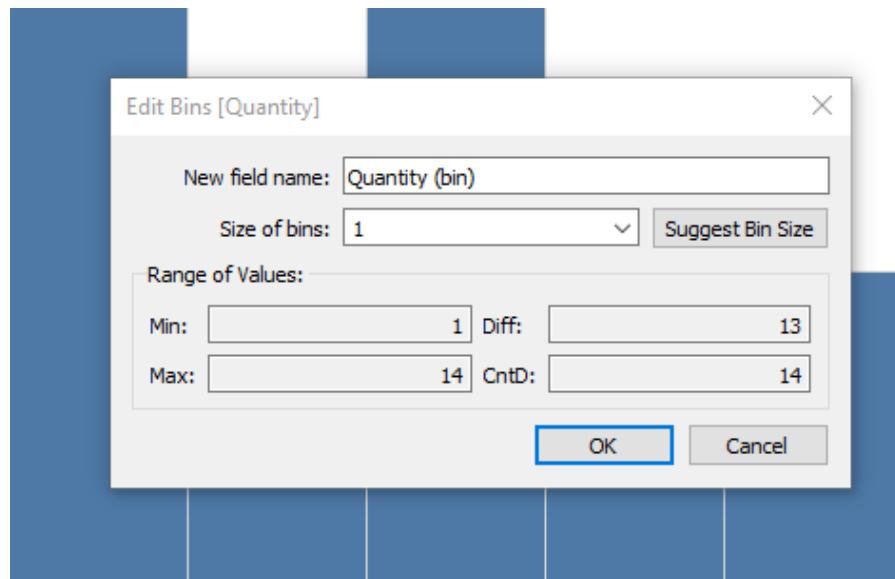


Figure 5.12 - Edit Bins window

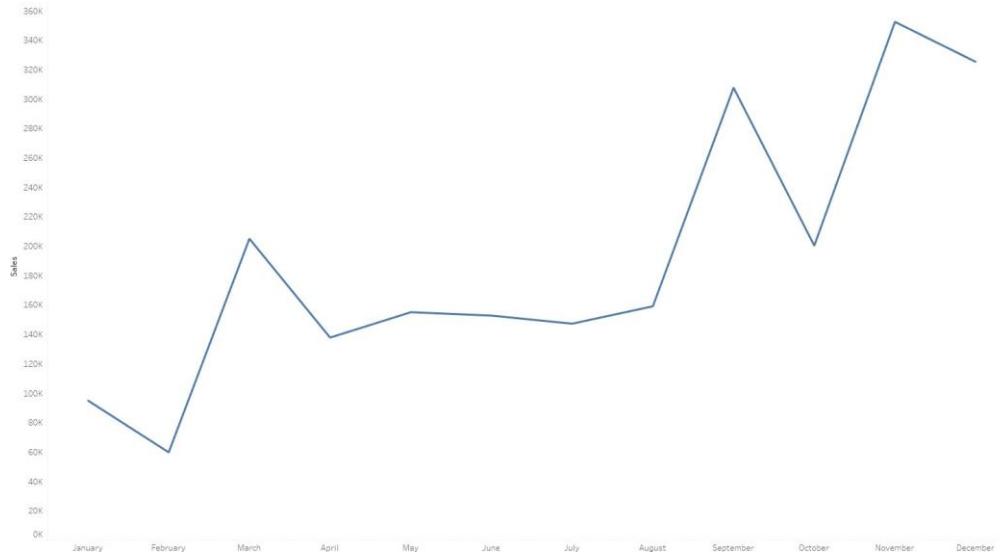


Figure 5.13 - Example of a line chart



Figure 5.14 - Example of a packed bubble chart

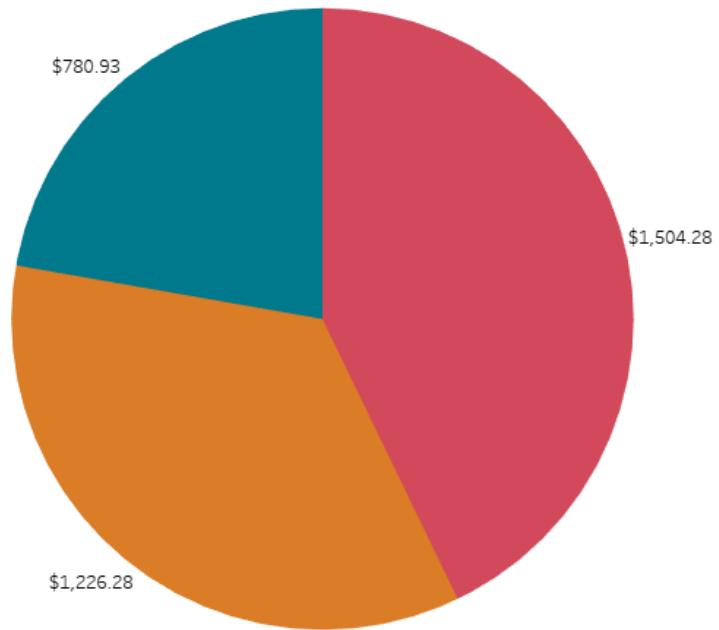


Figure 5.15 - Example of a pie chart

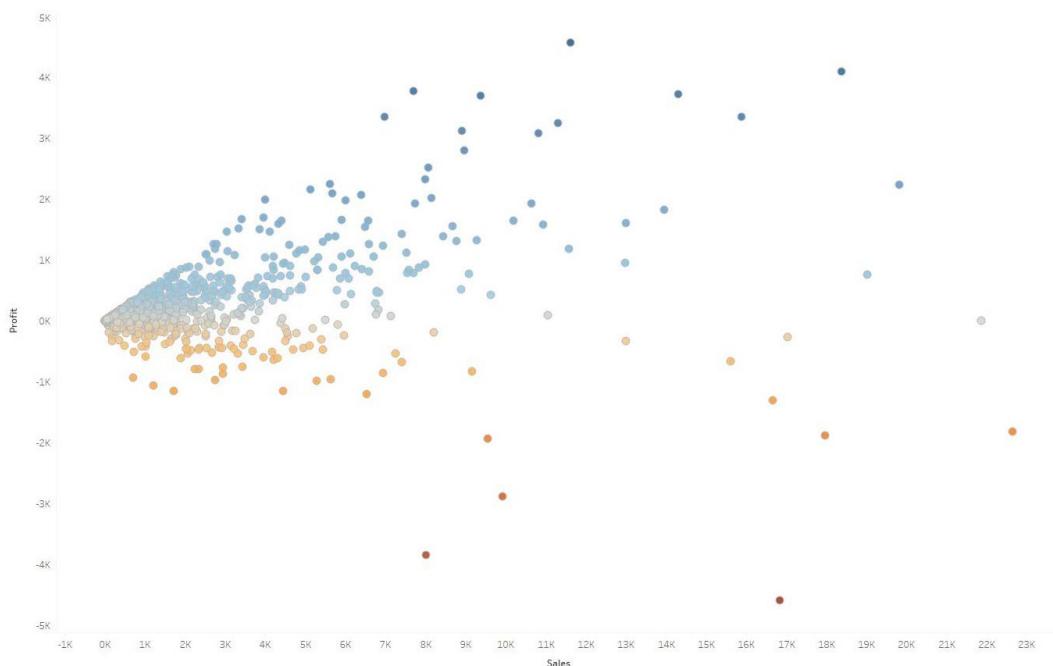


Figure 5.16 - Example of a scatter plot



Figure 5.17 - Color, Opacity, and Effects options

Category	Sub-Category	Sales	Profit	Profit Ratio	Discount	Quantity
Furniture	Bookcases	114,880	-3,473	-3.02%	48	868
	Chairs	328,449	26,590	8.10%	105	2,356
	Furnishings	91,705	13,059	14.24%	132	3,563
	Tables	206,966	-17,725	-8.56%	83	1,241
Office Supplies	Appliances	107,532	18,138	16.87%	78	1,729
	Art	27,119	6,528	24.07%	60	3,000
	Binders	203,413	30,222	14.86%	567	5,974
	Envelopes	16,476	6,964	42.27%	20	906
	Fasteners	3,024	950	31.40%	18	914
	Labels	12,486	5,546	44.42%	25	1,400
	Paper	78,479	34,054	43.39%	103	5,178
	Storage	223,844	21,279	9.51%	63	3,158
	Supplies	46,674	-1,189	-2.55%	15	647
Technology	Accessories	167,380	41,937	25.05%	61	2,976
	Copiers	149,528	55,618	37.20%	11	234
	Machines	189,239	3,385	1.79%	35	440
	Phones	330,007	44,516	13.49%	137	3,289

Figure 5.18 -- Example of a text table

Category	Sub-Catego...	
Furniture	Bookcases	Abc
	Chairs	Abc
	Furnishings	Abc
	Tables	Abc
Office Supplies	Appliances	Abc
	Art	Show Me
	Binders	Abc
	Envelopes	Abc
Technology	Fasteners	Abc
	Labels	Abc
	Paper	Abc
	Storage Supplies	Abc
Technology	Accessories	Abc
	Copiers	Abc
	Machines	Abc
	Phones	Abc

Figure 5.19 - Example of Abc



Figure 5.20 - Example of a treemap

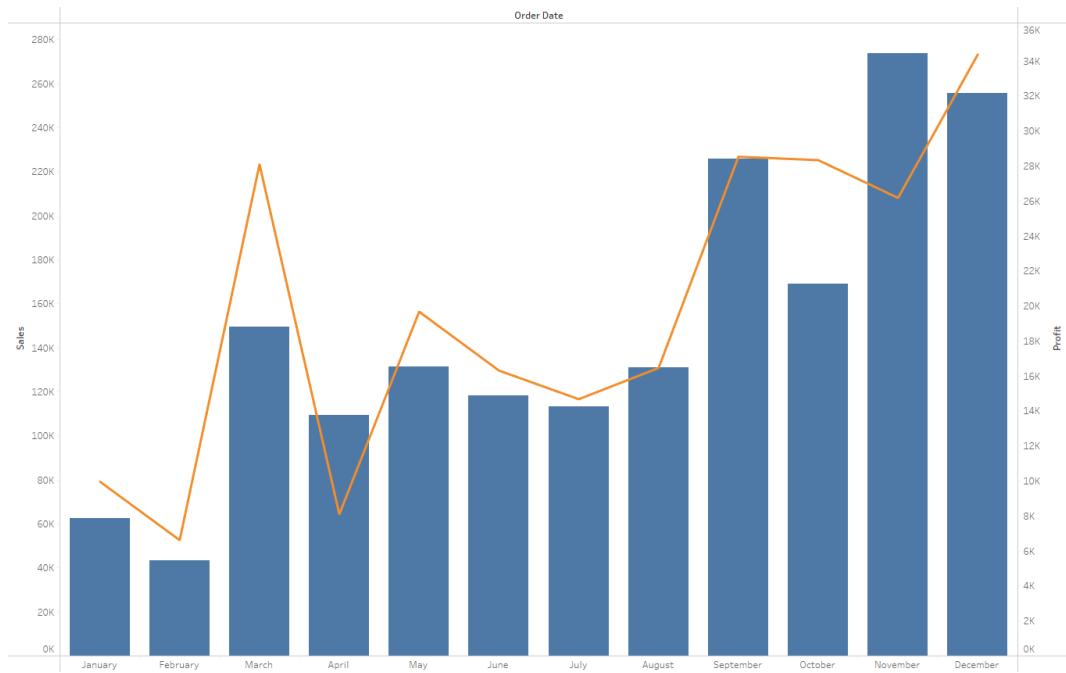


Figure 5.21 - Example of a combination chart



Figure 5.22 - Axis selection

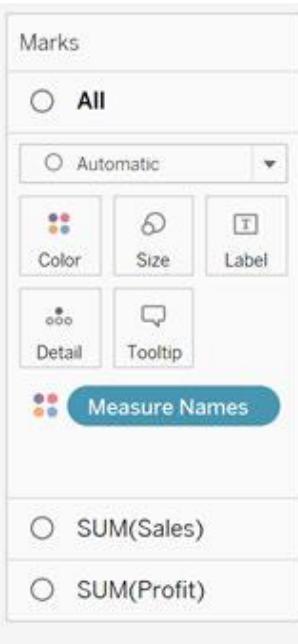


Figure 5.23 - Marks card

Figure 5.24 - The Country field with the Country/Region geographic role applied

- 🌐 *Latitude (generated)*
- 🌐 *Longitude (generated)*

Figure 5.25 - Latitude and Longitude fields generated by Tableau will have a (generated) suffix



Figure 5.26 - Tableau map toolbar allowing location search, zooming, location pinning, panning, and selection of data points via square, circle, or custom shape

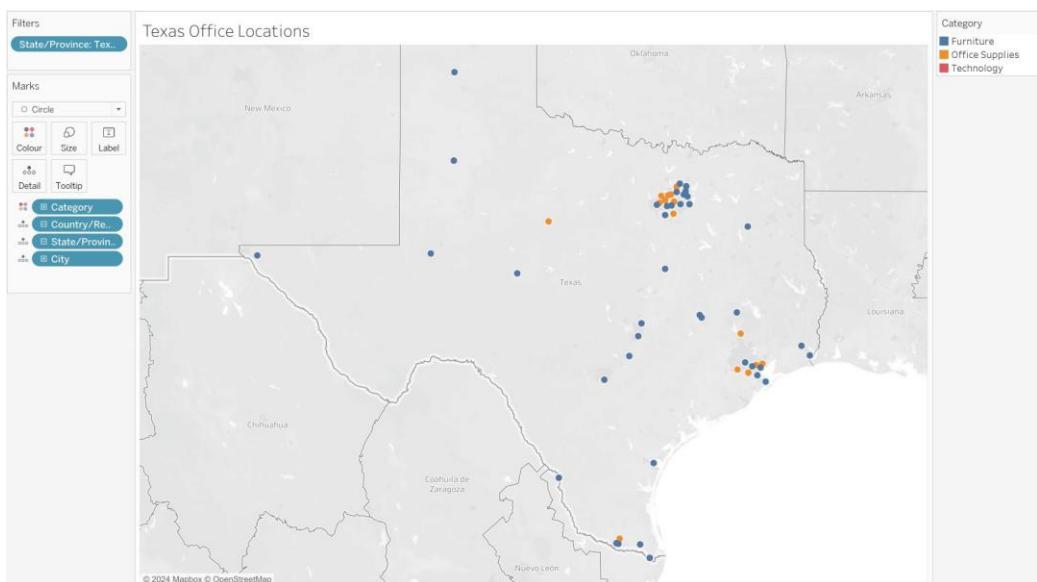


Figure 5.27 - Symbol map showing office locations in Texas colored by Category

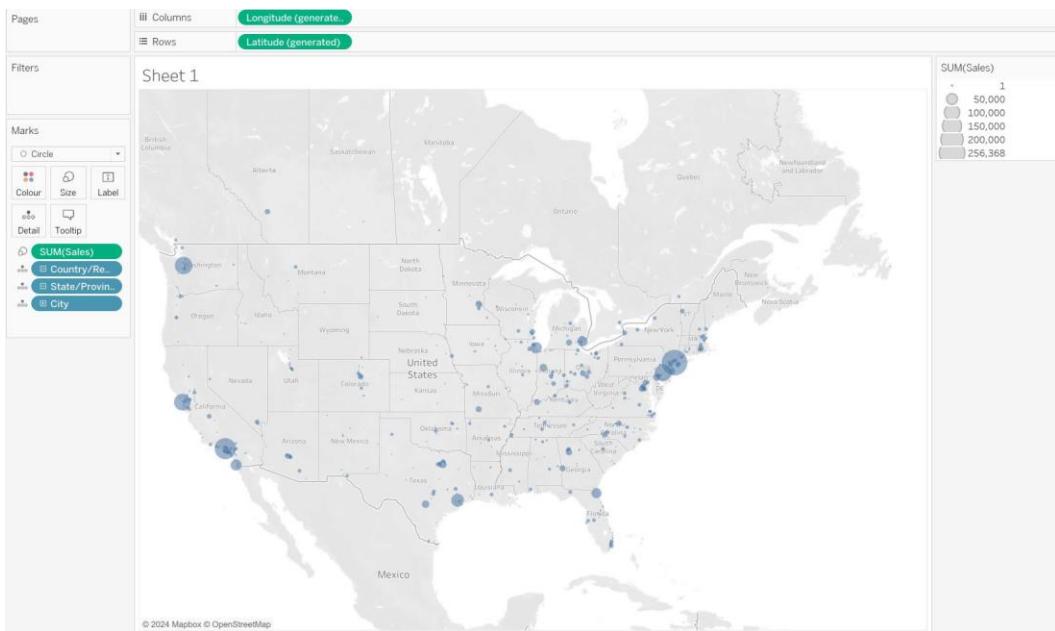


Figure 5.28 - Sales mapped per city using a symbol map in Tableau

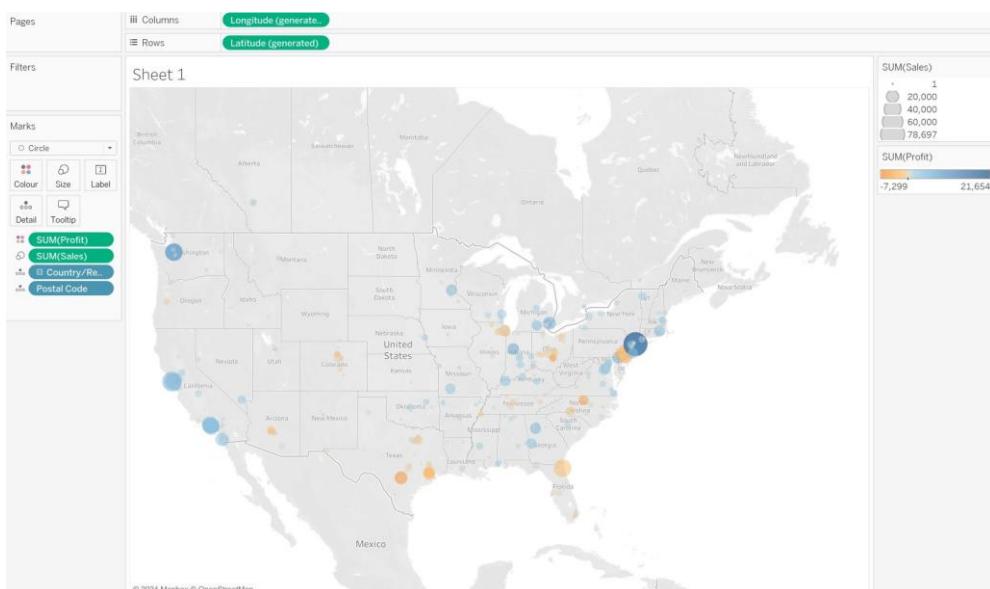


Figure 5.29 - Symbol map created showing every postcode where there were sales in the USA sized by the total sales and colored by total profit

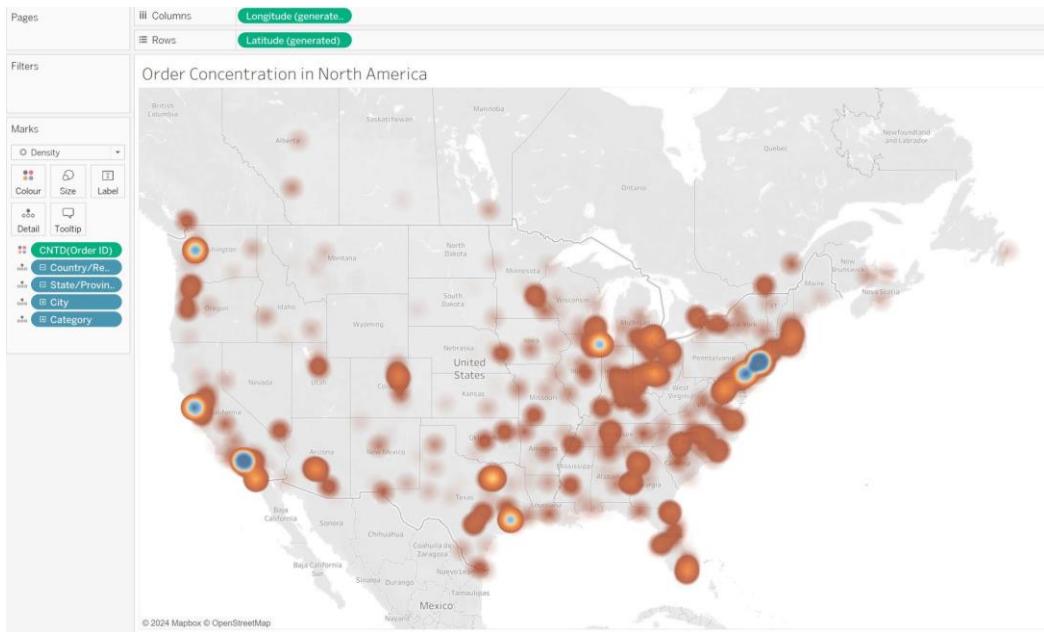


Figure 5.30 - Density map showing the concentration or density of orders across North America

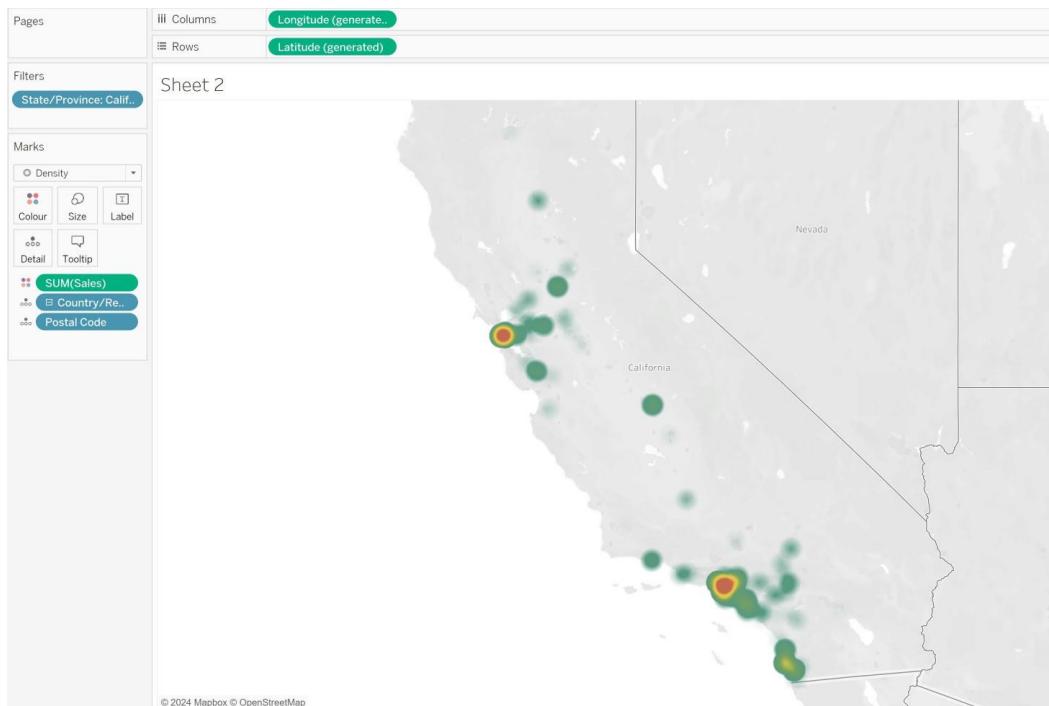


Figure 5.31 - Density chart created showing the clustering of sales in specific areas of California

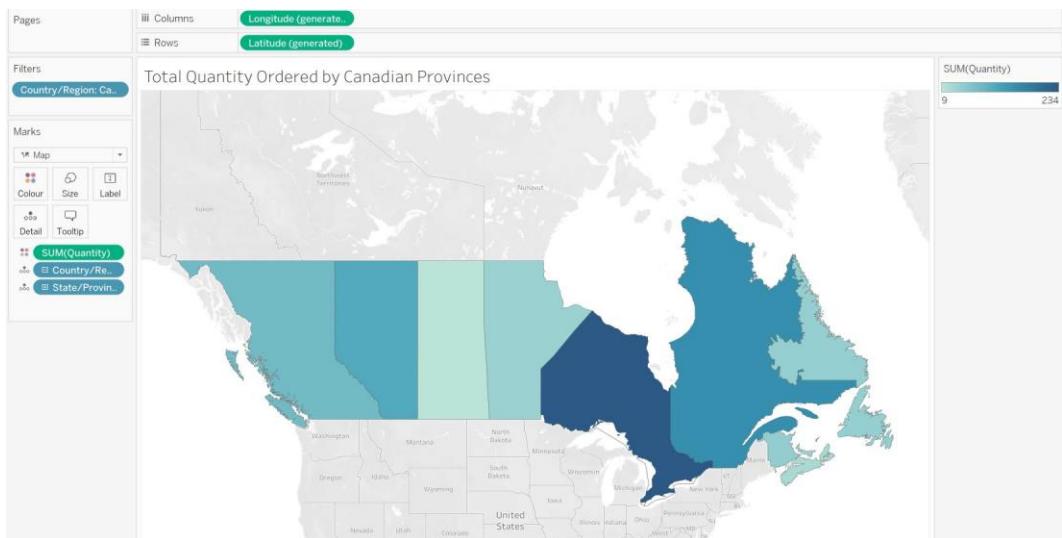


Figure 5.32 - Filled map chart showing total quantity ordered by State/Province in Canada

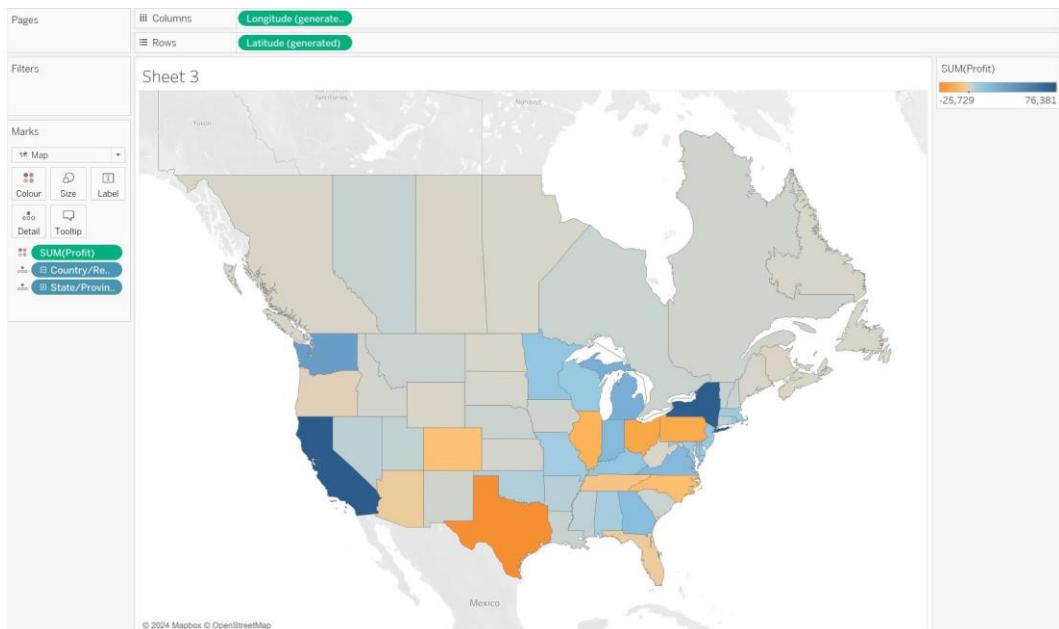


Figure 5.33 - A filled map showing the difference in total profit between states of the USA and Canada

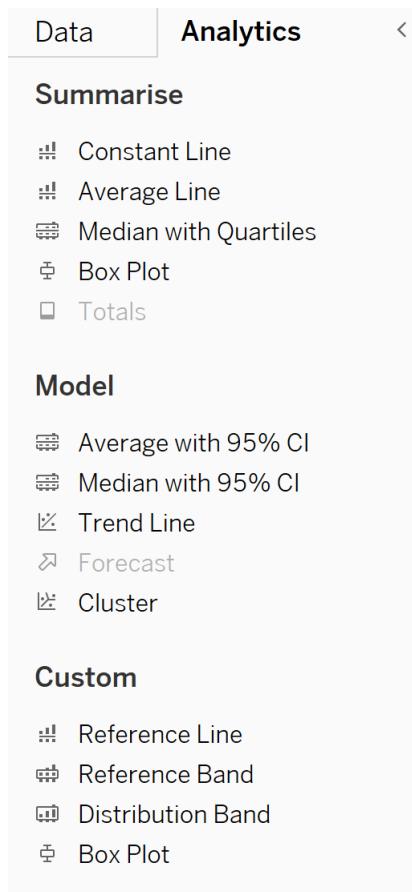


Figure 5.34 - The Analytics pane in Tableau's user interface



Figure 5.35 - A reference line analytics object being dragged onto the view across the whole table

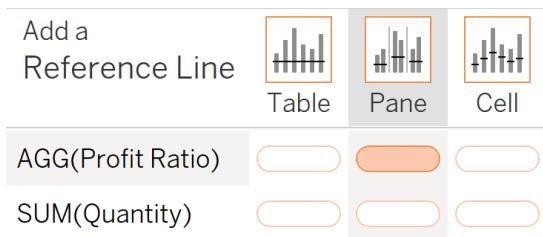


Figure 5.36 - A view with both Profit Ratio and total Quantity measures included having a reference line added in each Profit Ratio pane

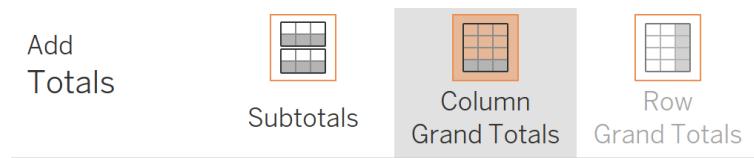


Figure 5.37 - Total and subtotal pop-up options when dragging the Total object from the Analytics pane onto the view

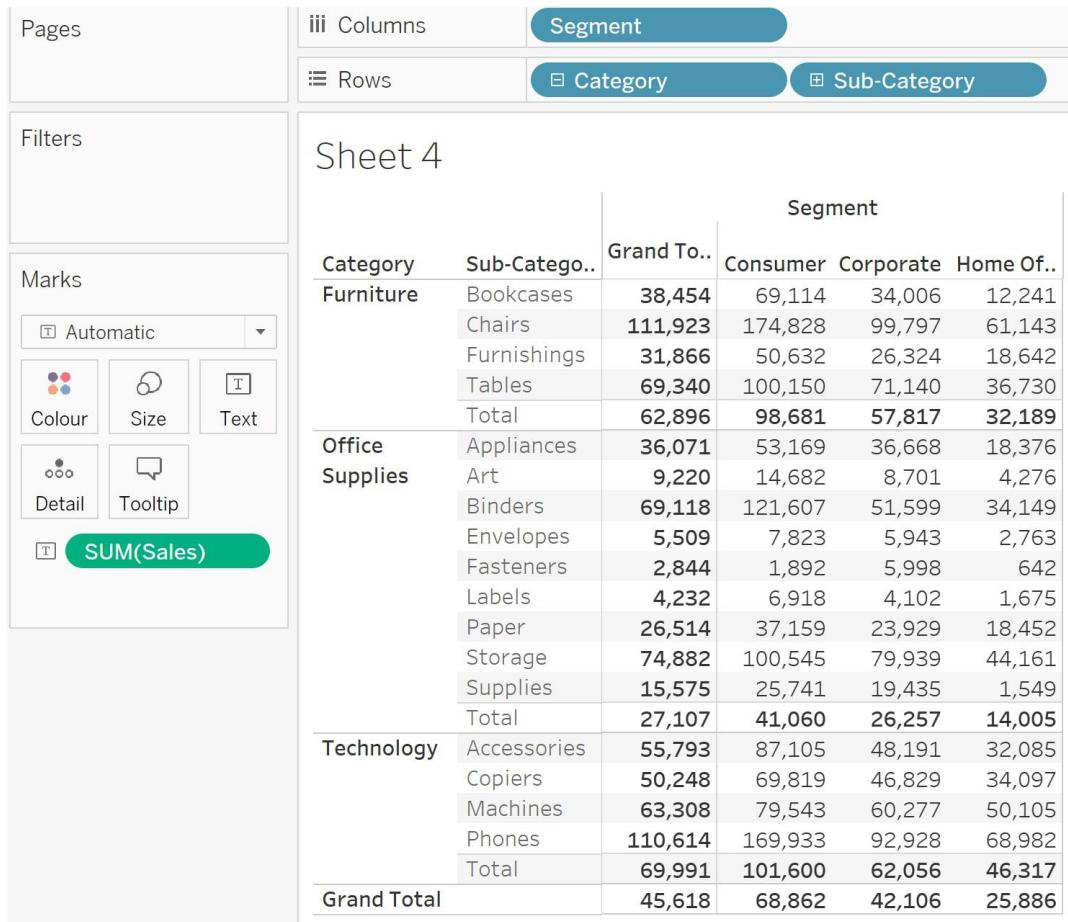


Figure 5.38 - Totals and subtotals added to the view in Tableau and configured positionally in terms of aggregation

Add a Reference Line

	 Table	 Pane	 Cell
SUM(Sales)	<input type="text"/>	<input type="text"/>	<input type="text"/>
SUM(Quantity)	<input type="text"/>	<input type="text"/>	<input type="text"/>
SUM(Profit)	<input type="text"/>	<input type="text"/>	<input type="text"/>

Figure 5.39 - Options when dragging a reference line onto a view with multiple measures; here, a reference line is being created on the Profit axis across the whole view/table

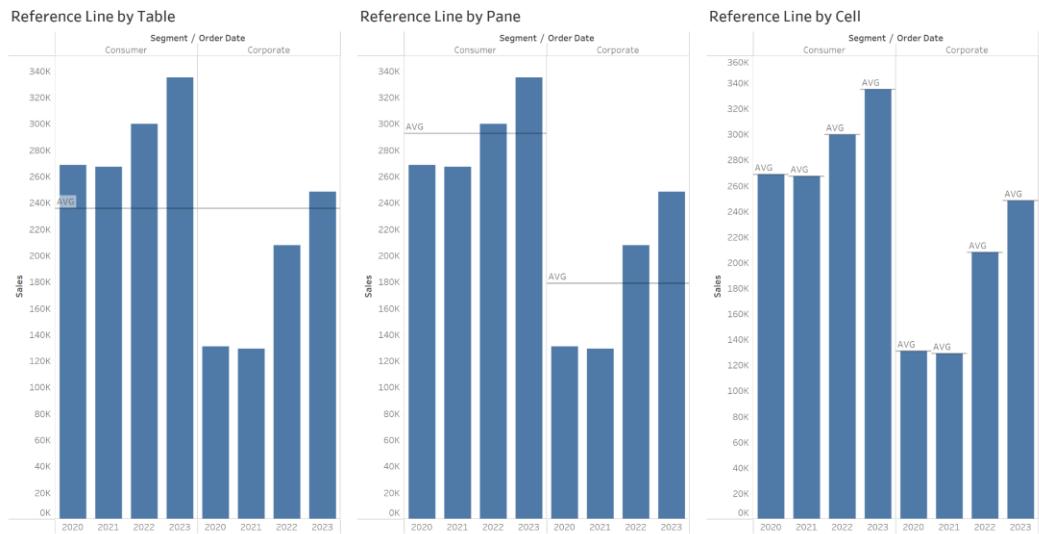


Figure 5.40 - The same bar chart has reference lines with different scope settings; the left chart shows an average line across the whole table, the middle chart shows an average line per pane, and the rightmost chart shows an average line per cell

Value:

Figure 5.41 - Popup for constant line value configuration



Figure 5.42 - Constant line and average line added to a Sales versus Profit scatter plot and the average line further customized

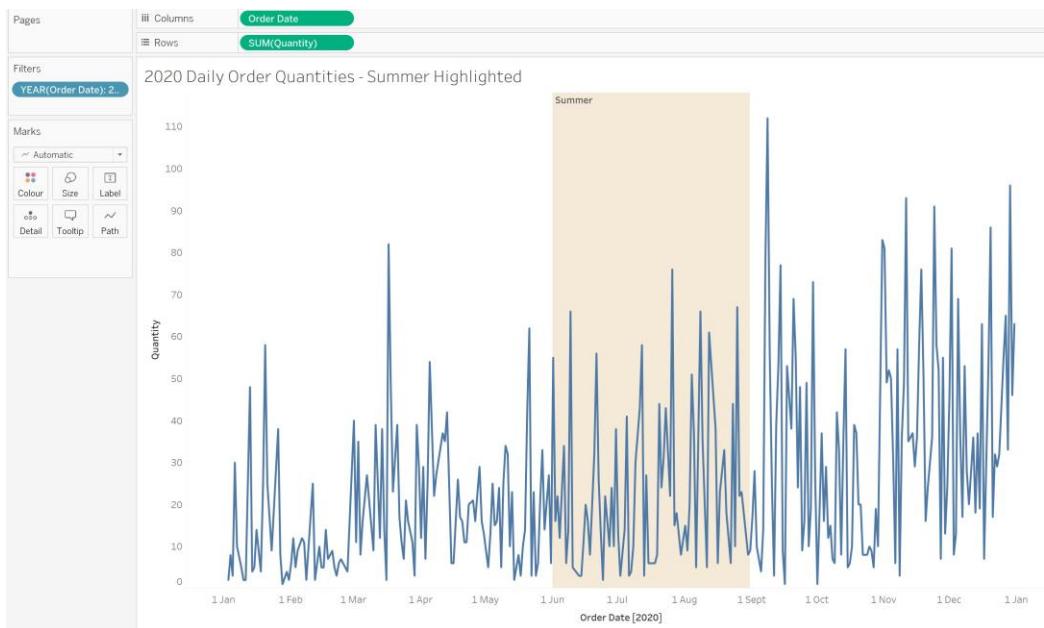


Figure 5.43 - Reference band highlighting data points that fall during summer

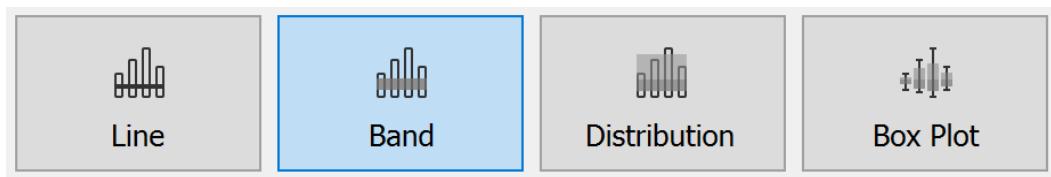


Figure 5.44 - The configuration window allows users to select whether to add a reference line, reference band, distribution band, or box plot; here, a reference band is selected

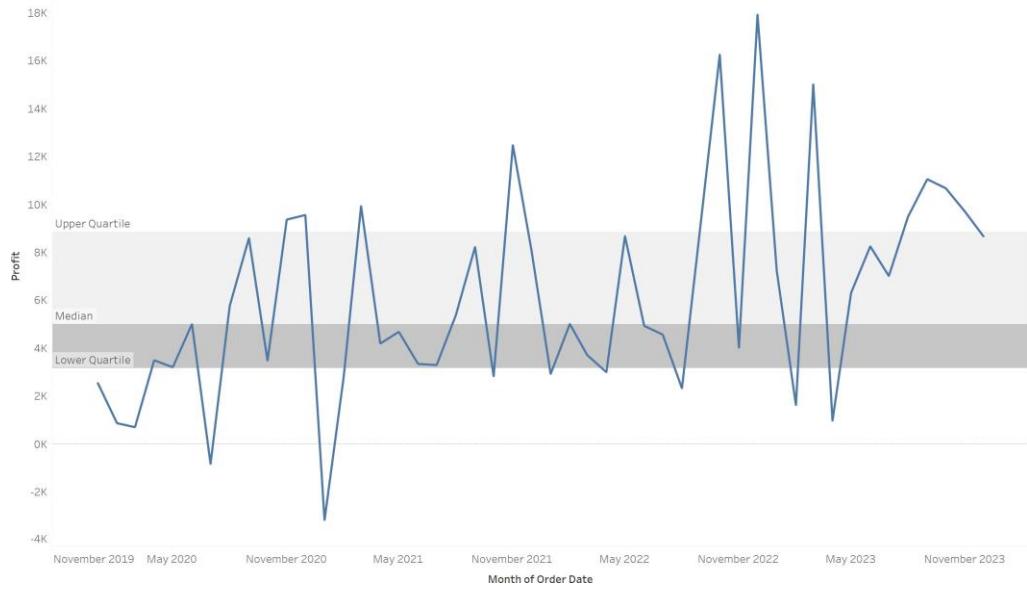


Figure 5.45 - Distribution band calculated with four quartiles; the lower quartile to the median is shaded darker than the median to the upper quartile



Figure 5.46 - Distribution band created on the Sales axis by pane showing the quantile breakdown for each segment; reference band created for Profit highlighting the areas between 10k and the most highly profitable month



Figure 5.47 - Box plots showing the distribution of orders by Profit for each region

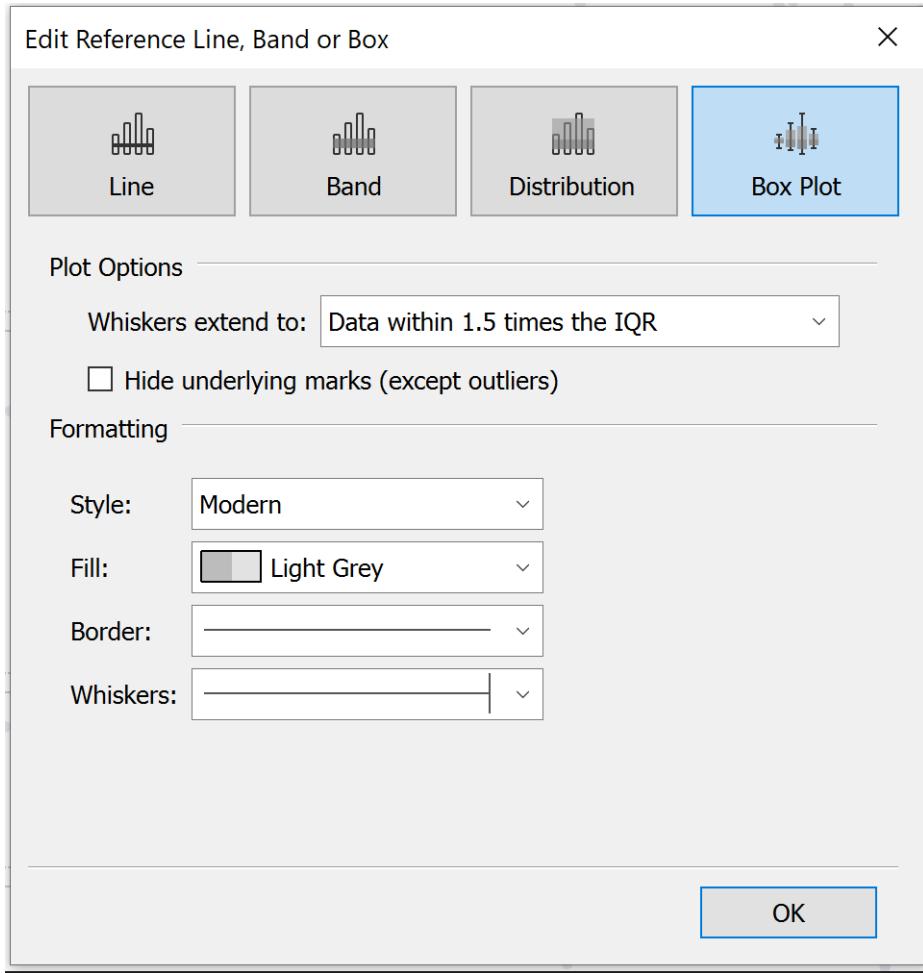


Figure 5.48 - Box plot configuration window



Figure 5.49 - Box plots created showing the distribution of total sales for subcategories within each category



Figure 5.50 - Trend line model options with Linear being selected

Describe Trend Model

Trend Lines Model

A linear trend model is computed for RANDOM() given sum of Profit. The model may be significant at p <= 0.05. The factor Region may be significant at p <= 0.05.

Model formula: Region*(RANDOM() + intercept)

Number of modelled observations: 1734

Number of filtered observations: 0

Model degrees of freedom: 8

Residual degrees of freedom (DF): 1726

SSE (sum squared error): 1.22607e+07

MSE (mean squared error): 7103.55

R-Squared: 0.0440451

Standard error: 84.2825

p-value (significance): < 0.0001

Analysis of Variance:

Field	DF	SSE	MSE	F	p-value
Region	6	564553.7	94092.3	13.2458	< 0.0001

Individual trend lines:

Panes		Line		Coefficients					
Row	Column	p-value	DF	Term	Value	StdErr	t-value	p-value	
Central	Profit	0.503959	372	RANDOM()	10.2518	15.3258	0.668924	0.503959	
				intercept	-25.0091	8.85634	-2.82387	0.0050002	
East	Profit	0.895153	500	RANDOM()	1.86645	14.1554	0.131854	0.895153	
				intercept	9.79955	8.14586	1.20301	0.229542	
South	Profit	0.350298	258	RANDOM()	-18.2305	19.4831	-0.935709	0.350298	
				intercept	43.2517	10.891	3.97132	< 0.0001	
West	Profit	0.876153	596	RANDOM()	-1.70014	10.9043	-0.155915	0.876153	
				intercept	21.3817	6.35821	3.36285	0.0008209	

Copy

Figure 5.51 - The Describe Trend Model popup for a Tableau trend line



Figure 5.52 - Linear trend line added to the scatter plots with a line for each category but standardized across segments

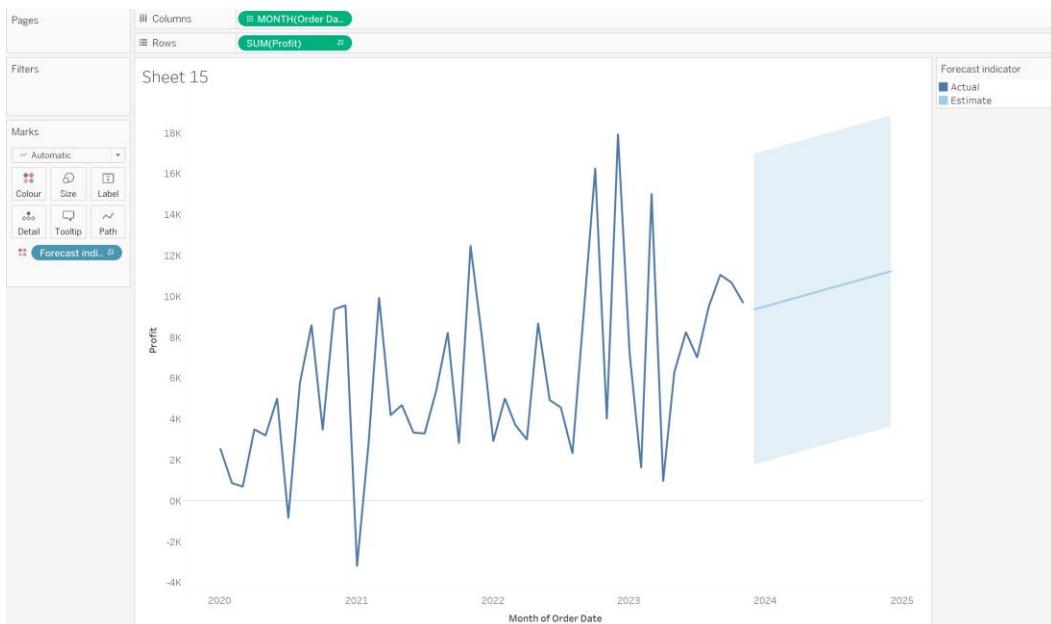


Figure 5.53 - Forecast added to a monthly profit analysis chart

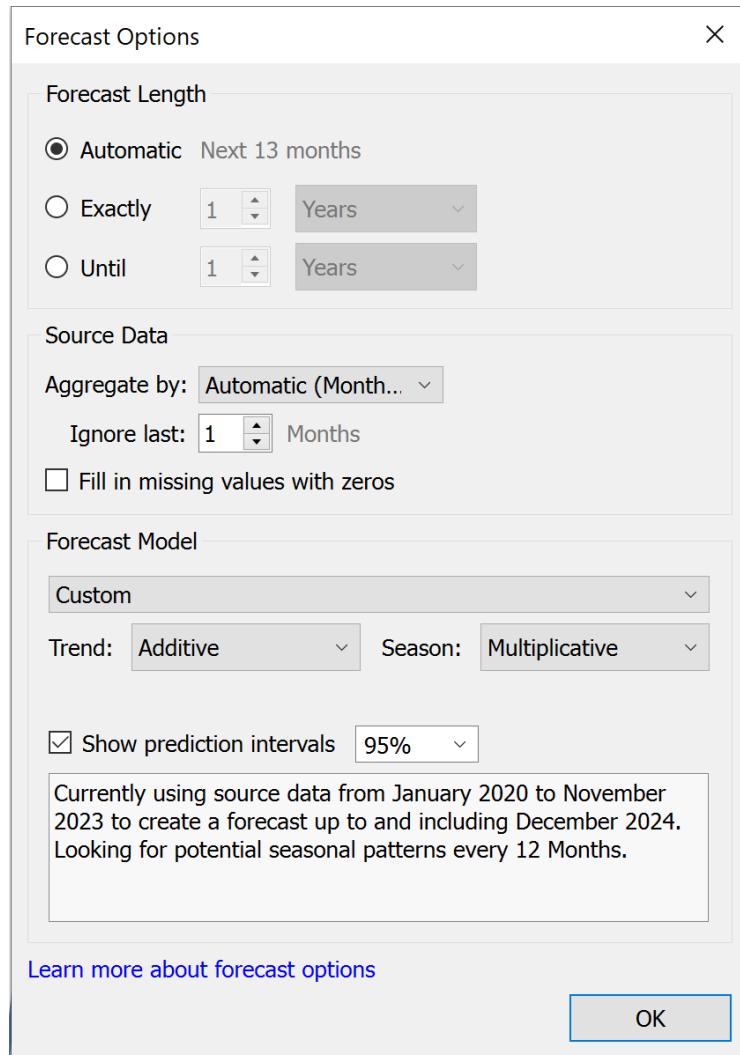


Figure 5.54 - Forecast Options configuration for a Custom forecast model

Describe Forecast

Summary Models

Options Used to Create Forecasts

Time series: Month of Order Date
Measures: Sum of Profit
Forecast forward: 13 months (December 2023 – December 2024)
Forecast based on: January 2020 – November 2023
Ignore last: 1 month (December 2023)
Seasonal pattern: None

Initial	Change From Initial	Seasonal Effect	Contribution	
December 2023	December 2023 – December 2024	High Low	Trend Season	Quality
9,360 ± 7,603	1,866	None	100.0% 0.0%	OK

Show values as percentages

[Copy to Clipboard](#) [Learn more about the forecast summary](#) [Close](#)

Figure 5.55 - Tableau forecast model description

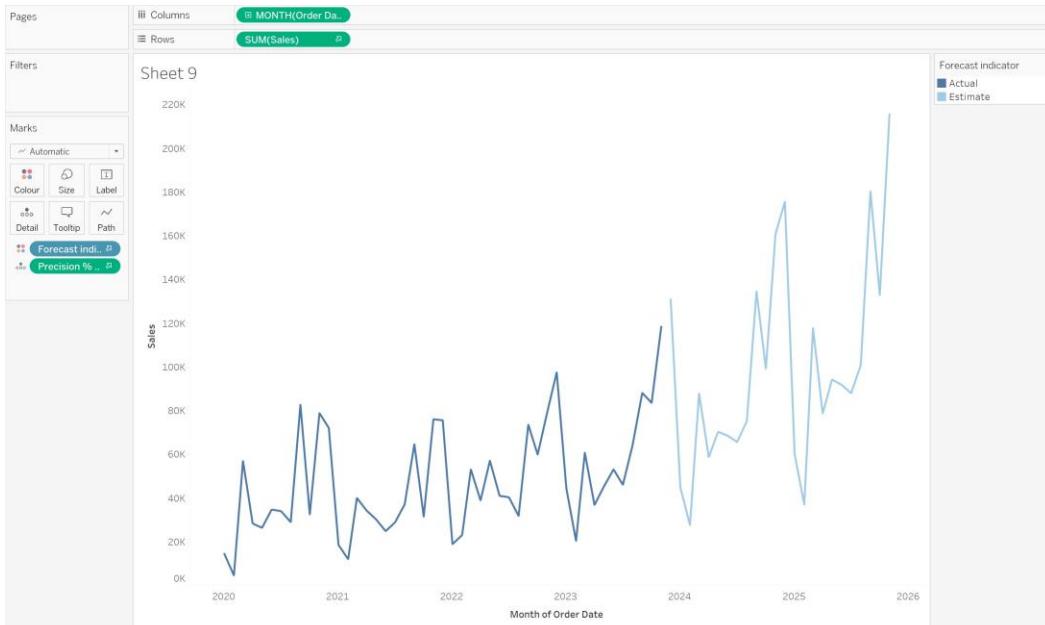


Figure 5.56 - Two-year forecast created using multiplicative trend and seasonality



Figure 5.57 - Predictive model created that predicts profit total based on sales total, placed on a view to clearly demonstrate the prediction works correctly with higher sales orders that have higher profit being colored darker

The screenshot shows a web-based learning platform interface. At the top, there's a navigation bar with a logo, 'Practice Resources', a bell icon, and a 'SHARE FEEDBACK' button. Below the navigation, the path 'DASHBOARD > CHAPTER 5' is visible. A main content area has a heading 'Charts' and a sub-section 'Summary'. The summary text discusses the aims of the chapter, requirements for building various chart types, and the use of Superstore Data. It also details the creation of geographic charts using Longitude and Latitude fields, and analytical features like reference lines and box plots. Another section mentions the creation of models for trend analysis and forecasting. At the bottom of the main content, there's a note about the next chapter covering dashboards and stories. To the right of the main content is a 'Chapter Review Questions' card. This card includes the title 'Chapter Review Questions', a subtitle 'The Tableau Certified Data Analyst Certification Guide by Harry Cooney, Daisy Jones', a 'Select Quiz' button, and a 'Quiz 1' section with a 'SHOW QUIZ DETAILS' dropdown and an orange 'START' button.

Figure 5.59 - Chapter Review Questions for Chapter 5

6

Dashboards

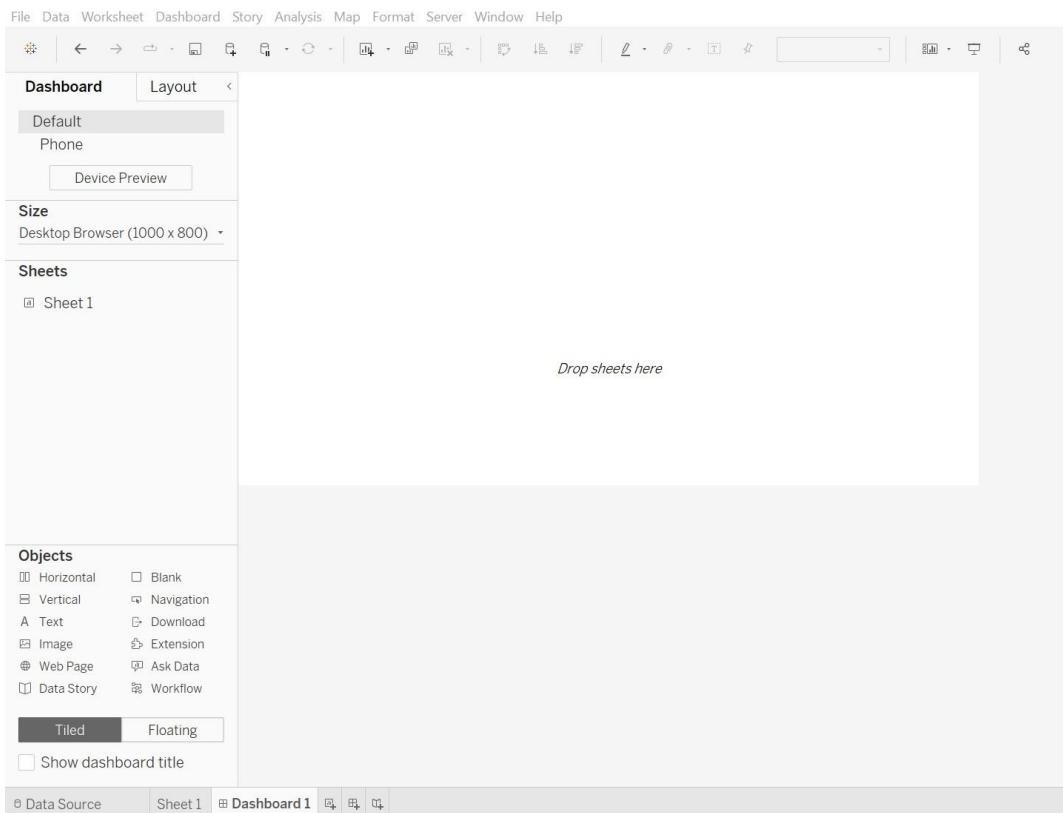


Figure 6.1: New dashboard created, ready to be configured

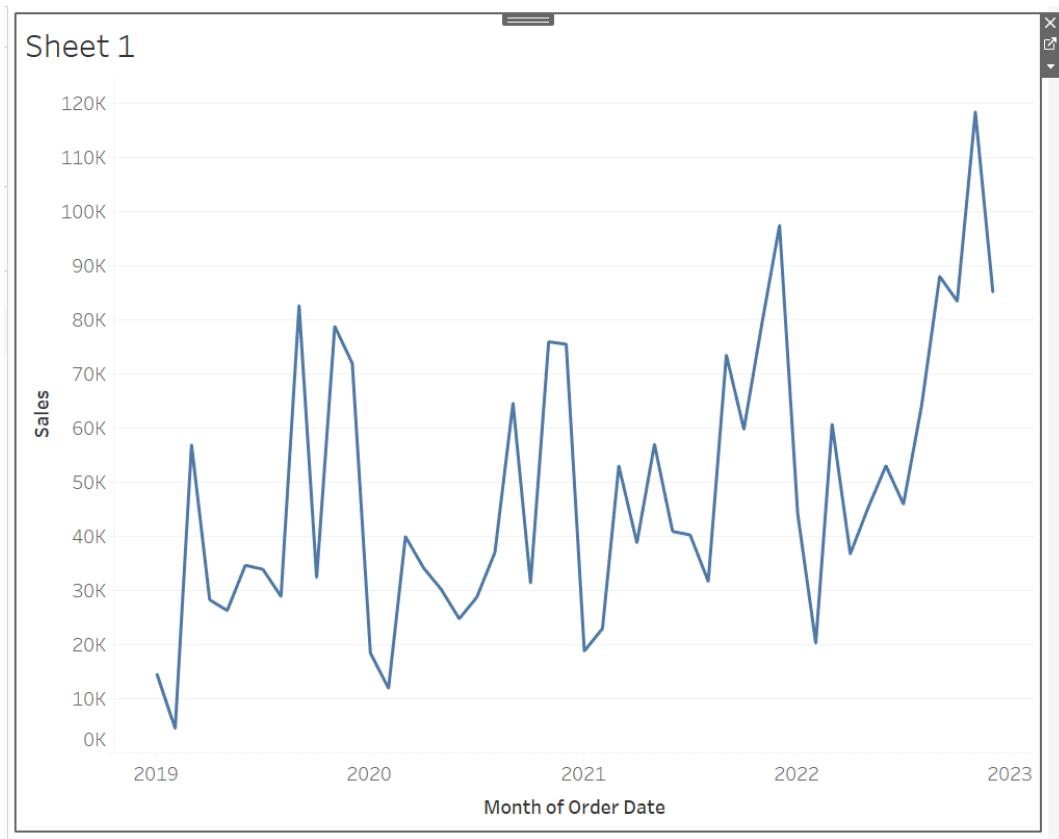


Figure 6.2: A single sheet on a dashboard is selected, resulting in a gray outline

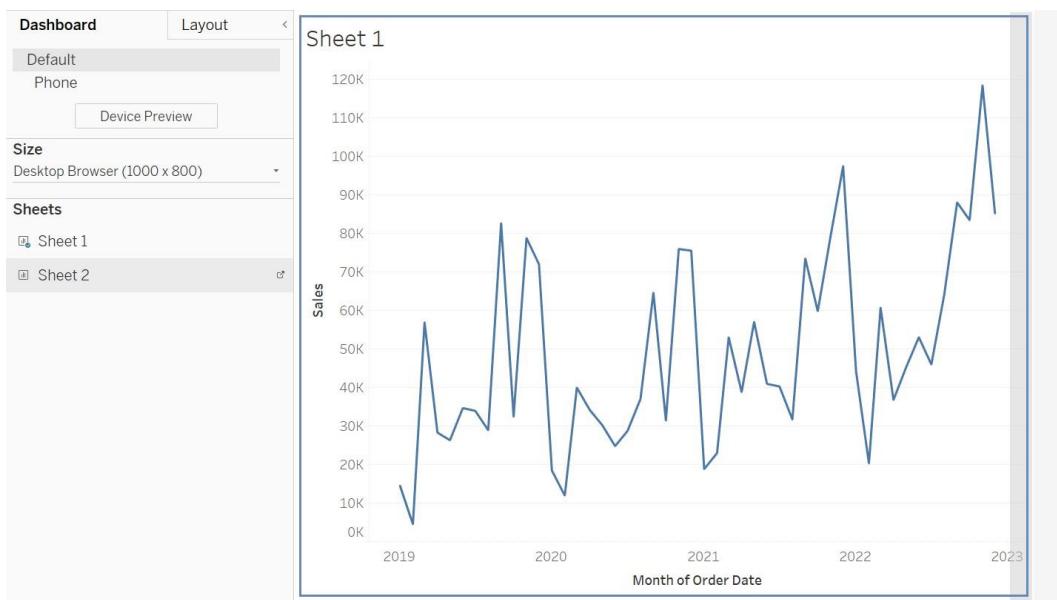


Figure 6.3: Sheet 2 is being added to a container along with Sheet 1 - it is being placed to the right, resulting in a horizontal container

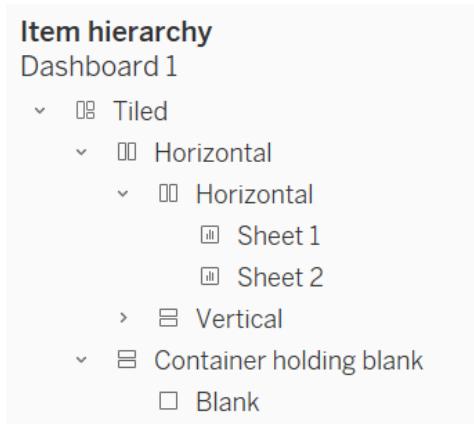


Figure 6.4: Item hierarchy showing multiple containers and objects within

- there is a horizontal and vertical container within a horizontal container;
- a container item has been renamed Container holding blank

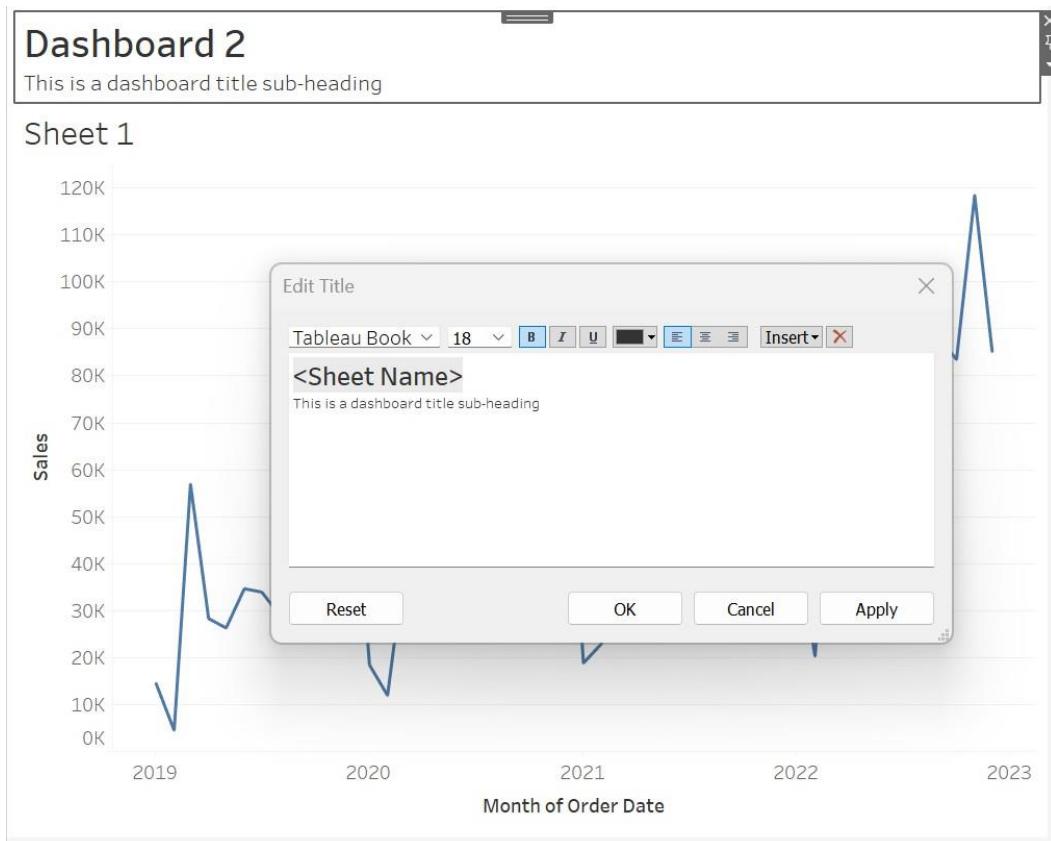


Figure 6.5: Textbox configuration with varied text formatting and a dynamic title set using the sheet name

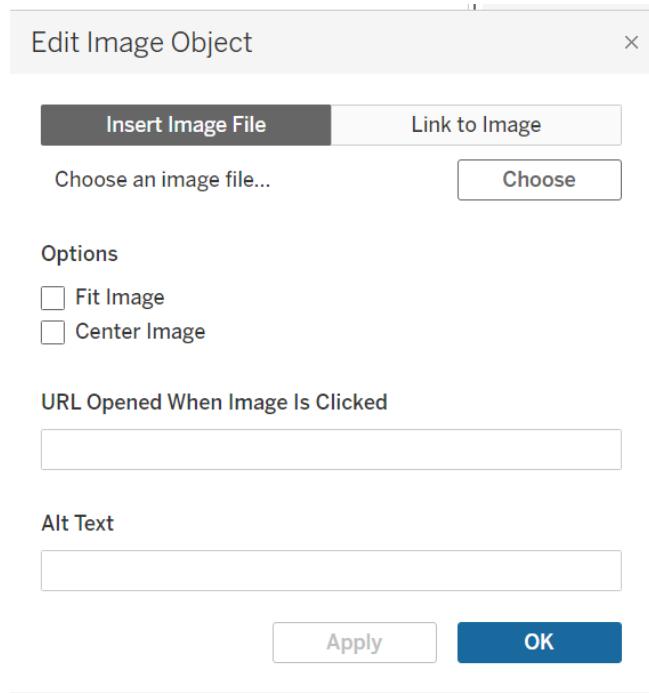


Figure 6.6: Image dashboard object configuration options

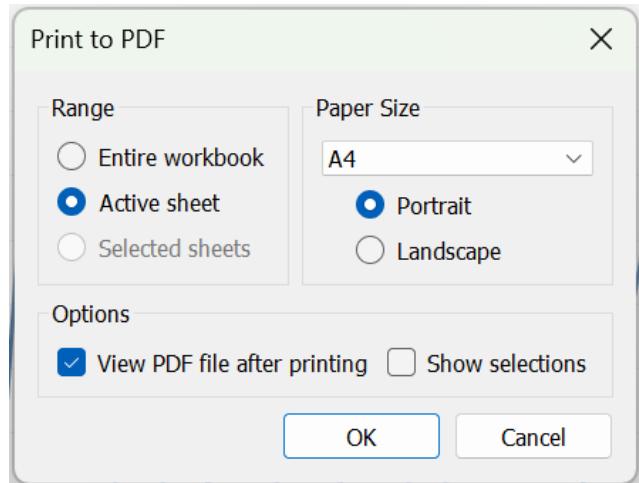


Figure 6.7: Download options after the Download to PDF button clicked

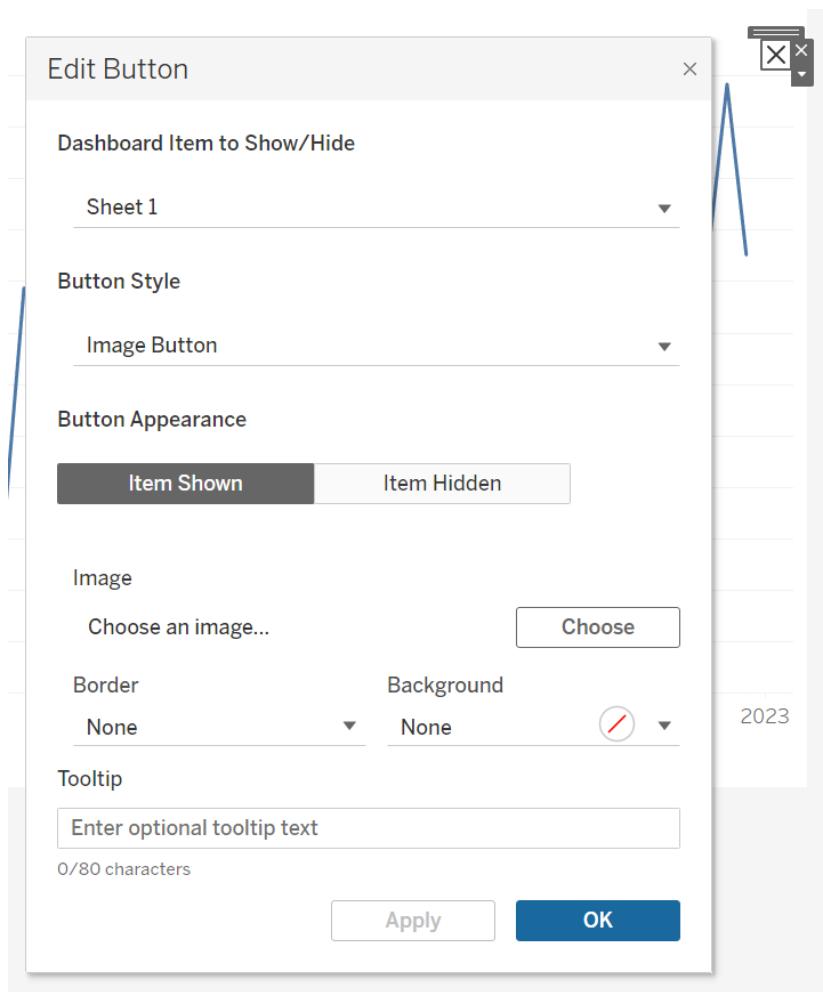


Figure 6.8: Show/hide button configuration with the default x button visible at the top right

Add an Extension

Search

Features

- Built by Tableau + Salesforce
- Free
- Sandboxed
- Works with Tableau Public

Categories

- All
- Advanced Analytics
- Custom Filters
- Custom Viz Actions
- Monitoring & Stewardship
- Natural Language Generation
- New Viz Types
- Parameter Tools
- Viz Formatting
- Write & Export Data

Access Local Extensions ⓘ

Dashboard Extensions are made available through the [Tableau Exchange](#) which is subject to the [Tableau Terms of Service](#).

Browse Dashboard Extensions

Extension	Developer	Downloads
Pixel Perfect	by USEReady	5.8K
Synchronized Refresh	by phData	286
Kinetica Geospatial Analytics	by Kinetica	4.5K
HierarchyFilter	by Infotopics Apps for Tableau	8.5K
Add Filters Extension	by Tableau	23K

Figure 6.9: Tableau extension browsing and selection

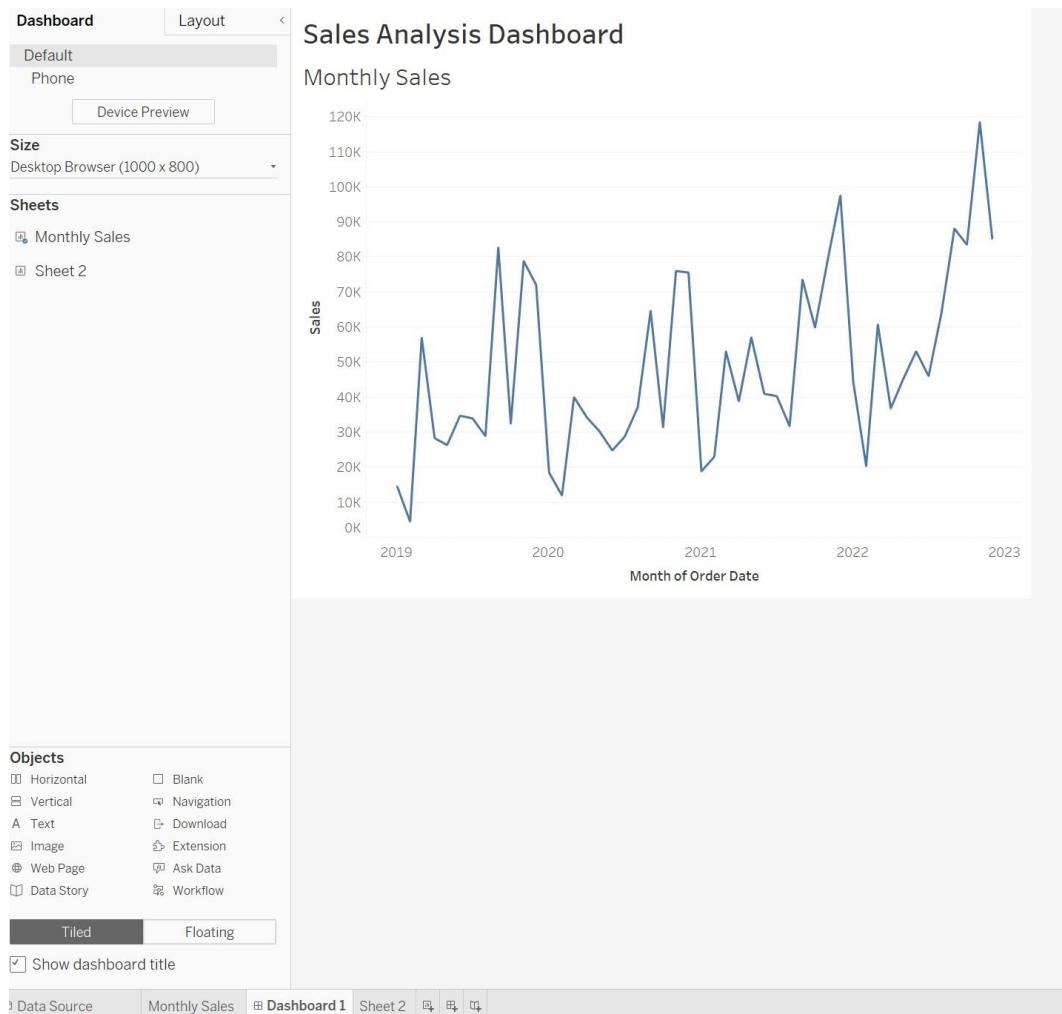


Figure 6.10: A new dashboard was created with a chart and a title added

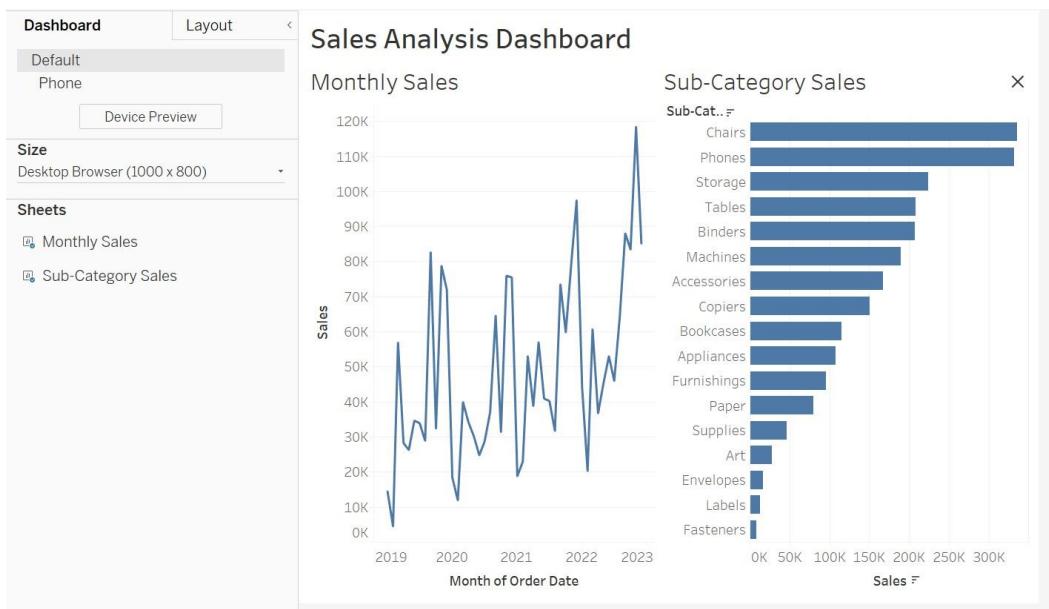


Figure 6.11: The Dashboard now has two sheets within a container

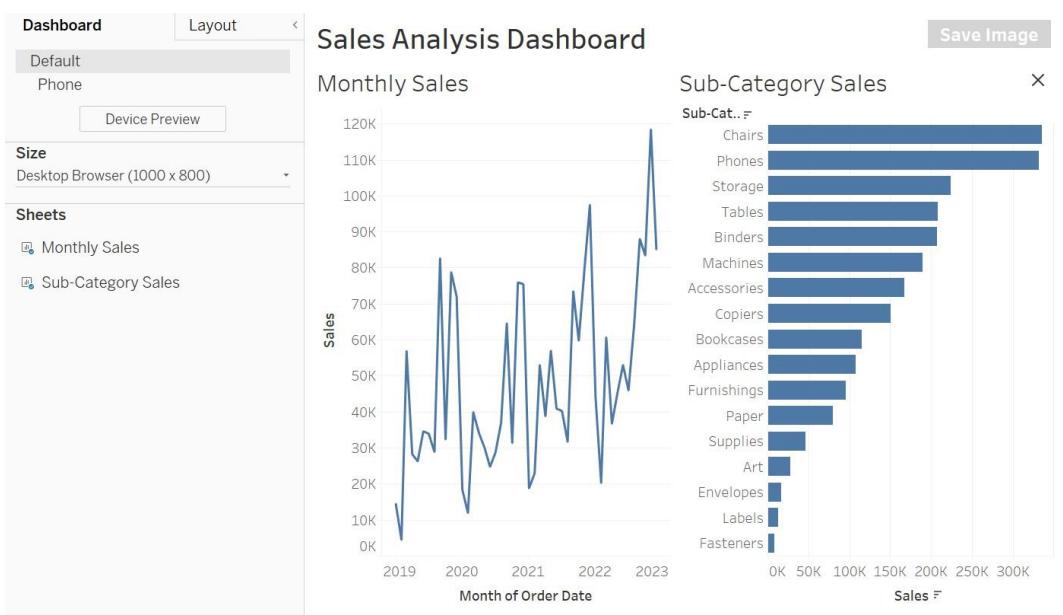


Figure 6.12: Download and show/hide buttons added to the dashboard

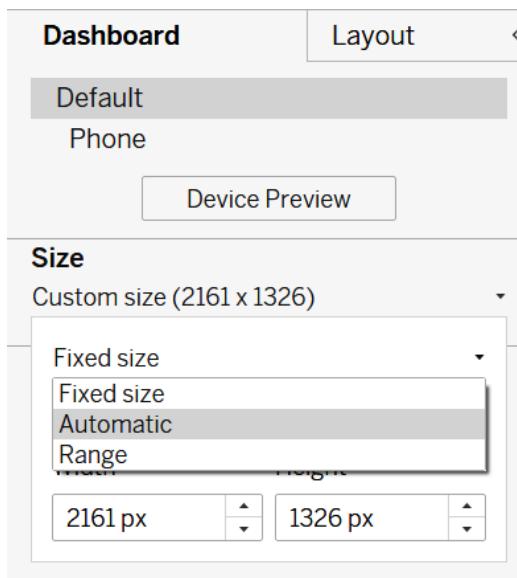


Figure 6.13: Dashboard canvas size options

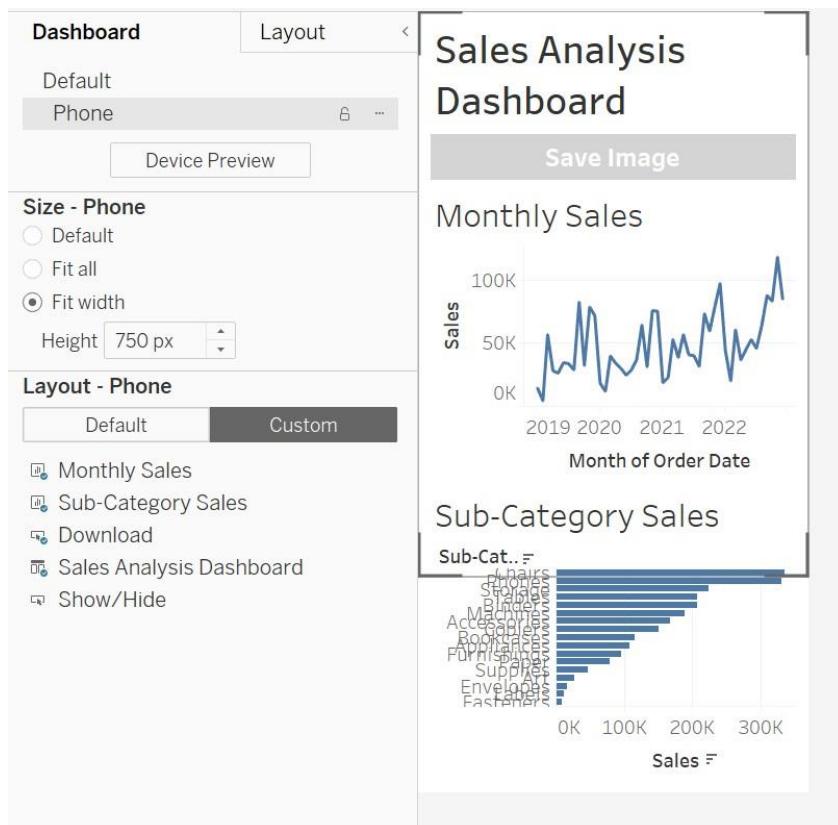


Figure 6.14: The Phone layout selected with content fit to phone width size and with the sub-category sales bar chart, which requires the phone user to scroll down to

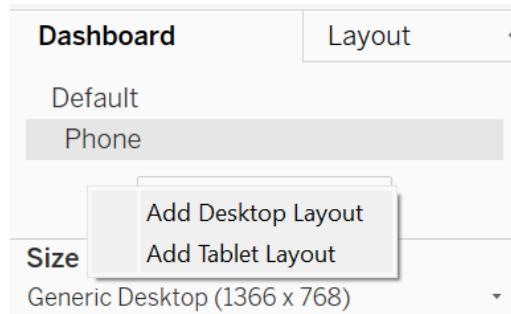


Figure 6.15: Additional layout options

A screenshot of the Tableau mobile application. The top bar shows 'Device Preview', 'Device type: Phone', 'Model: iPhone X, XS, 11, 11 Pro (375 x 812)', and a checked 'Tableau Mobile app' checkbox. The main area displays a 'Sales Analysis Dashboard' with a line chart titled 'Monthly Sales' showing sales over time from 2019 to 2022. On the left, the 'Layout' panel is open, showing settings for 'Size - Phone' (Fit width, Height 750 px) and 'Layout - Phone' (Default, Custom). Under 'Layout - Phone', there are several options: 'Monthly Sales' (selected), 'Sub-Category Sales', 'Download', 'Sales Analysis Dashboard', and 'Show/Hide'.

Figure 6.16: Previewing the dashboard experience of various iPhone model users on the Tableau mobile app



Figure 6.17: The Tiled and Floating selection with Floating selected

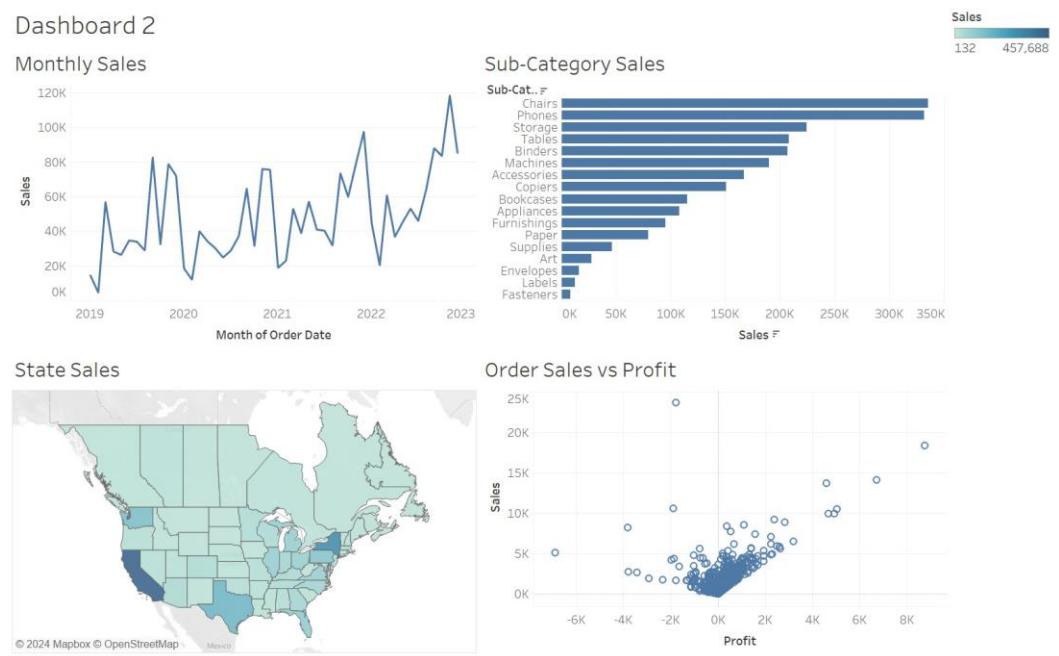


Figure 6.18: Tableau dashboard with a Tiled layout - objects are positioned in a grid-like fashion with no overlap

Dashboard 2

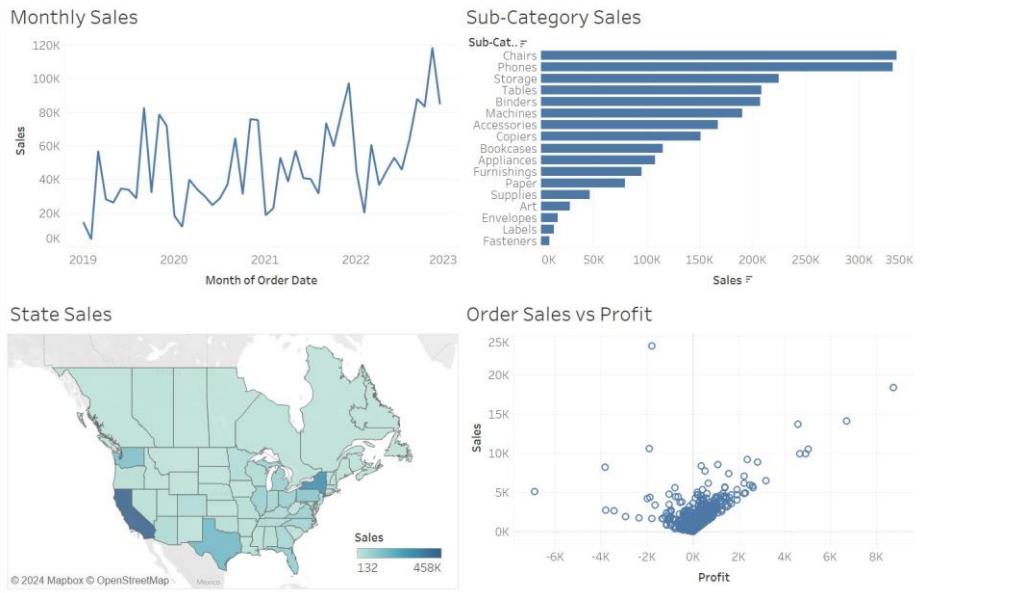


Figure 6.19: The Sales color legend is no longer a tiled object but rather floating on top of the State Sales chart

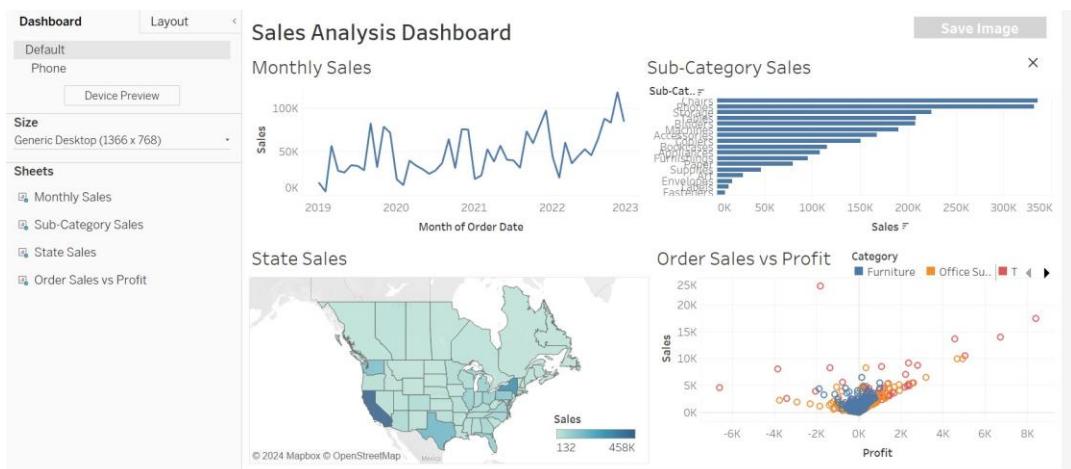


Figure 6.20: Tiled charts added to the dashboard and legends converted to floating and repositioned

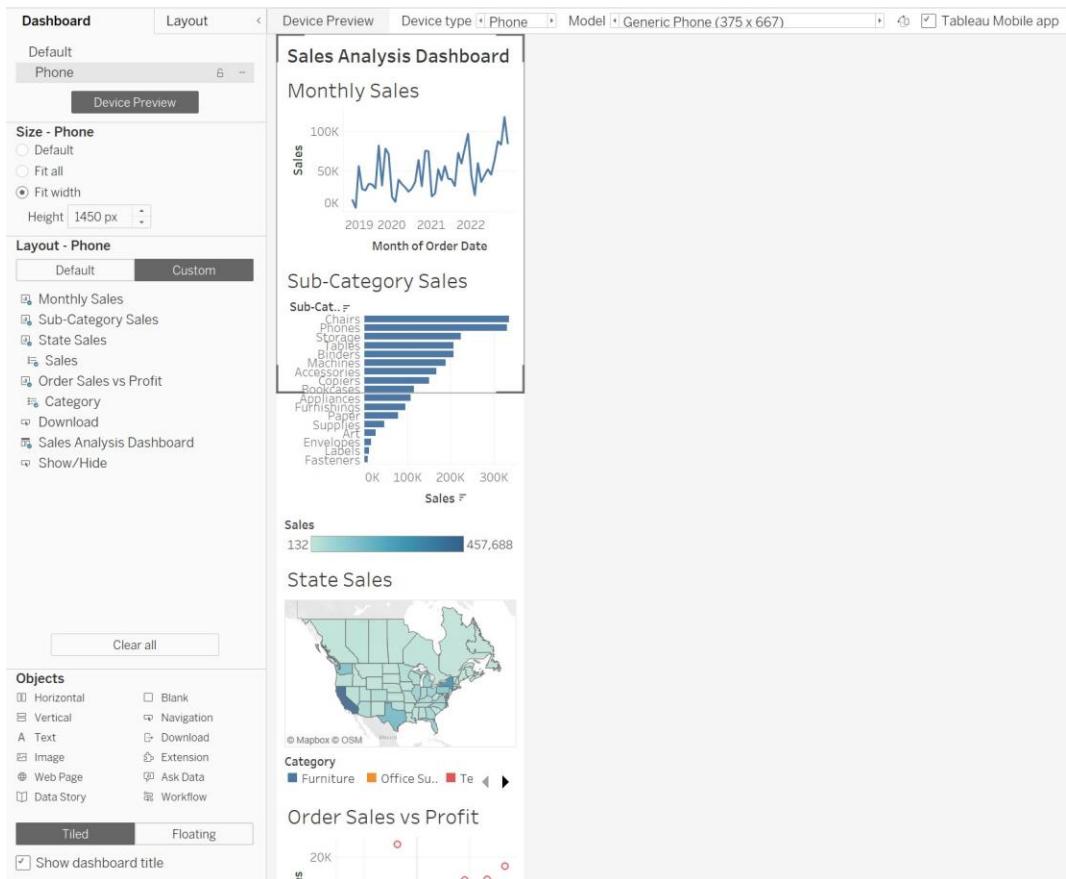


Figure 6.21: The Default and Phone layouts for the dashboard configured

Actions

Actions let you create interactive relationships between data, dashboard objects, other worksheets, and the web.

Show actions for

This workbook This sheet

Name	Run On	Source	Fields
Filter all charts to selected sub-category	Menu	Dashboard 1 (Sub-Ca...)	Sub-Category
Highlight Category	Hover	Dashboard 1 (Order S...)	Category
State Search Wikipedia	Select	Dashboard 1 (State S...)	State/Province
Filter 2 (generated)	Select	Dashboard 1 (Monthl...)	All

Add Action ▾

Edit Remove

Cancel OK

Figure 6.22: The Actions configuration showing all of the actions in the workbook, including two filters, a highlight, and a URL action

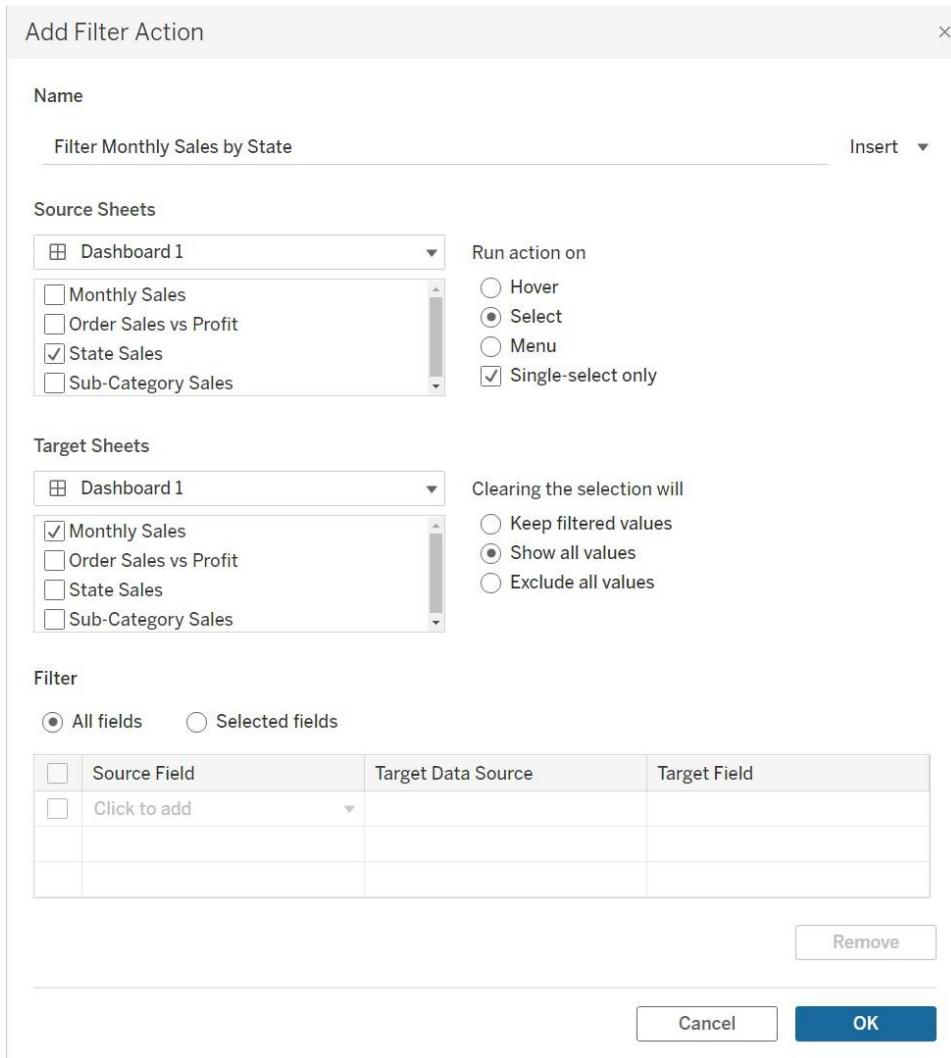


Figure 6.23: Filter action set up, which filters a *Monthly Sales* chart by selected States from the *State Sales*

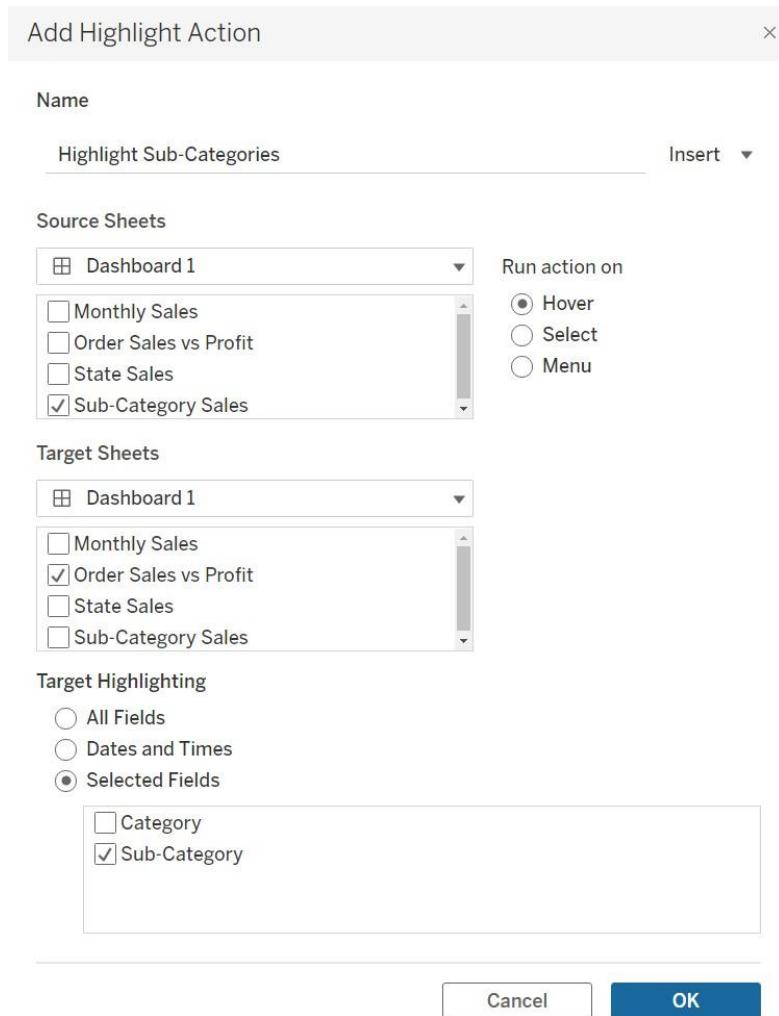


Figure 6.24: A highlight action that highlights subcategories on the Order Sales versus Profit sheet based on the users hovering over the Sub-Category Sales sheet

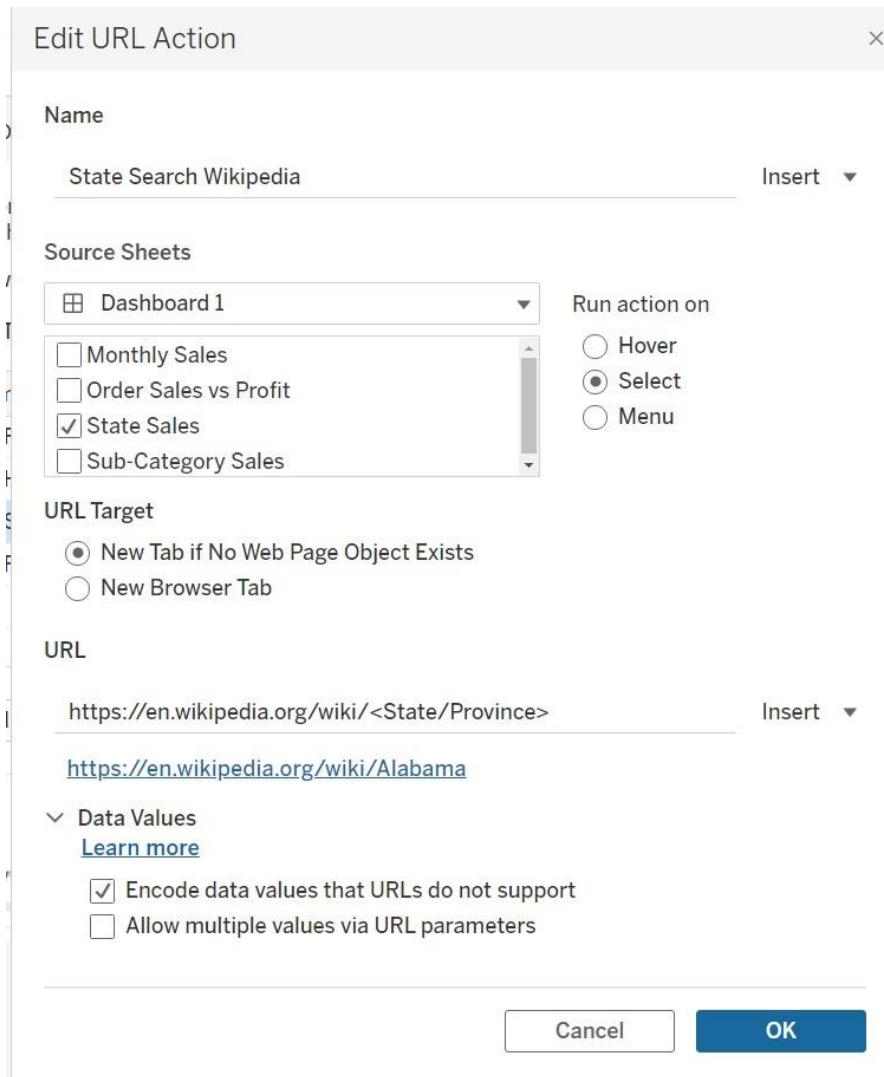


Figure 6.25: A URL action that opens up Wikipedia articles on the selected state from the State Sales sheet in the web page object on the dashboard or in a new browser tab if one does not exist

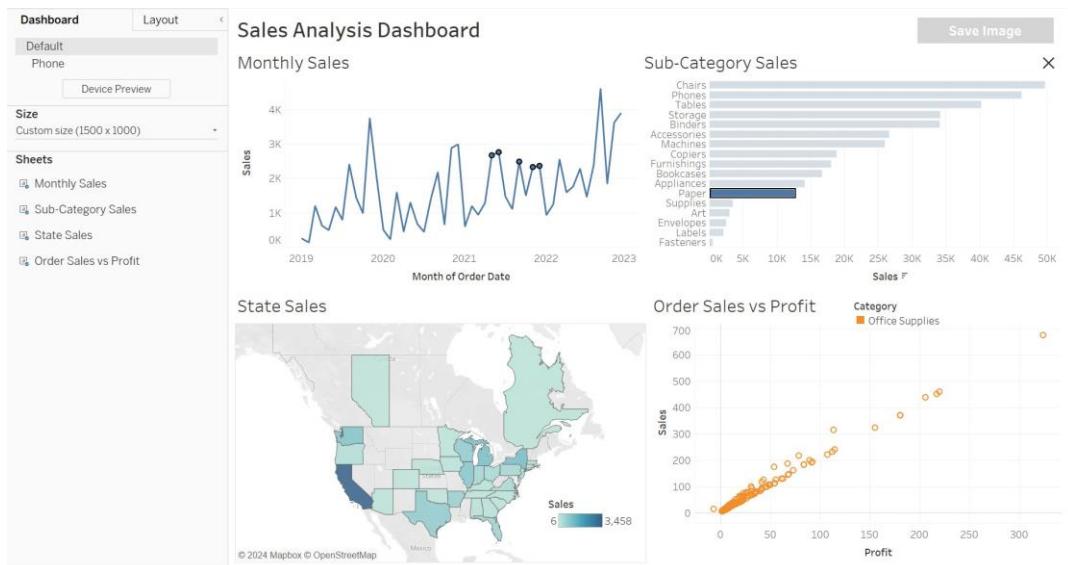


Figure 6.26: A filter action created on Sub-Category Sales as well as Monthly Sales



Figure 6.27: Highlight action added - hovering over a scatterplot mark highlights the corresponding category in Sub-Category Sales

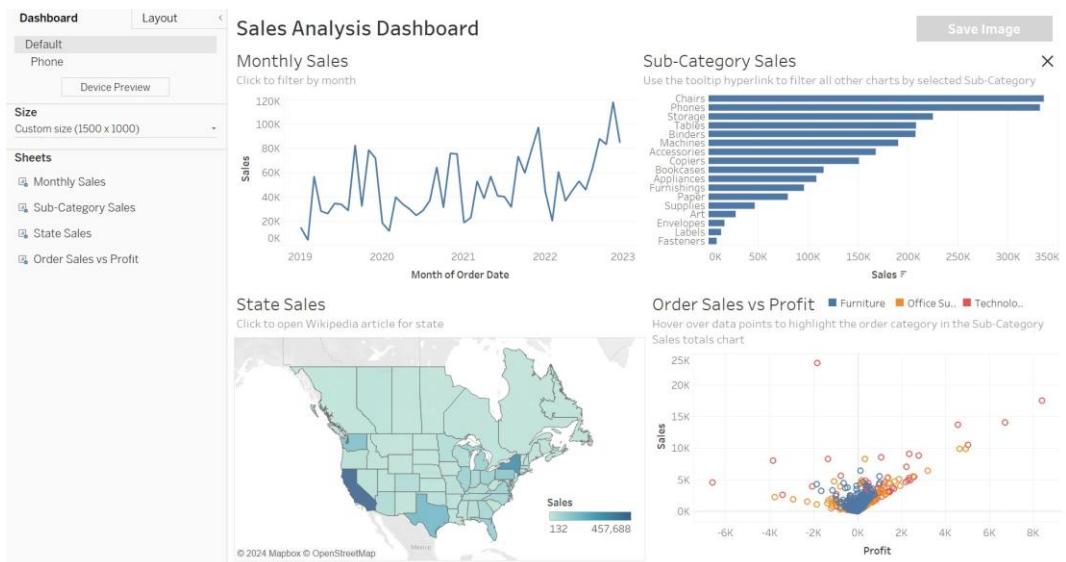


Figure 6.28: Guiding sentences added to inform end users how to interact with the dashboard

Apply Filter to Worksheets [Category]

Filter will be applied to 4 worksheets.

Worksheets
 Monthly Sales
 Sub-Category Sales
 State Sales
 Order Sales vs Profit

Select all on dashboard Show all worksheets in workbook

Figure 6.29: Apply filter to selected worksheets configuration

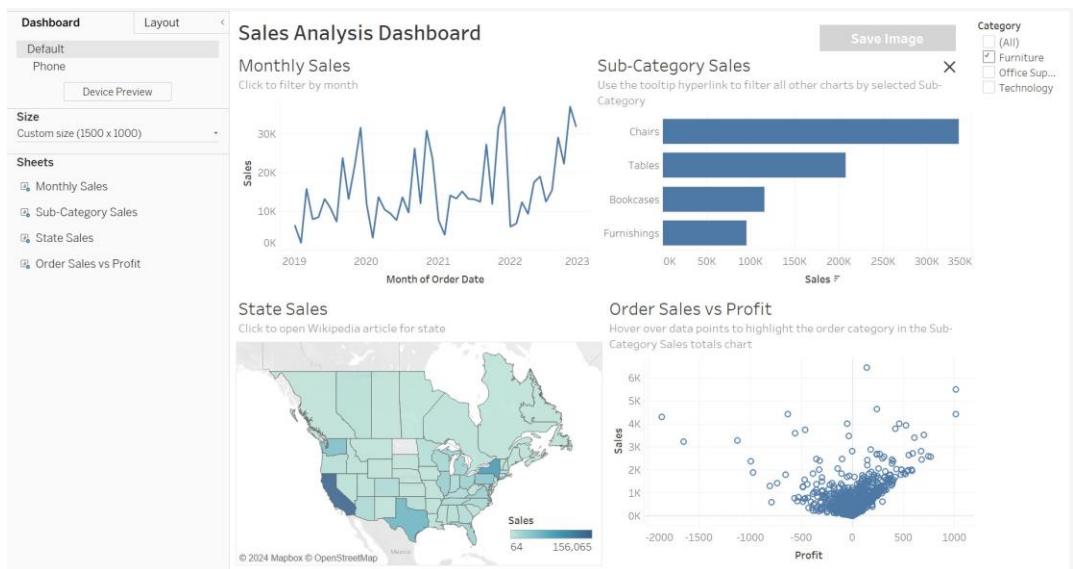


Figure 6.30: Filter added to the dashboard and applied to all sheets on the dashboard

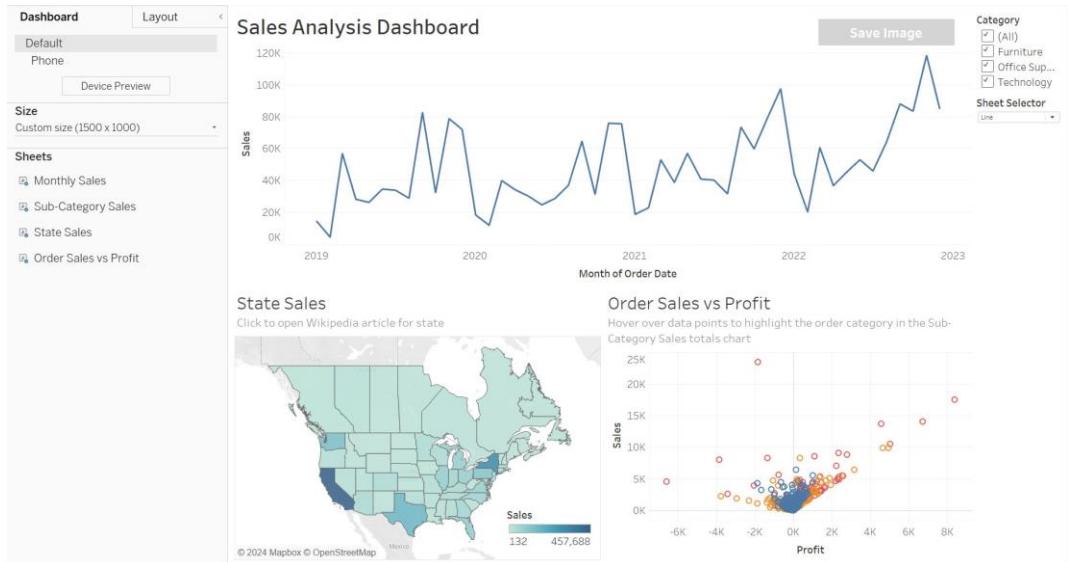


Figure 6.31: Sheet selector/swapper created and applied to the dashboard

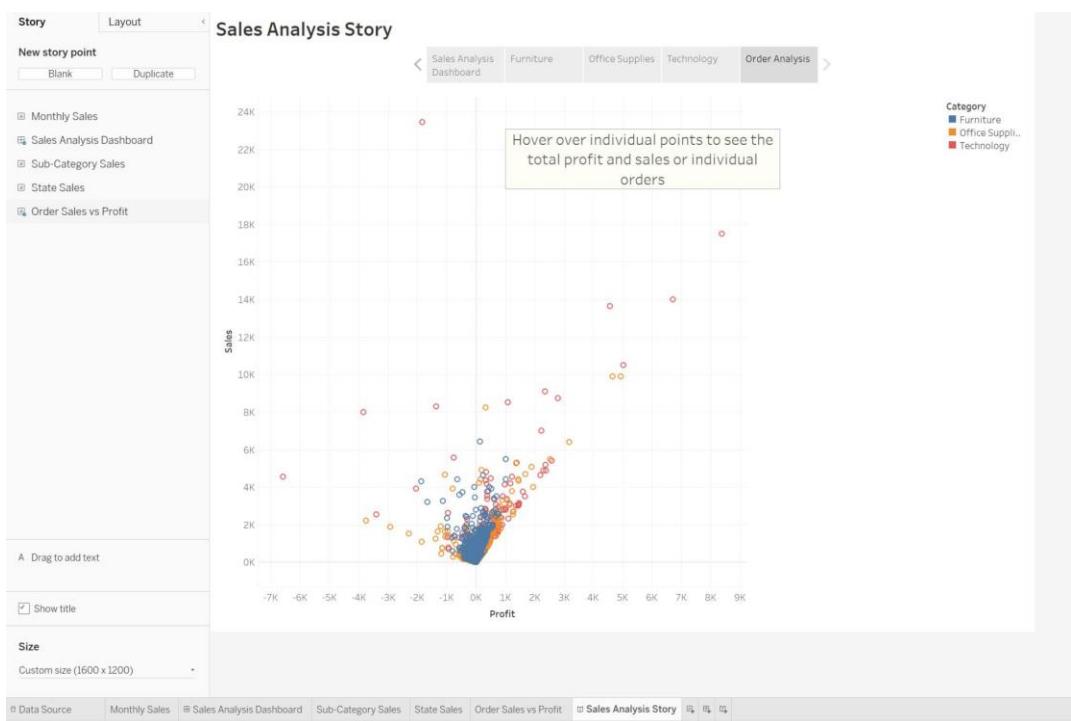


Figure 6.32: The Tableau story created that takes the user from a high-level overview through a more detailed analysis and ends with a low-level piece of analysis and some user instruction

The screenshot shows a web-based learning platform interface. At the top, there's a dark header bar with the 'Practice Resources' logo, a bell icon for notifications, and a 'SHARE FEEDBACK' button. Below the header, the main content area has a light gray background. On the left, a sidebar titled 'Dashboards' contains a 'Summary' section. This summary includes several paragraphs of text explaining dashboard features like consolidation, interactivity, and stories. It also mentions the creation of dashboards with various objects and the use of actions and filters. Below this text, it says 'The next chapter will cover formatting in Tableau dashboards.' To the right of the summary is a dark rectangular box titled 'Chapter Review Questions'. It displays the title 'Chapter Review Questions', the subtitle 'The Tableau Certified Data Analyst Certification Guide by Harry Cooney, Daisy Jones', and a 'Select Quiz' section. Under 'Select Quiz', there's a 'Quiz 1' entry with a 'SHOW QUIZ DETAILS' dropdown menu and a 'START' button.

DASHBOARD > CHAPTER 6

Dashboards

Summary

In Tableau, multiple individual visualizations can be consolidated into a more advanced piece of analysis called a dashboard. Dashboards can consist of a variety of different objects, the main one being charts created on sheets. Charts can be made to interact with each other and how the user interacts with a dashboard is customizable by the developer. In addition to cross-sheet interactivity, filters can be included that apply to multiple sheets and sheets can be swapped in and out of the dashboard. Dashboards and sheets can be combined into a narrative using the Tableau stories feature.

When it comes to dashboard creation, there is a variety of objects in addition to charts that can be brought onto the canvas. These range in function from decorative to functional. How objects sit on a dashboard can also vary between tiled and floating, which each offers different benefits and drawbacks. When designing the dashboard, the canvas size can also be configured, and multiple layouts can be created for varying devices.

There are many ways to add interactivity to dashboards with actions that link charts together, such as highlighting and filtering, as well as actions that link to specific URLs. Drop-down filters can also provide interactivity across multiple worksheets and sheets can also be configured to be swapped in and out based on a parameter selection.

Stories allow users to connect dashboards and worksheets into a single cohesive narrative with annotated points and fixed pieces of analysis throughout.

The next chapter will cover formatting in Tableau dashboards.

Chapter Review Questions

The Tableau Certified Data Analyst Certification Guide
by Harry Cooney, Daisy Jones

Select Quiz

Quiz 1

SHOW QUIZ DETAILS ▾

START

Figure 6.34 - Chapter Review Questions for Chapter 6

7

Formatting

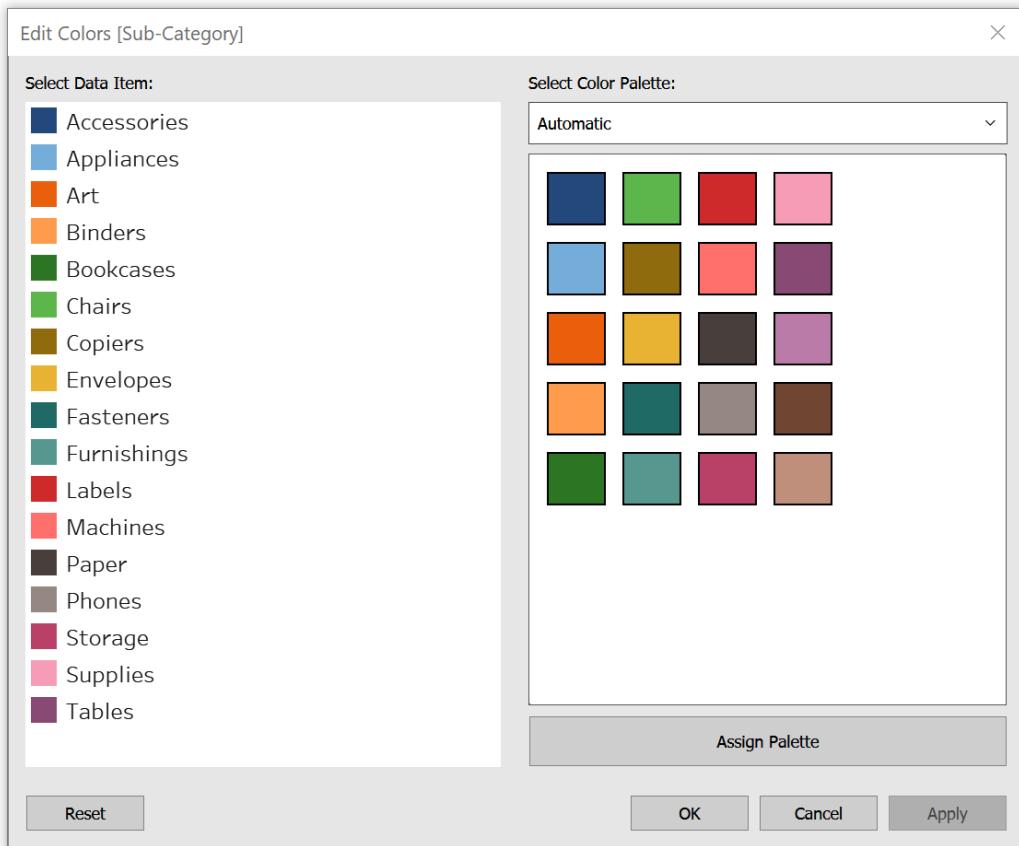


Figure 7.1: An example of a categorical palette

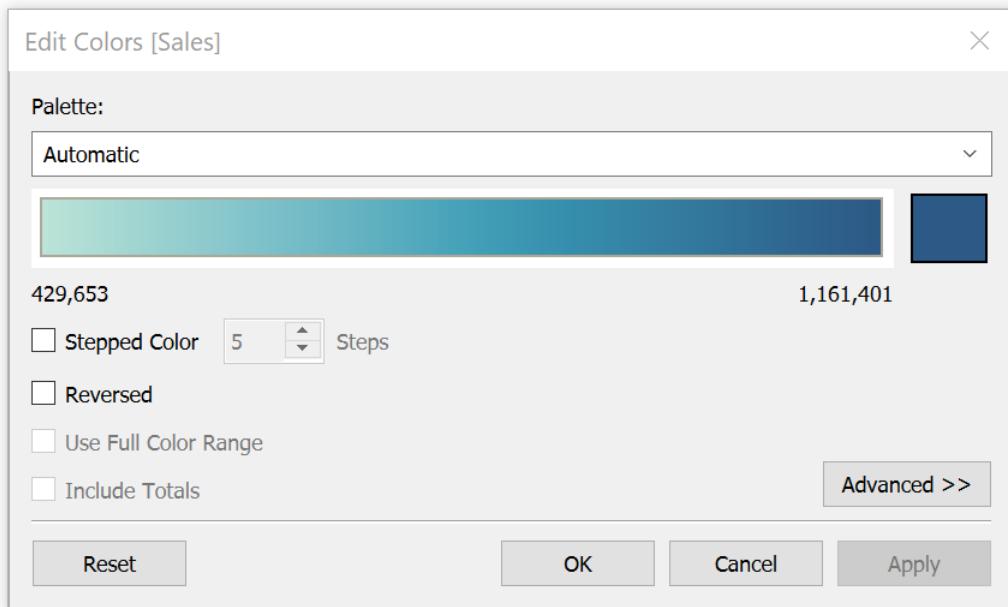


Figure 7.2: An example of a quantitative palette

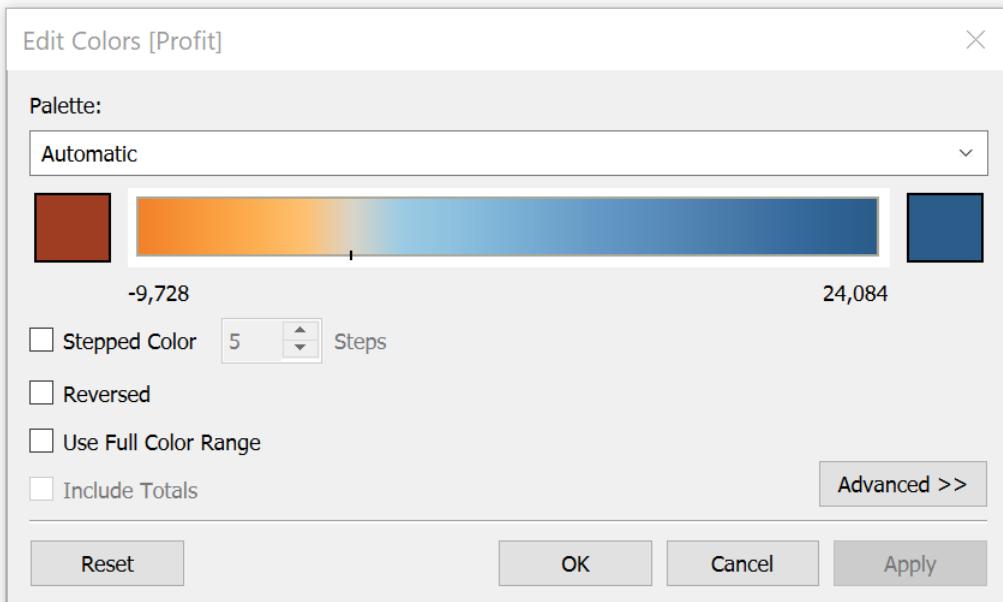


Figure 7.3: A quantitative palette with negative values

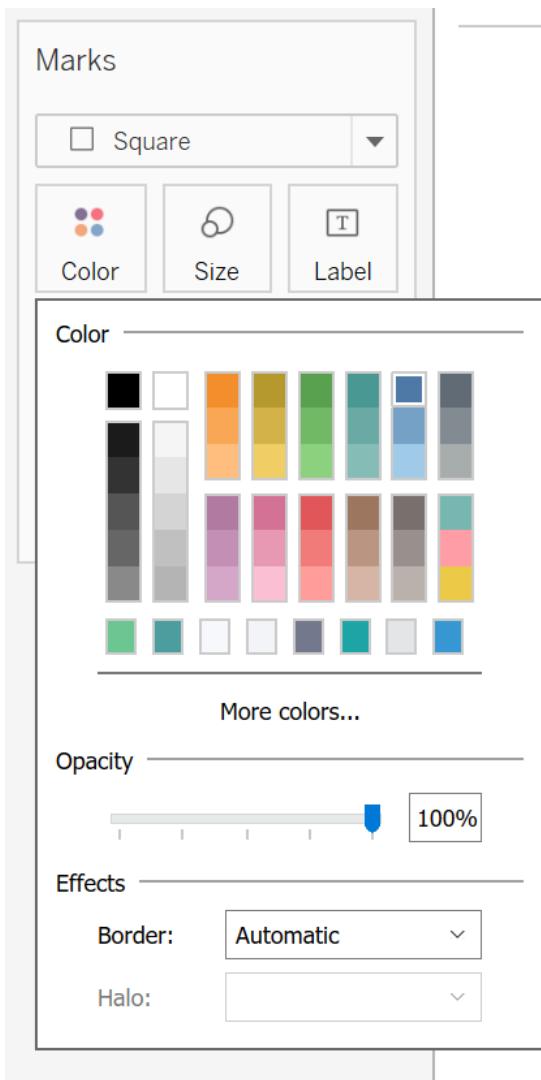


Figure 7.4: Color options on the Marks card

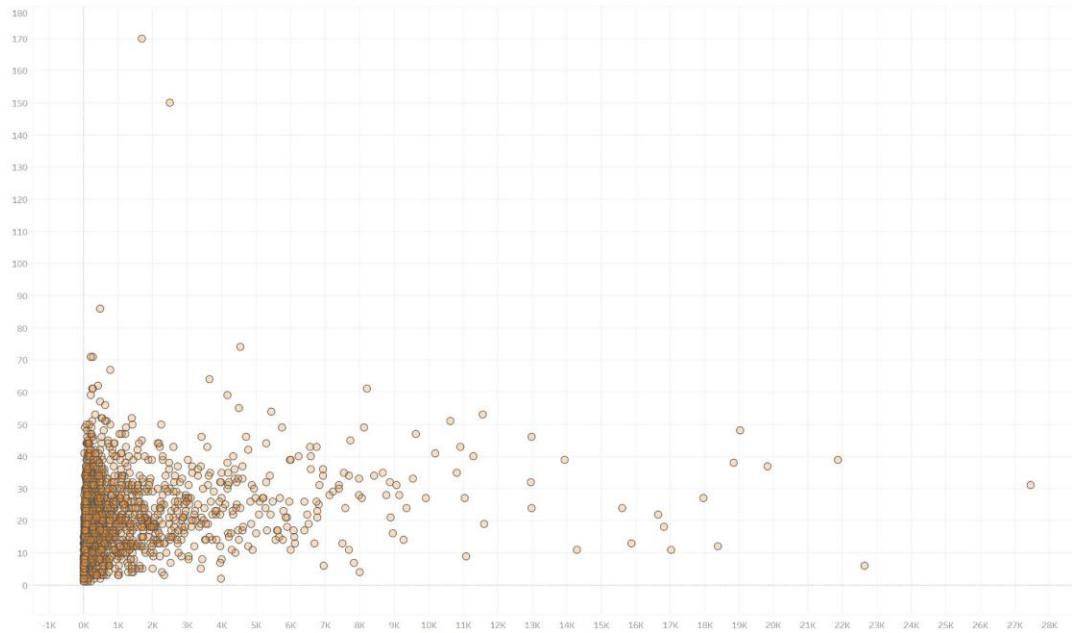


Figure 7.5: A chart with a border

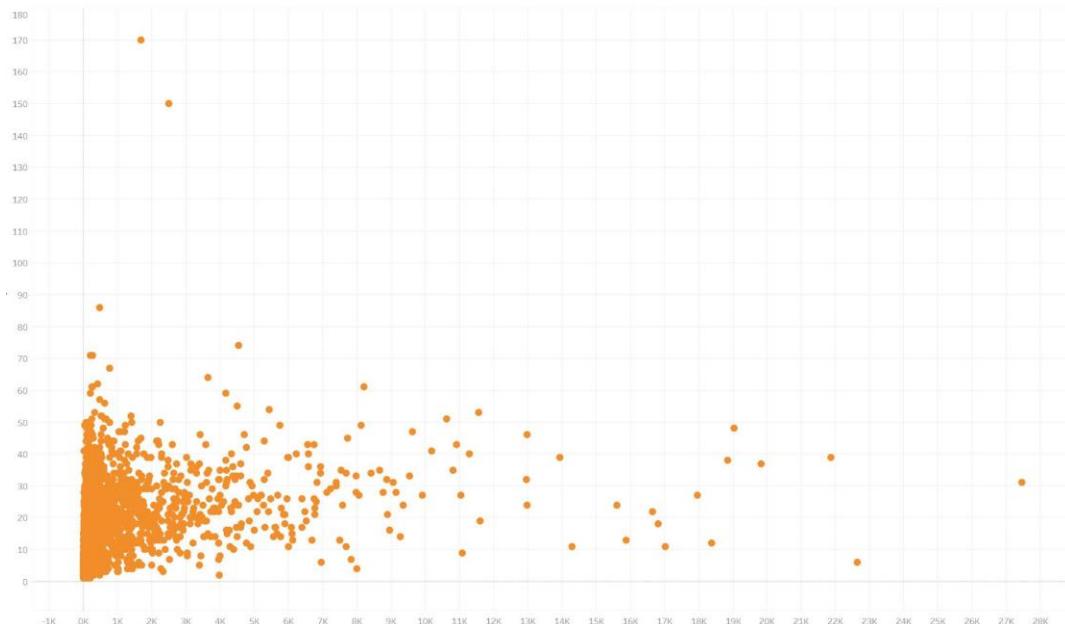


Figure 7.6: A chart without borders on the data points

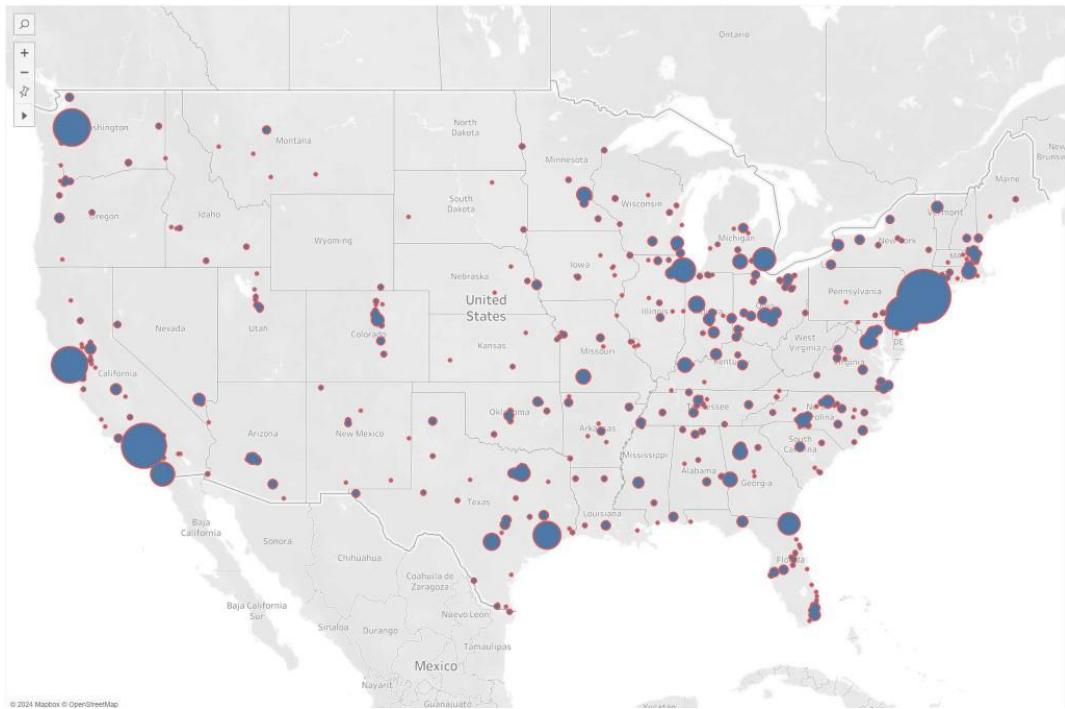


Figure 7.7: A map with halos



Figure 7.8: The pane showing areas where fonts are used

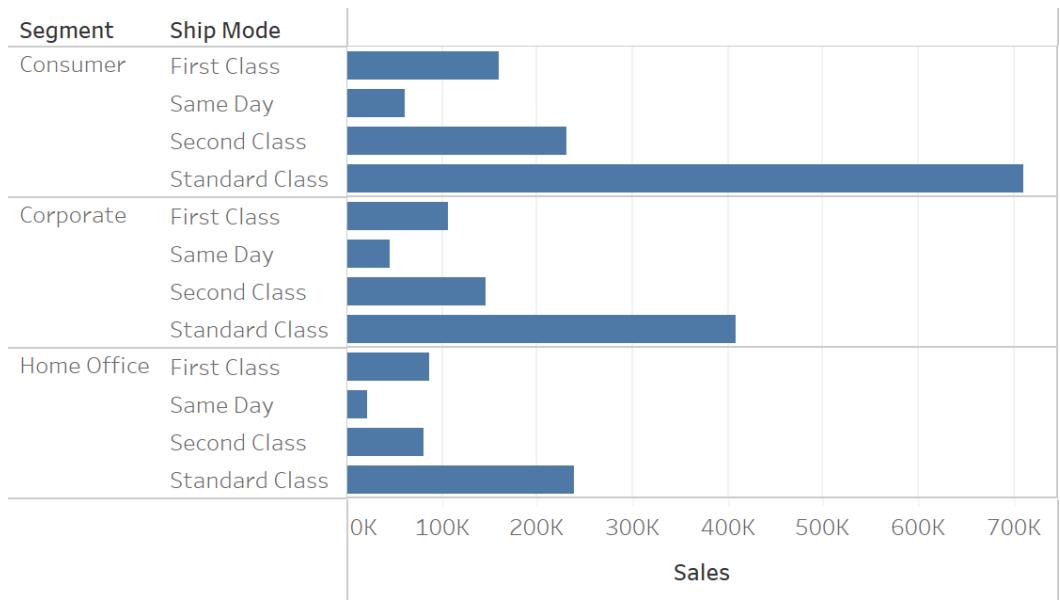


Figure 7.9: A chart with no text formatting

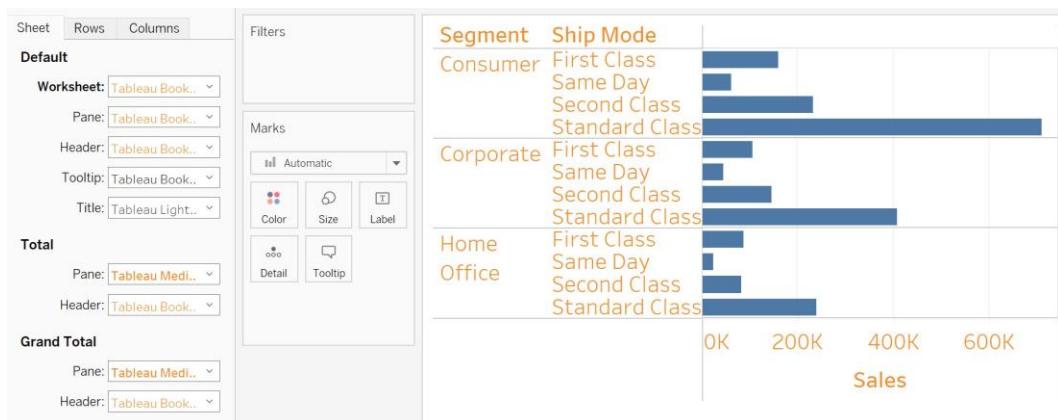


Figure 7.10: A chart with orange text and a larger font size

Pane: Tableau Book..

Figure 7.11: Take a look at the Pane option

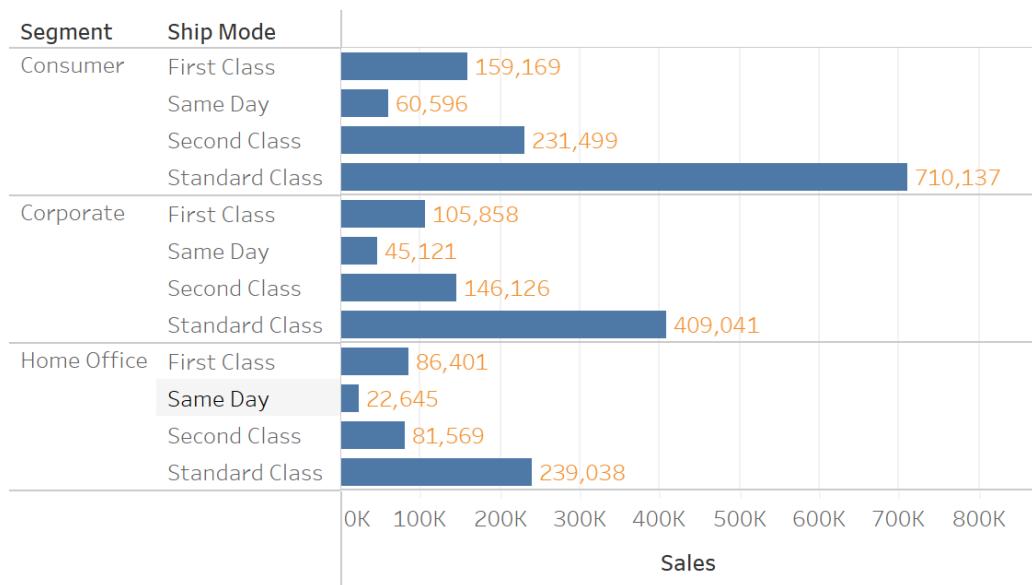


Figure 7.12: A color and size change to the text in the chart

Header: Tableau Book.. ▾

Figure 7.13: Selecting the header



Figure 7.14: Color changes in the headers

Tooltip: Tableau Book.. ▾

Figure 7.15: Changing the tooltips



Figure 7.16: A tooltip color change

Title: Tableau Light.. ▾

Figure 7.17: Updating the title of a worksheet

Ship Mode by Segment

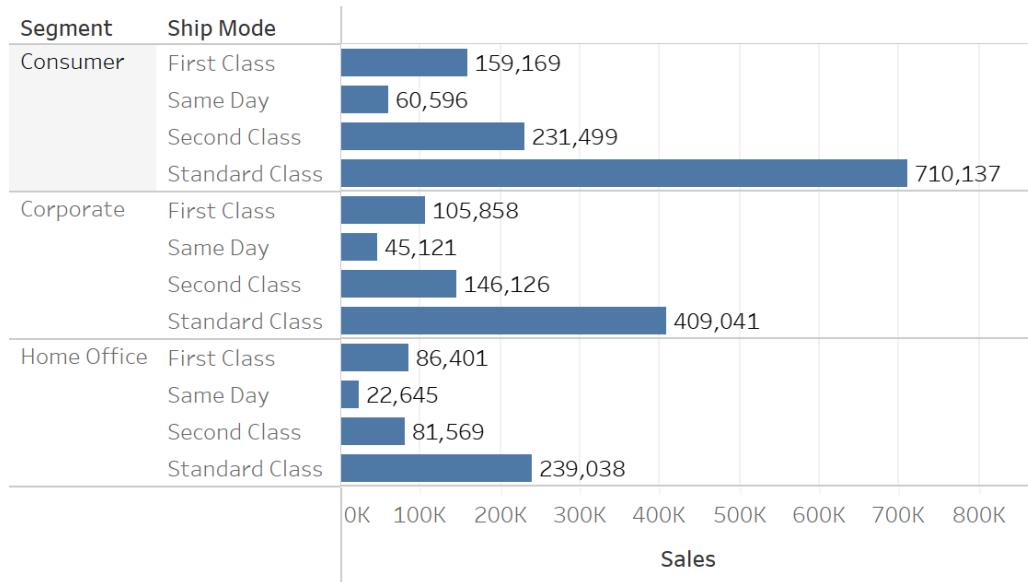


Figure 7.18: A title change

Total

Pane: Tableau Medi.. ▾

Figure 7.19: The Total pane

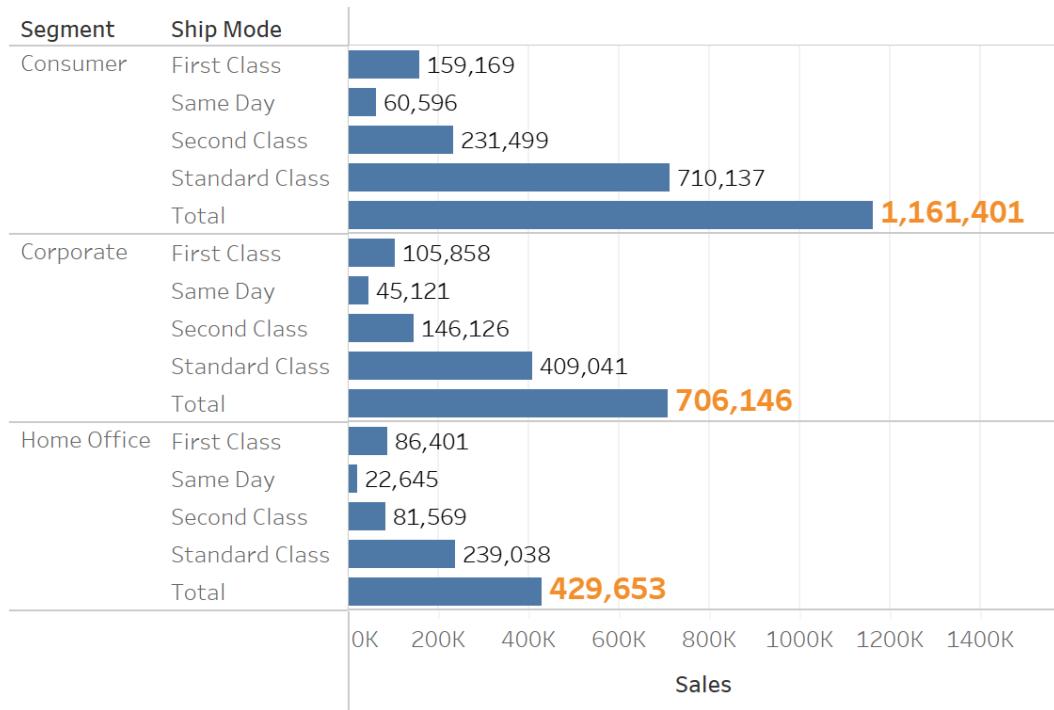


Figure 7.20: Total changes



Figure 7.21: Making changes to Pane and Header

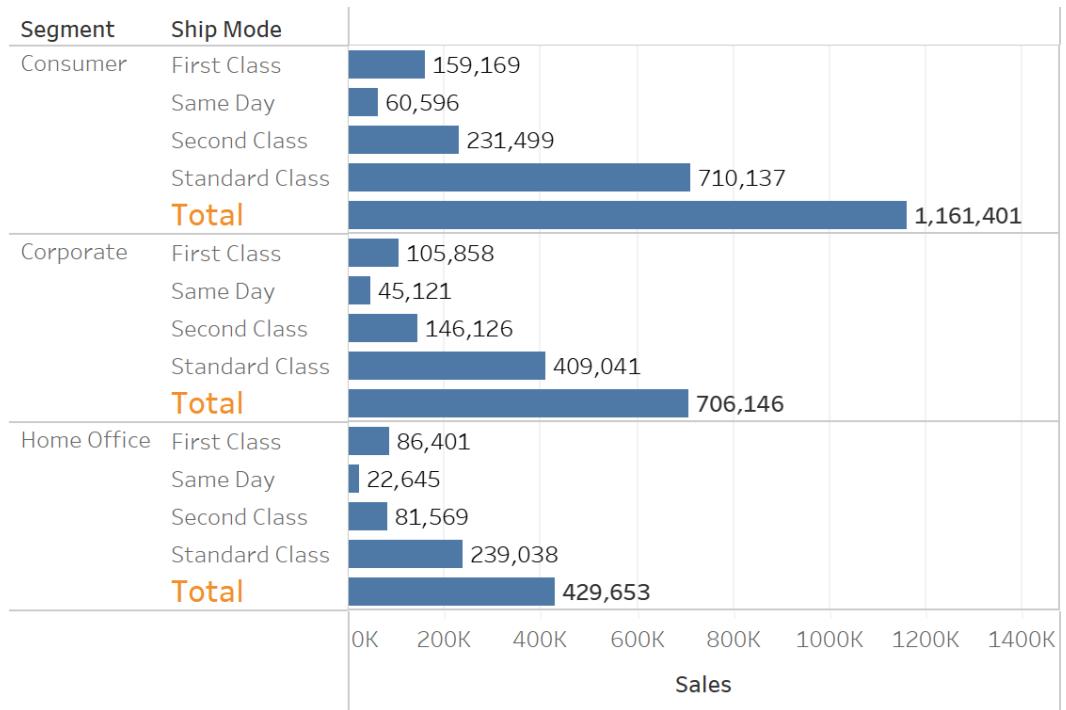


Figure 7.22: Total header updates

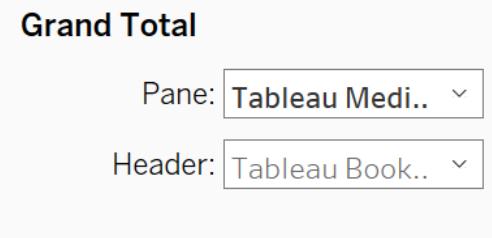


Figure 7.23: Using Grand Total

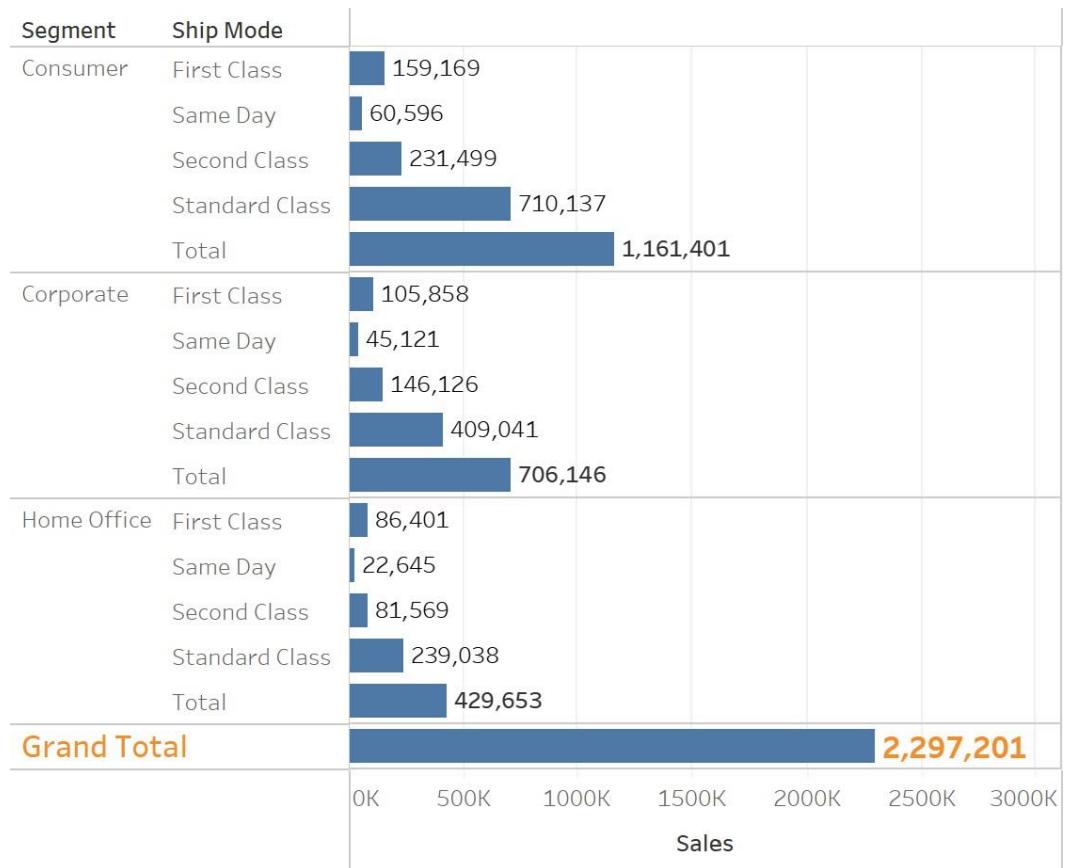


Figure 7.24: A Grand Total update

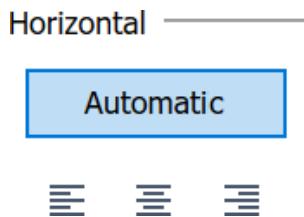


Figure 7.25: Changing alignment using Horizontal

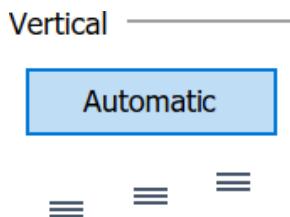


Figure 7.26: Changing alignment using Vertical

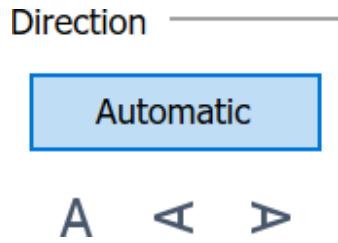


Figure 7.27: Changing alignment using Direction

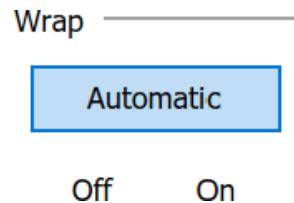


Figure 7.28: Changing alignment using Wrap

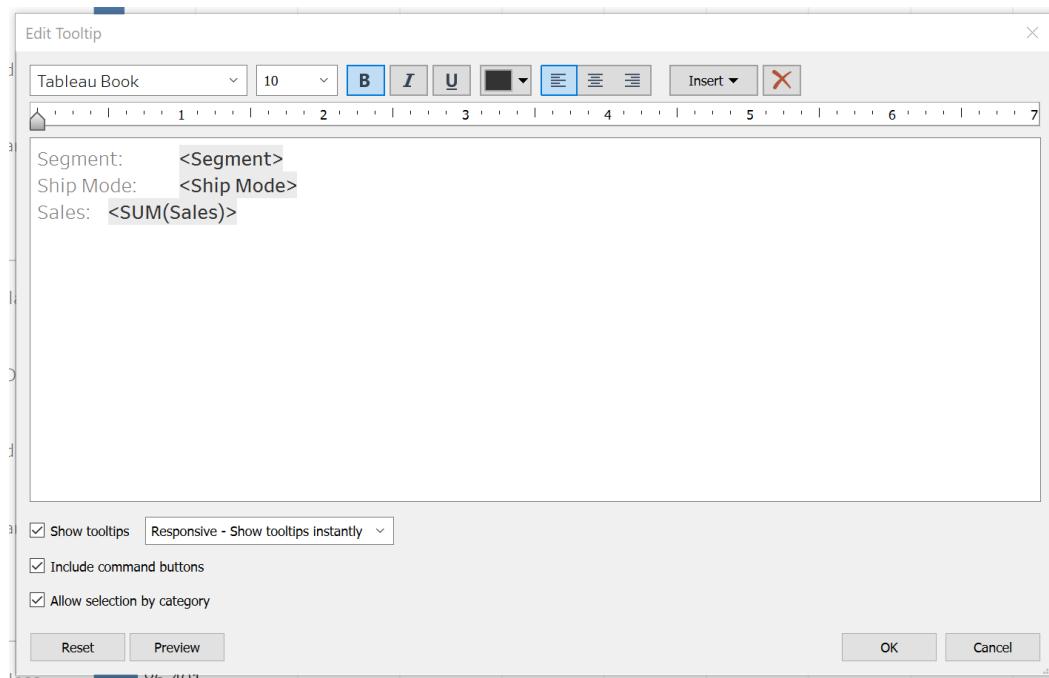


Figure 7.29: The tooltip editor

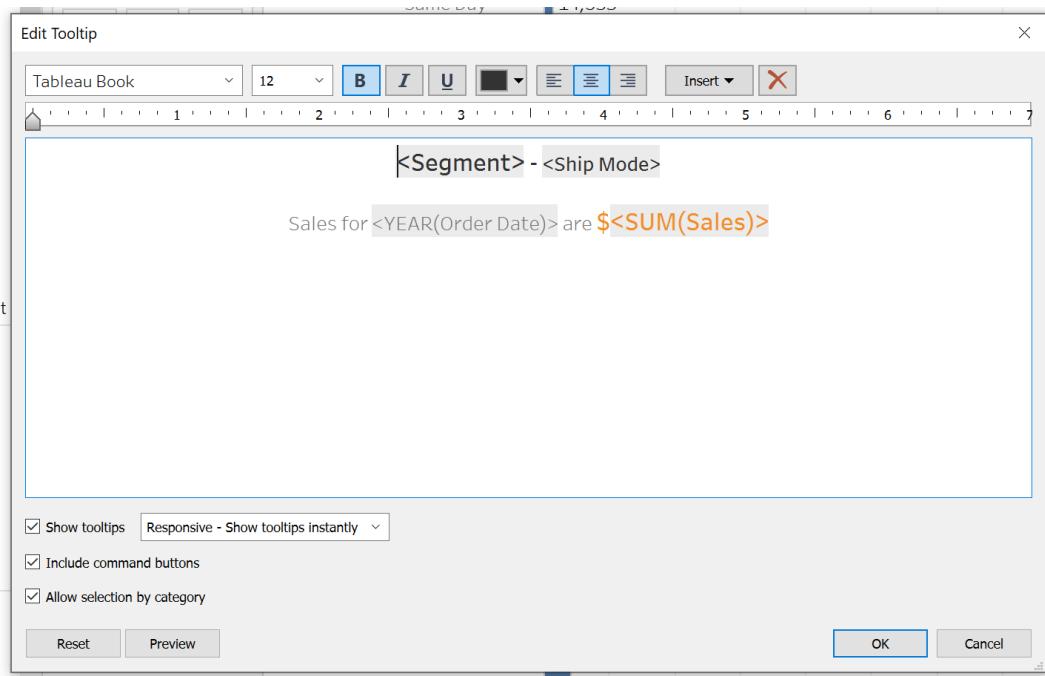


Figure 7.30: A tooltip example



Figure 7.31: The tooltip example result

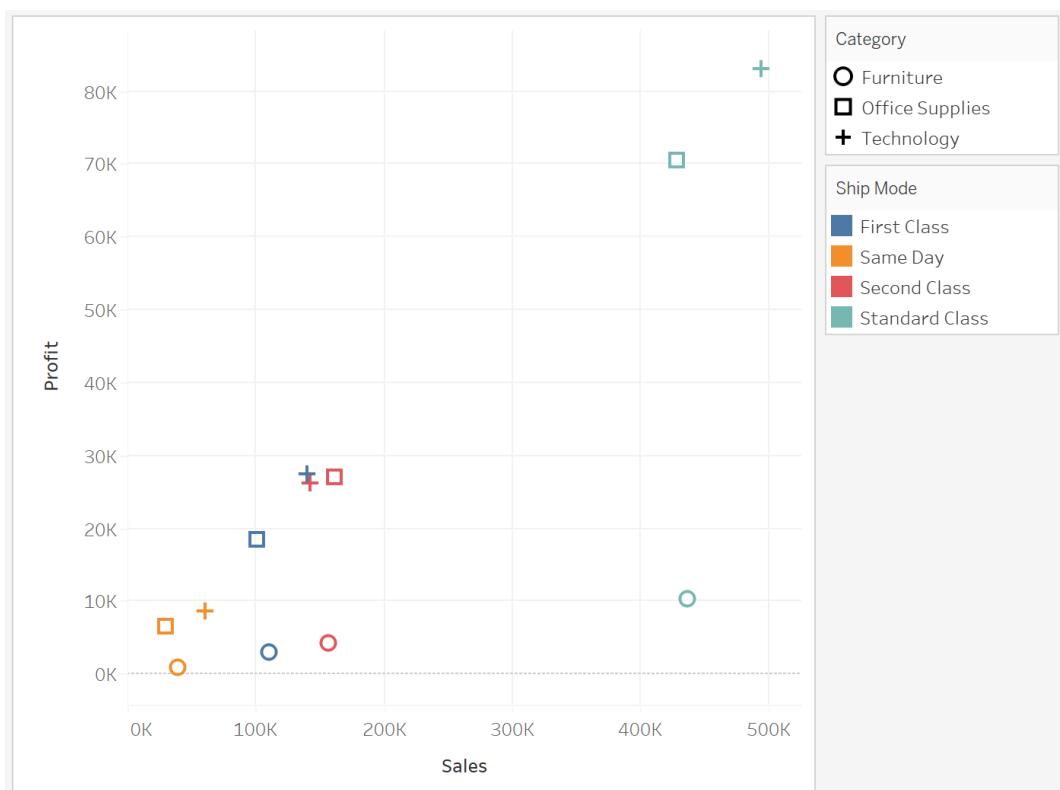


Figure 7.32: Shapes applied to a scatter graph

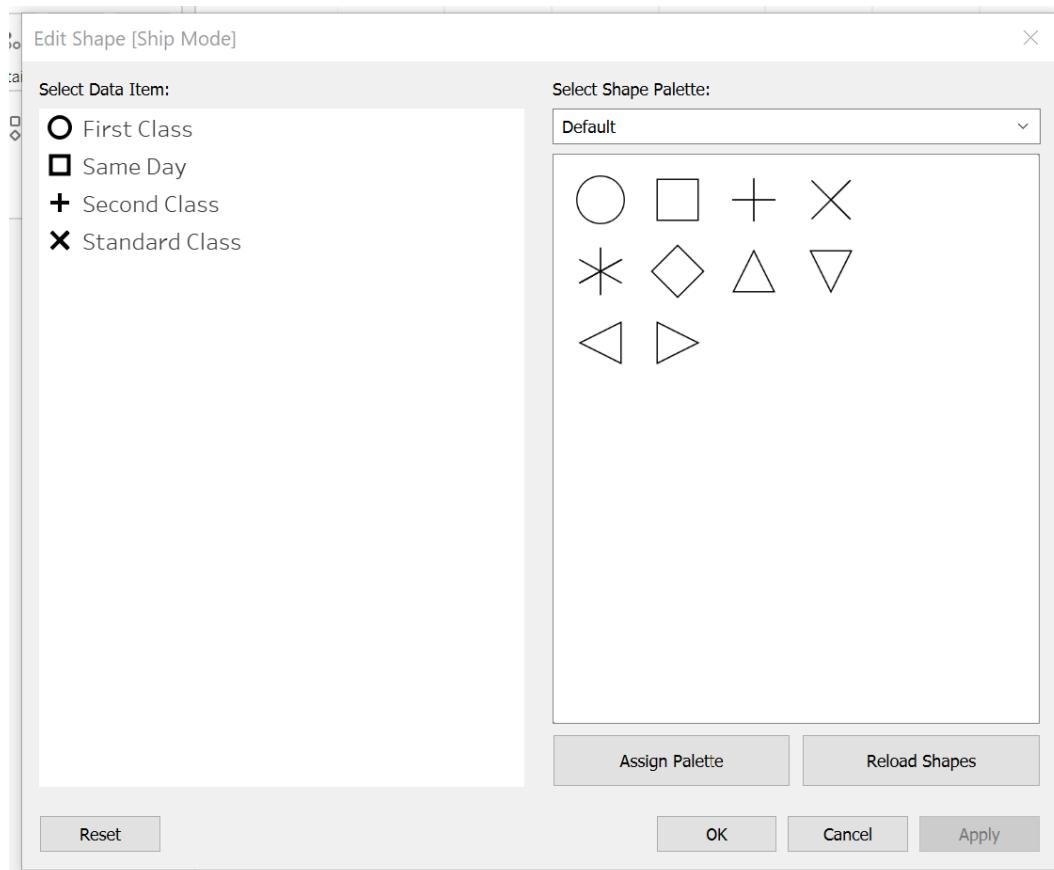


Figure 7.33: The shape editor in Tableau

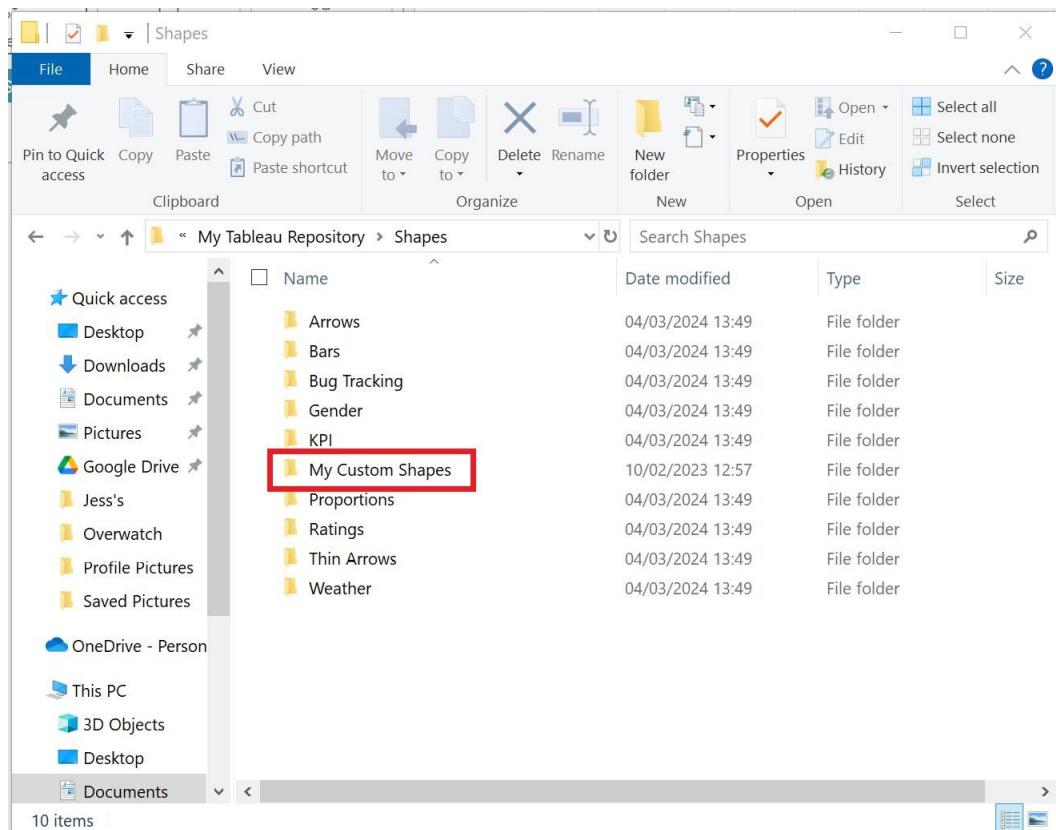


Figure 7.34: The file directory of the custom shapes folder

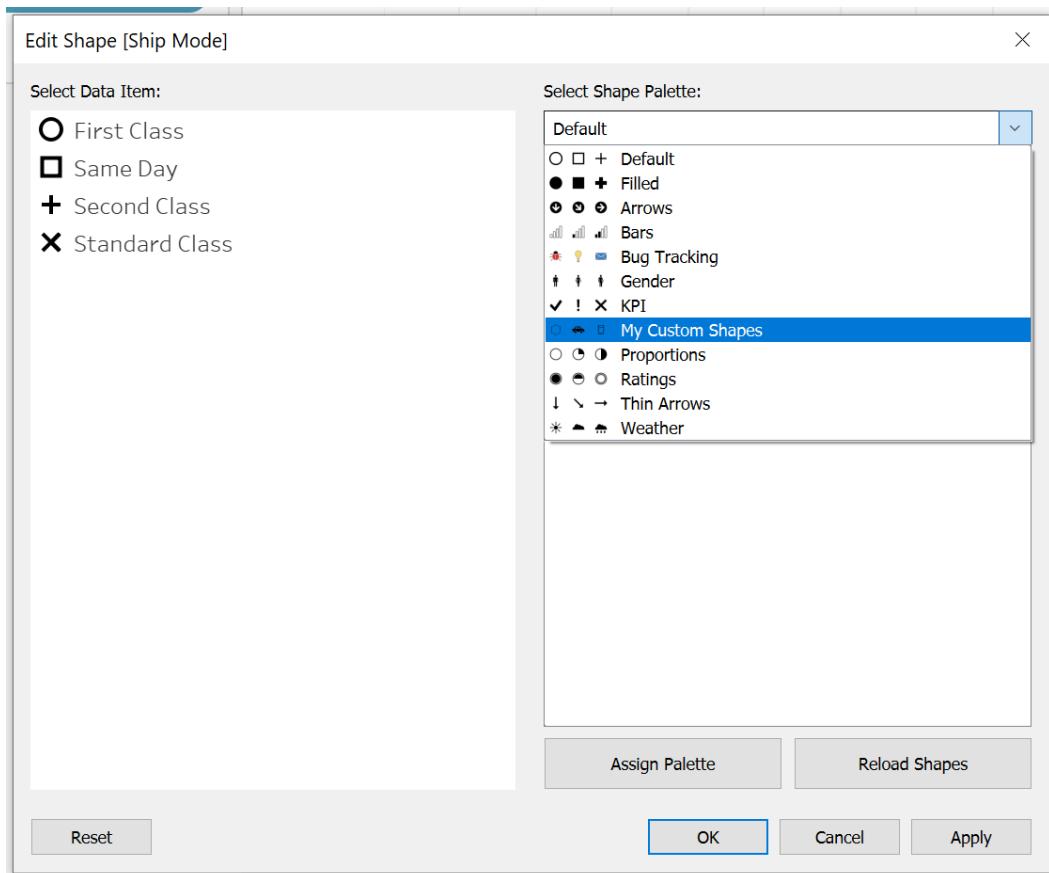


Figure 7.35: The result of the new custom shapes

The screenshot shows a 'Notepad' window with the title '*Preferences - Notepad'. The window contains the following XML code:

```
<?xml version='1.0'?>

<workbook>
<preferences>
</preferences>
</workbook>
```

Figure 7.36: The preferences notepad

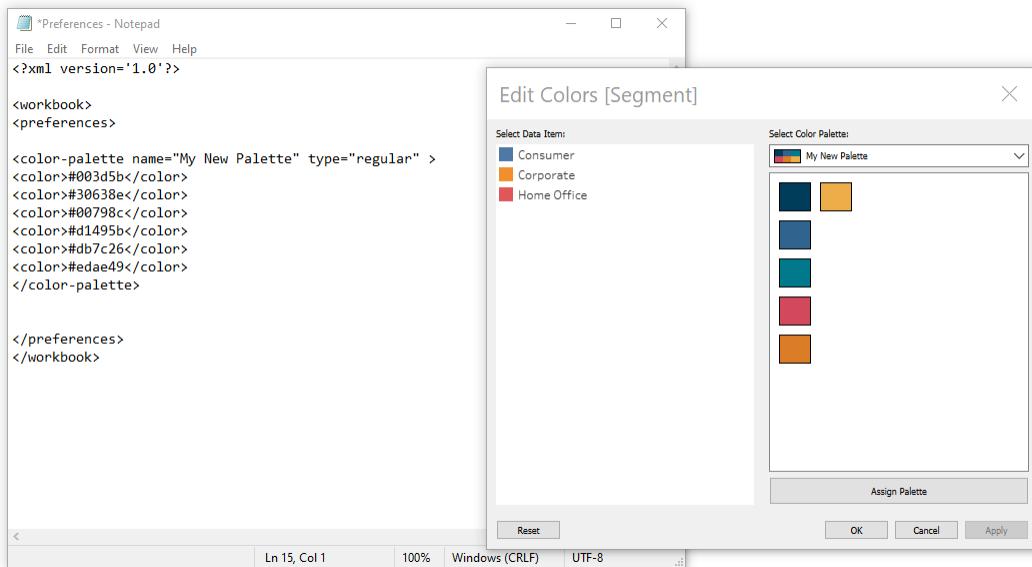


Figure 7.37: An example of a quantitative color palette and the Preferences text

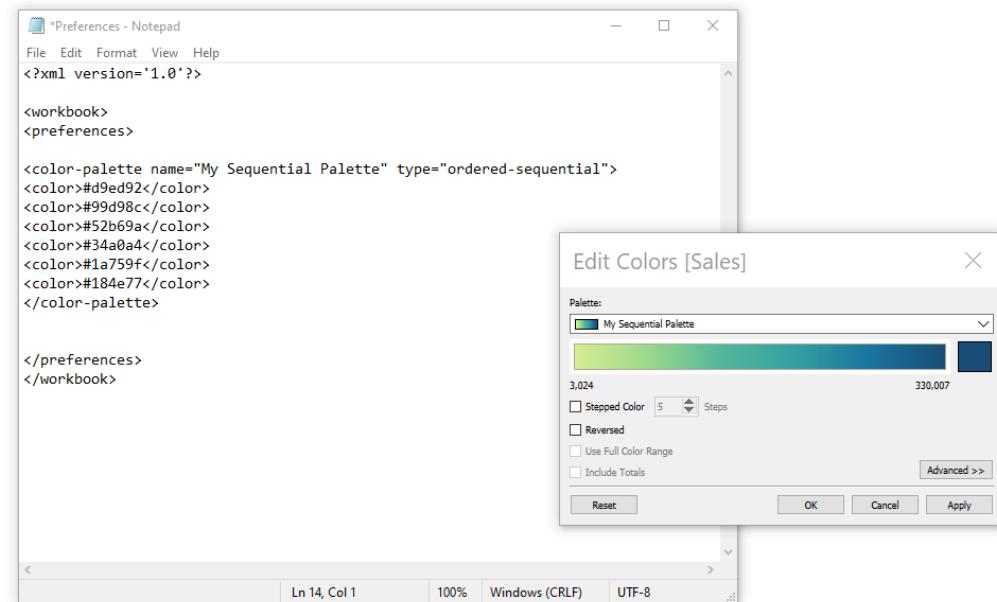


Figure 7.38: An example of a sequential color palette and the Preferences text

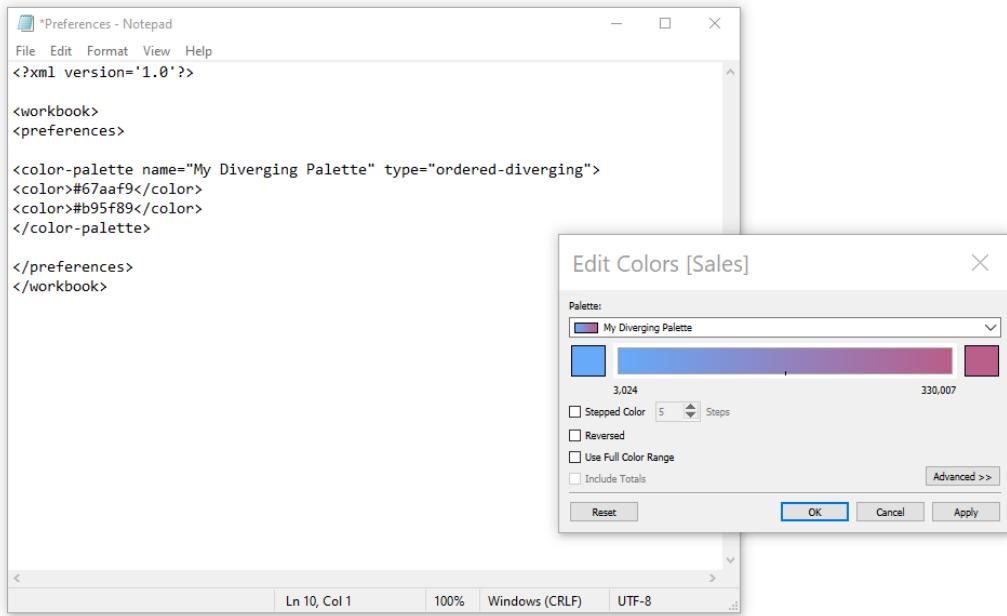


Figure 7.39: An example of a diverging color palette and the Preferences text

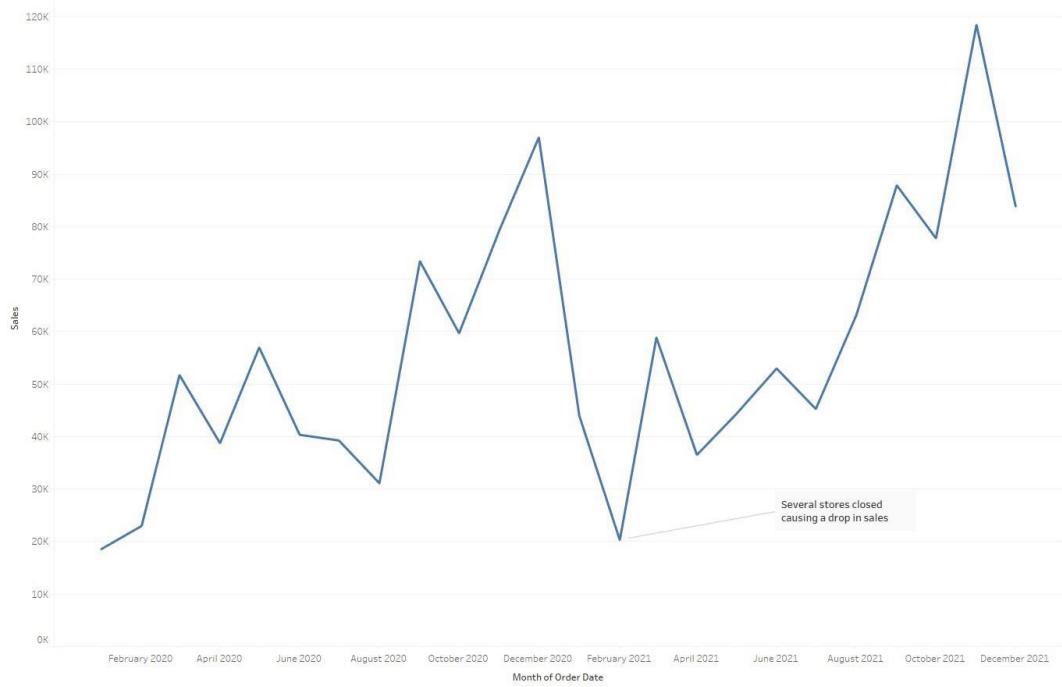


Figure 7.40: An example of an annotation in a chart

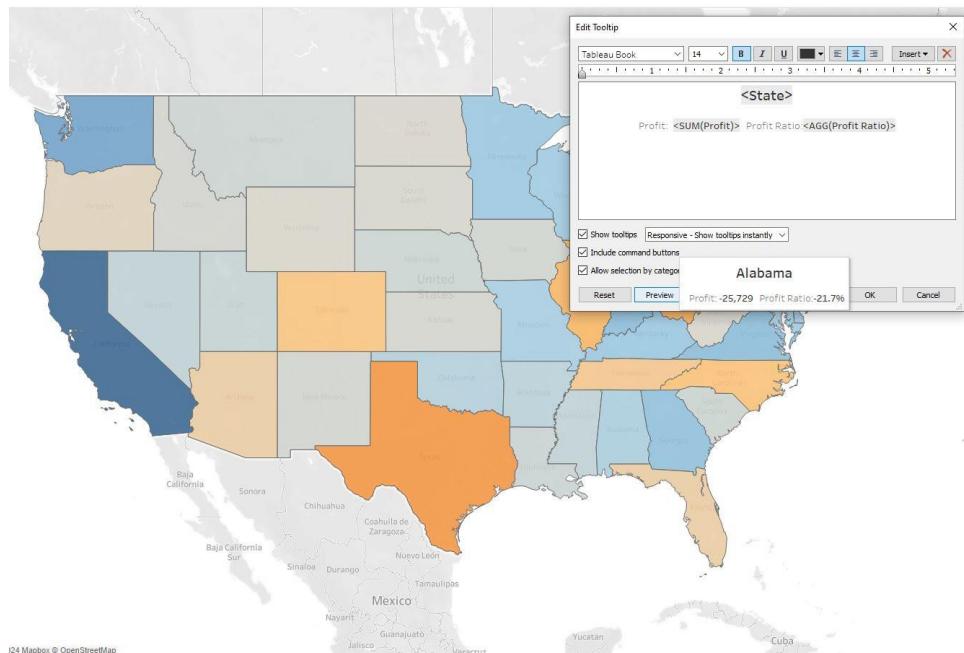


Figure 7.41: The tooltip editor and preview

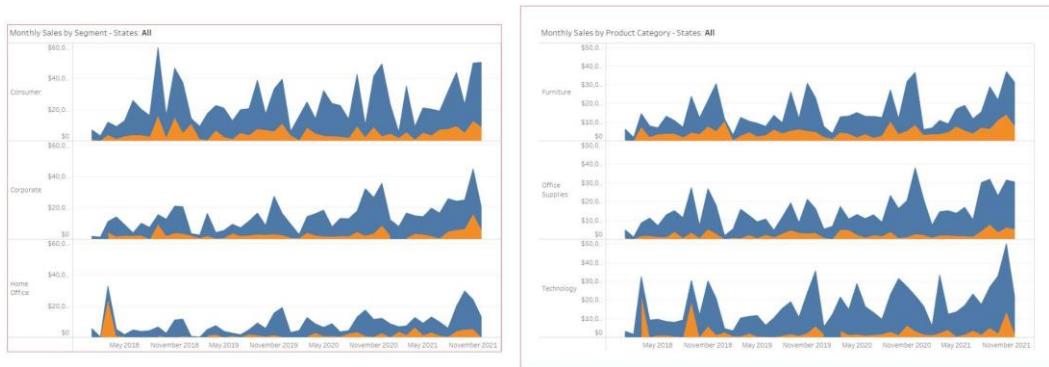


Figure 7.42: Examples of outer and inner padding

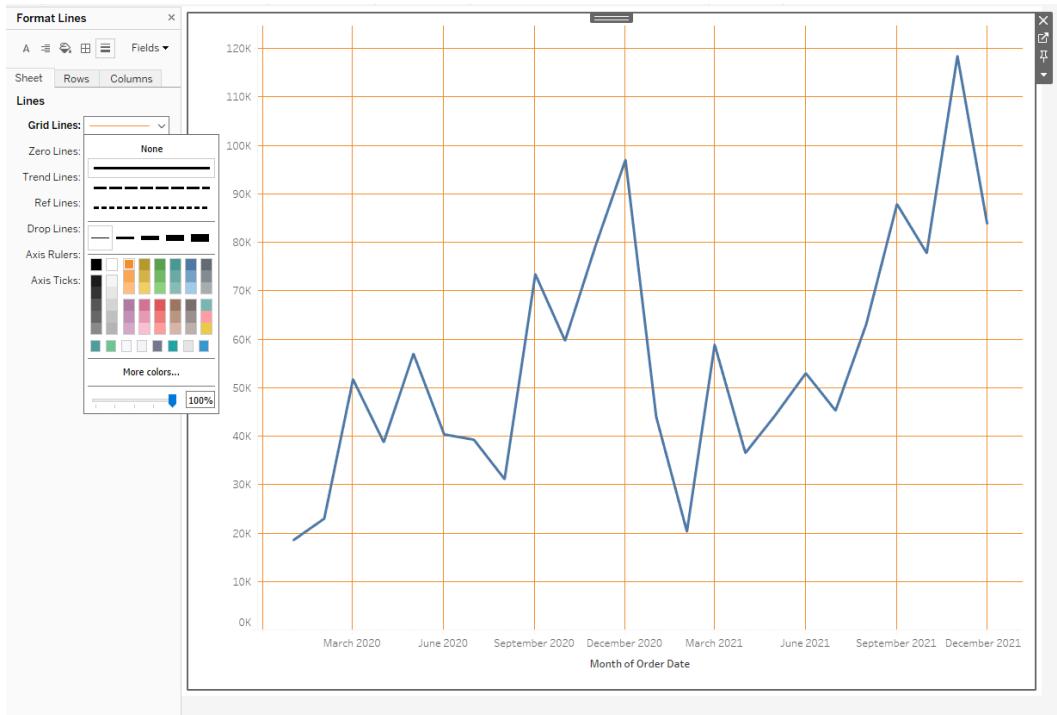


Figure 7.43: The gridlines changed to orange

State	Profit	Sales	State	Profit	Sales
Connecticut	3,511	13,384	Connecticut	3,511	13,384
Delaware	9,977	27,451	Delaware	9,977	27,451
District of Colu..	1,060	2,865	District of Columbia	1,060	2,865
Illinois	-12,608	80,166	Illinois	-12,608	80,166
Indiana	18,383	53,555	Indiana	18,383	53,555
Iowa	1,184	4,580	Iowa	1,184	4,580
Kansas	836	2,914	Kansas	836	2,914
Maine	454	1,271	Maine	454	1,271
Maryland	7,031	23,706	Maryland	7,031	23,706
Massachusetts	6,786	28,634	Massachusetts	6,786	28,634
Michigan	24,463	76,270	Michigan	24,463	76,270
Minnesota	10,823	29,863	Minnesota	10,823	29,863
Missouri	6,436	22,205	Missouri	6,436	22,205
Nebraska	2,037	7,465	Nebraska	2,037	7,465
New Hampshire	1,707	7,293	New Hampshire	1,707	7,293
New Jersey	9,773	35,764	New Jersey	9,773	35,764
New York	74,039	310,876	New York	74,039	310,876
North Dakota	230	920	North Dakota	230	920
Ohio	-16,971	78,258	Ohio	-16,971	78,258
Oklahoma	4,854	19,683	Oklahoma	4,854	19,683
Pennsylvania	-15,560	116,512	Pennsylvania	-15,560	116,512
Rhode Island	7,286	22,628	Rhode Island	7,286	22,628
South Dakota	395	1,316	South Dakota	395	1,316
Texas	-25,729	170,188	Texas	-25,729	170,188
Vermont	2,245	8,929	Vermont	2,245	8,929
West Virginia	186	1,210	West Virginia	186	1,210
Wisconsin	8,402	32,115	Wisconsin	8,402	32,115

Figure 7.44: Before and after row banding

The screenshot shows a web-based learning platform interface. At the top, there's a dark header bar with the "Practice Resources" logo on the left and a "SHARE FEEDBACK" button with a dropdown arrow on the right. Below the header, a navigation bar shows "DASHBOARD > CHAPTER 7". The main content area has a light gray background. On the left, a white box contains the title "Formatting" and a sub-section "Summary". Inside the summary box, there are two paragraphs of text: one about feeling confident with regard to workbook formatting, and another encouraging users to experiment with their own reports to familiarize themselves with steps and visualize impact. To the right of this summary box is a dark blue sidebar titled "Chapter Review Questions". It includes the subtitle "The Tableau Certified Data Analyst Certification Guide by Harry Cooney, Daisy Jones", a "Select Quiz" heading, and a list item "Quiz 1" with a "START" button and a "SHOW QUIZ DETAILS" link.

Figure 7.46 - Chapter Review Questions for Chapter 7

8

Publishing and Managing Content

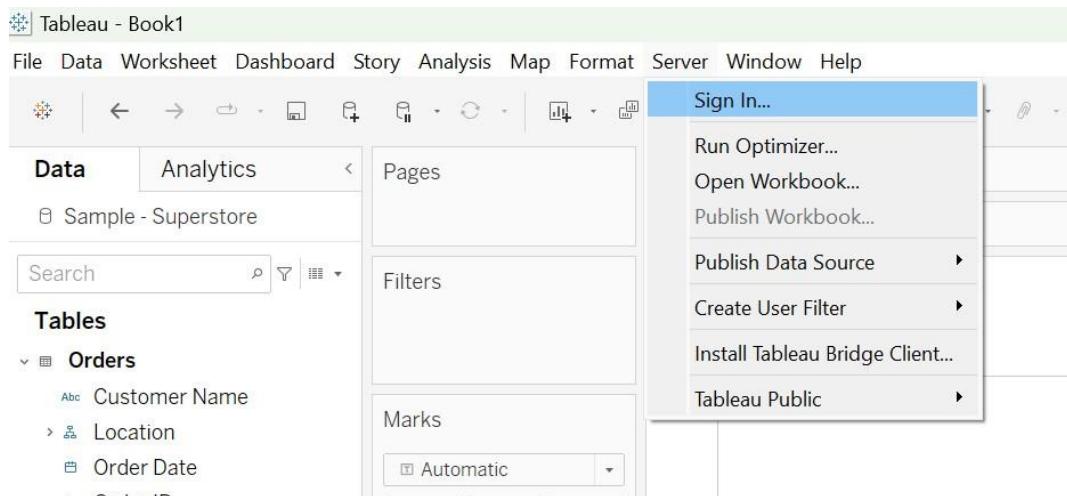


Figure 8.1: The Tableau Desktop Server Sign In... location

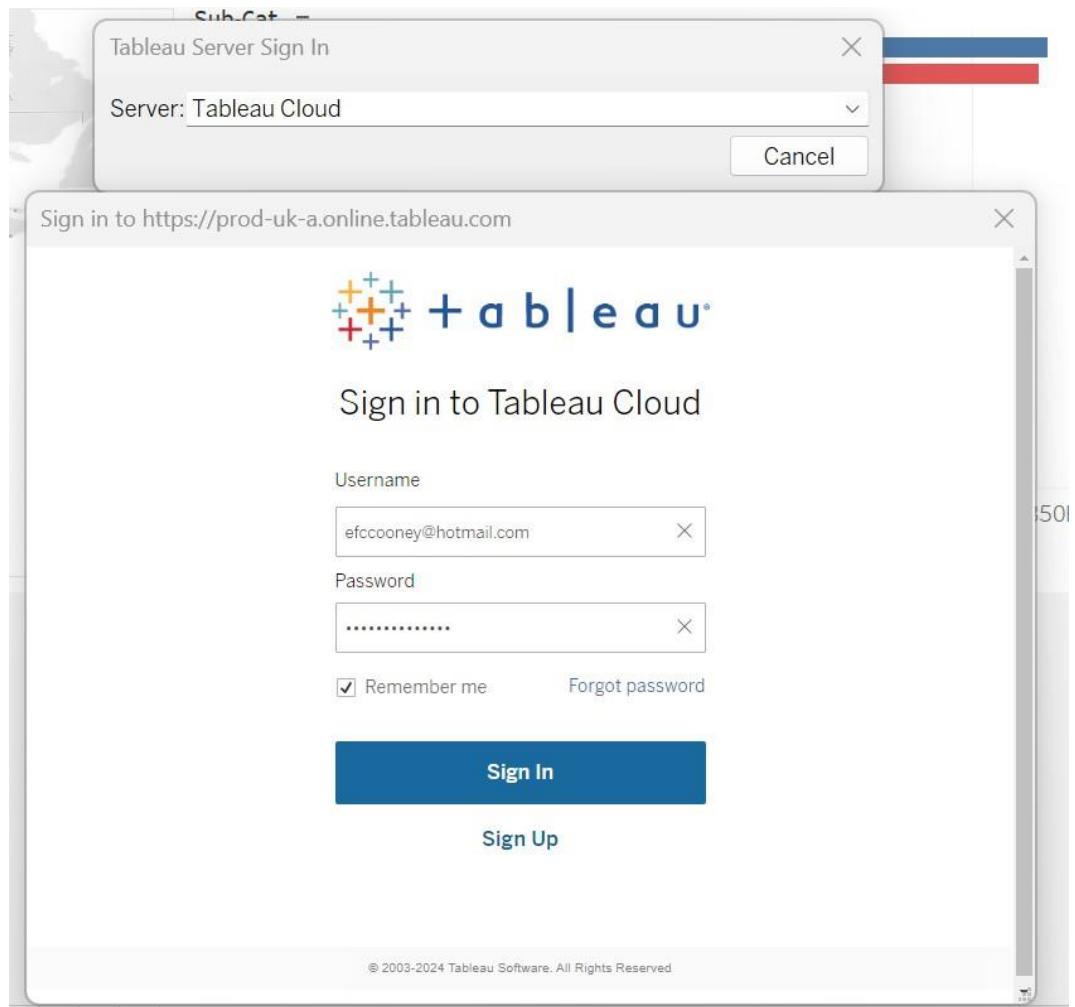


Figure 8.2: The Tableau Server Sign In pop-up box and the subsequent Sign in to Tableau Cloud popup

Location
Samples

Name
Superstore

Workbook name is already in use. Publishing will overwrite the existing workbook.

Figure 8.3: A workbook called Superstore already exists in the Samples project - publishing the workbook will overwrite the existing Superstore workbook on the Tableau site

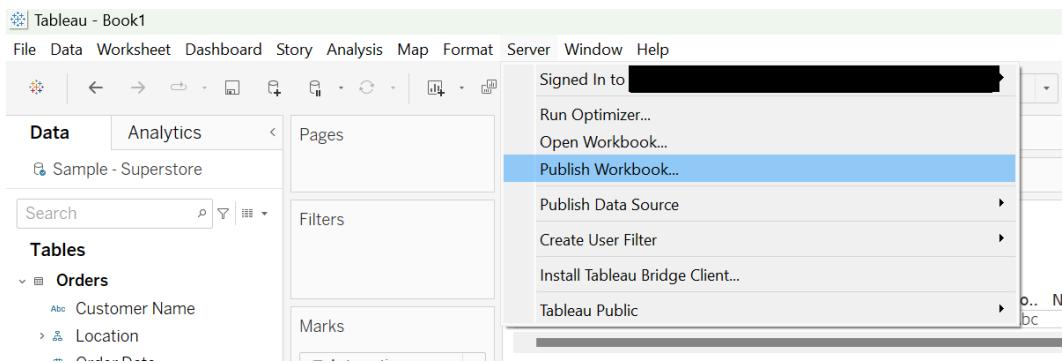


Figure 8.4: The Publish Workbook... menu option

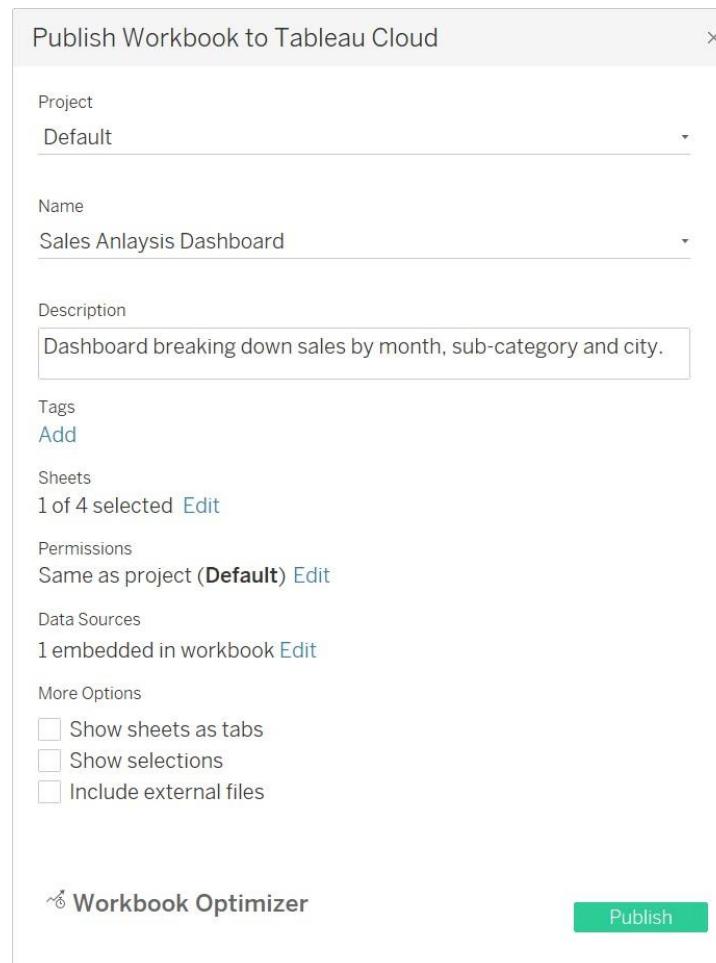


Figure 8.5: The Publish Workbook to Tableau Cloud configuration

The screenshot shows a Tableau Cloud interface. On the left is a navigation sidebar with the following sections:

- Home
- Favorites
- Recents
- Shared with Me
- Recommendations
- Personal Space
- Collections
- Explore
- Tableau Pulse
- External Assets
- Users
- Groups
- Schedules
- Jobs
- Tasks
- Data Labels
- Site Status

The main content area displays a published workbook titled "Sales Anlaysis Dashboard". The top bar includes "Interactive Tours", a search bar ("Search for views, workbooks, and more"), and user icons. The dashboard title is "Sales Anlaysis Dashboard" with a star icon, modified on Feb 26, 2024, at 7:35 PM, and extracted on Feb 26, 2024, at 7:35 PM. A subtitle states "Dashboard breaking down sales by month, sub-category and city". Below the title are buttons for "Edit Workbook" and "Views 1". The main view shows a chart titled "Sales Analysis Dashboard" with a subtitle "Monthly Sales". The chart displays a line graph over time with several bars representing different categories. Below the chart are three smaller cards labeled "Sales by City", "Sub-Category Sales", and "Actuals vs Budget". At the bottom of the dashboard are buttons for "Edit", "Star", and "More".

Figure 8.6: A Tableau workbook published to Tableau Cloud

Publish Data Source to Tableau Cloud x

Project
Default

Name
Sample - Superstore

Description
Tableau's default sample data source

Tags
[Add](#)

Permissions
Same as project (**Default**) [Edit](#)

Tableau Bridge required for on-premises data
If Tableau Cloud can't connect directly to this data source, it will use a Tableau Bridge client to keep this data fresh.

More Options

Include external files
 Update workbook to use the published data source

ⓘ Requires creating an extract on publish.

Publish

Figure 8.7: Publish data source configuration

The screenshot shows the Tableau Data Source page. At the top, it says "Connected to Tableau Server as Harry Cooney" with a URL. There are tabs for "Connection" (Live) and "Extract". A "Filters" button is also present. Below the tabs, there's a search bar and a table listing data sources. One row is selected: "Sample - Superstore" (1 minute(s) ago), which is a "Superstore Datasource" owned by Harry Cooney and last modified at 6:43 pm. The main area below shows a "Orders" worksheet with a grid of columns: Order ID, Order Date, Ship Date, Ship Mode, Customer Name, Segment, Country/Region, City, State/Province, Postal Code, and Region. To the left of the grid, there's a "Fields" pane listing various dimensions and measures from the Orders table. At the bottom of the page, there are navigation links like "Data Source", "Monthly Sales", "Sub Category Sales", "Sales by City", and "Sales Analysis Dashboard".

Figure 8.8: The Tableau data source has been published to the cloud site and the workbook data source has been updated to a connection to the published data source

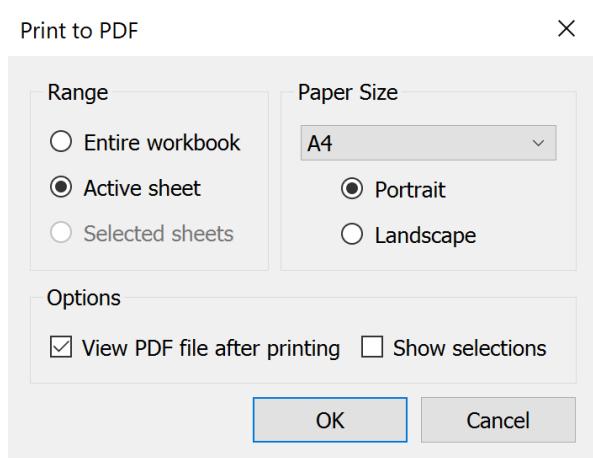


Figure 8.9: The Print to PDF configuration

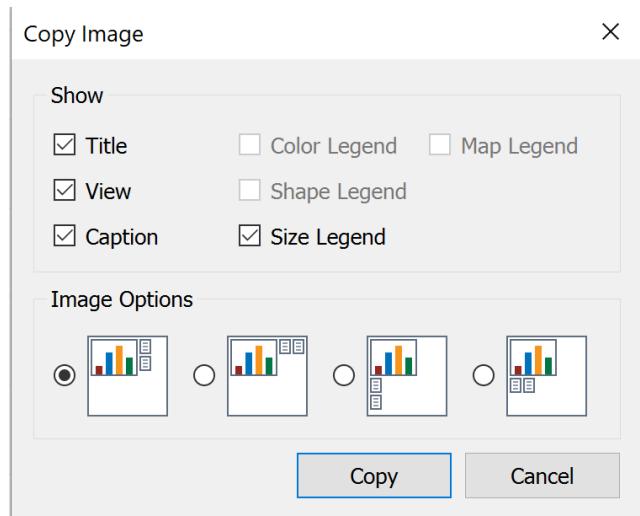


Figure 8.10: Copy image to clipboard configuration options

	A	B	C	D
1	Category			
2	Sub-Category	Furniture	Office Supplies	Technology
3	Chairs	335,768		
4	Phones			331,843
5	Storage		224,645	
6	Tables	208,020		
7	Binders		207,355	
8	Machines			189,925
9	Accessories			167,380
10	Copiers			150,745
11	Bookcases	115,361		
12	Appliances		108,213	
13	Furnishings	95,598		
14	Paper		79,541	
15	Supplies		46,725	
16	Art		27,659	
17	Envelopes		16,528	
18	Labels		12,695	
19	Fasteners		8,532	

Figure 8.11: Category and Sub-Category Sales cross-tabbed to Excel

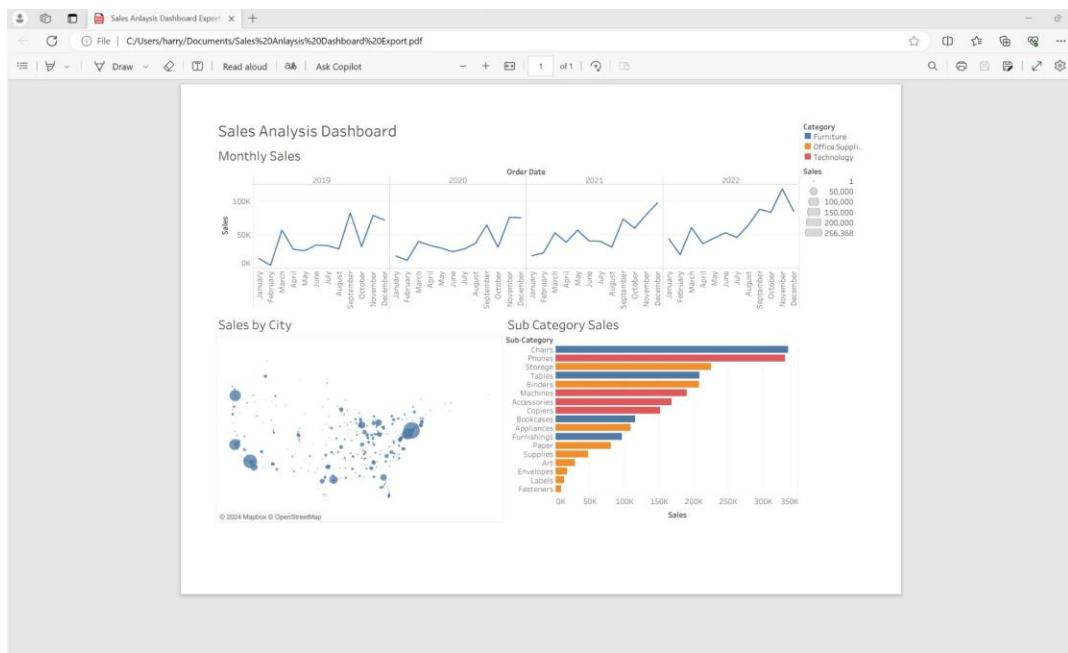


Figure 8.12: Tableau dashboard exported to PDF

	A	B	C	D
1		Category		
2	Sub-Category	Furniture	Office Supplies	Technology
3	Chairs	335,768		
4	Phones			331,843
5	Storage		224,645	
6	Tables	208,020		
7	Binders		207,355	
8	Machines			189,925
9	Accessories			167,380
10	Copiers			150,745
11	Bookcases	115,361		
12	Appliances		108,213	
13	Furnishings	95,598		
14	Paper		79,541	
15	Supplies		46,725	
16	Art		27,659	
17	Envelopes		16,528	
18	Labels		12,695	
19	Fasteners		8,532	

Figure 8.13: Sub-Category, Category, and Sales data crosstabbed to Excel

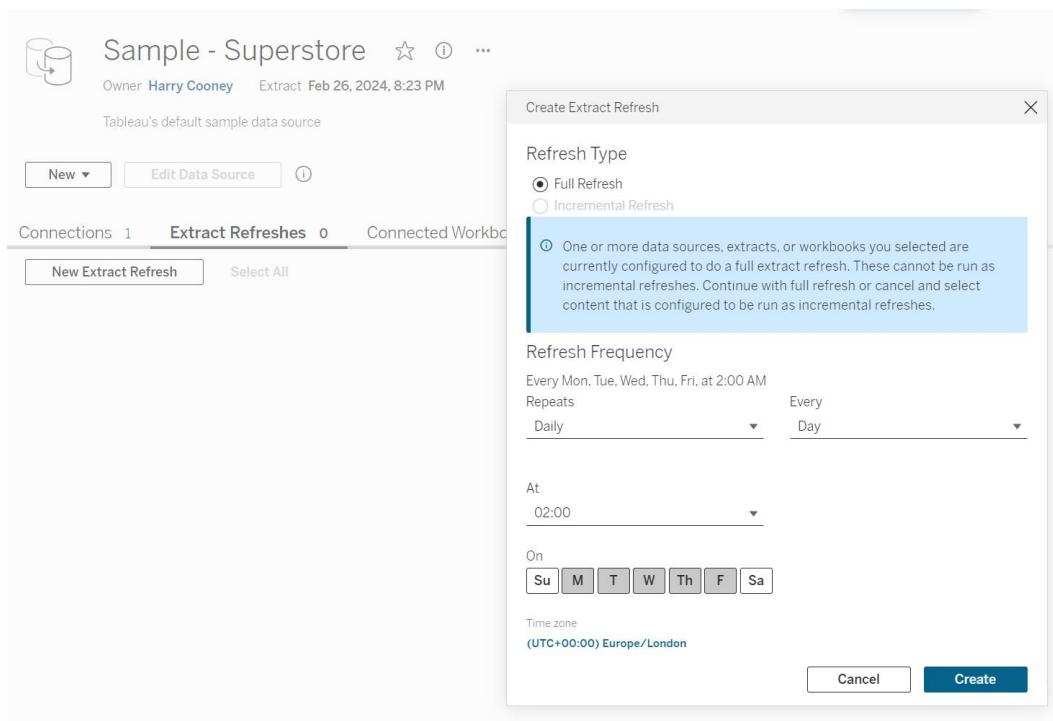


Figure 8.14: Extract refresh configured to update the data on weekdays at 2 a.m.

The screenshot shows the Tableau Cloud interface for the 'Sample - Superstore' data source. At the top, there are navigation links for 'Explore / default / Sample - Superstore'. On the right, there are buttons for 'Interactive Tours' and a search icon. Below the header, the title 'Sample - Superstore' is displayed with a star icon, a refresh icon, and three dots for more options. It is owned by 'Harry Cooney' and was last extracted on 'Feb 26, 2024, 8:23 PM'. A note below states 'Tableau's default sample data source'. There are buttons for 'New', 'Edit Data Source', and a help icon. A horizontal menu bar includes 'Connections 1', 'Extract Refreshes 1' (which is highlighted in blue), 'Connected Workbooks 0', and 'Lineage'. Under 'Extract Refreshes', there are tabs for 'New Extract Refresh' (which is selected) and 'Select All'. A table lists one refresh entry: 'Full refresh' scheduled 'Every Sun, at 11:30 PM (UTC+00:00) Europe/London' with the next update on 'Mar 3, 2024, 11:30 PM'.

Figure 8.15: Extract refresh schedule created and configured in Tableau Cloud

The screenshot shows the Tableau Prep Flow interface for the 'Superstore Flow'. At the top, there are navigation links for 'Explore / Samples / Superstore Flow'. On the right, there are buttons for 'Interactive Tours' and a search icon. Below the header, the title 'Superstore Flow' is displayed with a star icon, a refresh icon, and three dots for more options. It is owned by 'Harry Cooney' and was modified on 'Feb 26, 2024, 6:43 PM'. A warning message says 'This flow can't be run right now'. There are tabs for 'Overview' and 'Connections'. A 'New Task' button is highlighted in blue. A modal window titled 'New Task' is open, showing the 'Single Task' tab selected. It asks 'Select a schedule to run the flow "Superstore Flow"'. A dropdown menu lists several options, with 'Run Flow - Every night - 11:00PM — Every 24 hours starting at 11:00 PM' selected. Other options include 'Run Flow - First of the month 1:00AM — On the 1st day of the month at 1:00 AM', 'Run Flow - Weekday 2:00AM — Weekly at 2:00 AM on Monday, Tuesday, Wednesday, Thursday, and Friday', 'Run Flow - Every Sunday - 4:00PM — Weekly at 4:00 PM on Sunday', 'Run Flow - Every night - 11:00PM — Every 24 hours starting at 11:00 PM' (with a checked checkbox), 'Run Flow - Weekday 11:00AM — Weekly at 11:00 AM on Monday, Tuesday, Wednesday, Thursday, and Friday', 'Run Flow - Weekdays 4:00PM — Weekly at 4:00 PM on Monday, Tuesday, Wednesday, Thursday, and Friday', and 'Run Flow - Hourly Schedule 1 — Every hour'. At the bottom of the modal are 'Cancel' and 'Create Task' buttons.

Figure 8.16: Adding a Tableau Prep flow scheduled task to run every night at 11 p.m.

Create Alert X

Send alert if 'Sales' is:

Condition	Threshold
Above or equal to	50000
Condition currently true	

Subject
Data alert - Sales Analysis Dashboard

When the condition is true, send alert:

As frequently as possible

Recipients

Make visible to others (i)

Create Alert

Figure 8.17: Alert configured to trigger as frequently as possible whenever monthly sales are over 50k

Edit Alert X

Send alert if 'Sales' is:

Condition	Threshold
Above or equal to	90,000

Condition currently true

Subject

Data alert - Sales Analysis Dashboard

When the condition is true, send alert:

Daily at most

Recipients

Harry Cooney X

Make visible to others (i)

Save Alert

Figure 8.18: Alert configuration

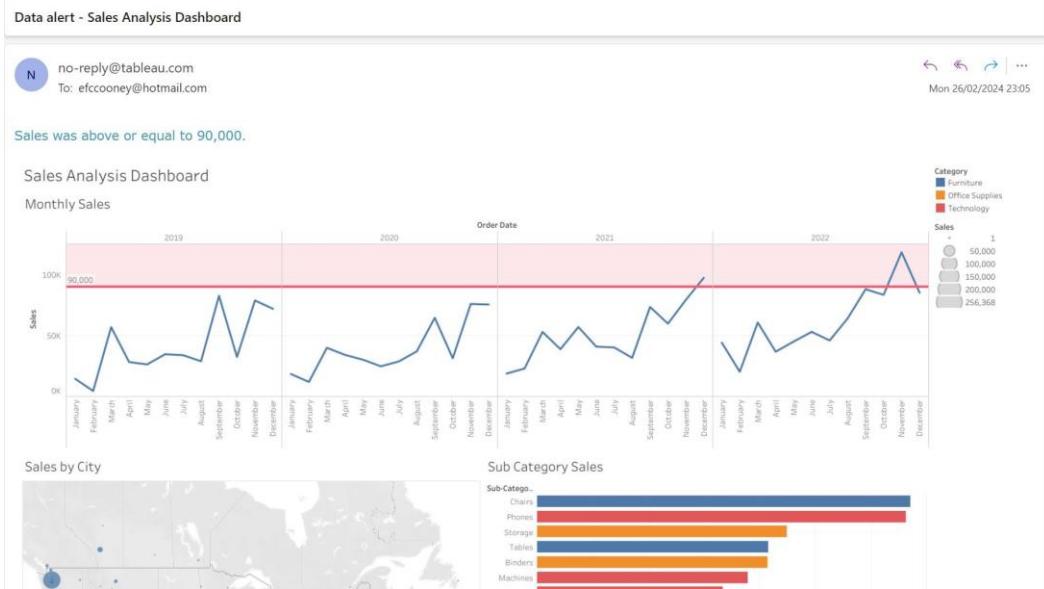


Figure 8.19: Data-driven alert created and email received

Subscribe X

Subscribe me

Include ▼

This View

Don't send if view is empty

Format ▼

Image and PDF

Paper Size Orientation

A4 Landscape

Subject

Sales Analysis Dashboard

Message (Optional)

Hi, check out my Sales Analysis Dashboard!

Frequency ▼

On Selected Schedule

Schedule ▼

1 day a week, every hour starting at 23:45

[Manage Subscriptions](#) [Cancel](#) [Subscribe](#)

Figure 8.20: Subscription configuration



Figure 8.21: Subscription created and email received, containing both an image and PDF export

The figure shows a screenshot of the Practice Resources website. The main content area is titled 'Publishing and Managing Content' and includes a 'Summary' section with text about publishing and managing content on a Tableau site. To the right, there is a 'Chapter Review Questions' section with a heading, a brief description of the guide, a 'Select Quiz' button, and a 'Quiz 1' section with a 'START' button.

Figure 8.23 - Chapter Review Questions for Chapter 8

Accessing the Online Practice Resources



UNLOCK YOUR PRACTICE RESOURCES

You're about to unlock the free online content that came with your book. Make sure you have your book with you before you start, so that you can access the resources in minutes.

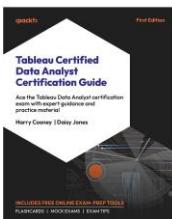
The image shows the front cover of the book 'Tableau Certified Data Analyst Certification Guide' by Harry Cooney and Daisy Jones. The cover is dark with white text and features a small screenshot of a Tableau dashboard at the bottom.

Tableau Certified Data Analyst Certification Guide
Book ISBN: 9781803243467
Harry Cooney • Daisy Jones • Jun 2024 • 292 pages

Do you have a Packt account?

Yes, I have an existing Packt account No, I don't have a Packt account

PROCEED

Figure 9.2 - Unlock page for the online practice resources

UNLOCK YOUR PRACTICE RESOURCES

You're about to unlock the free online content that came with your book. Make sure you have your book with you before you start, so that you can access the resources in minutes.

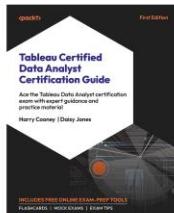


Tableau Certified Data Analyst Certification Guide

 Book ISBN: 9781803243467

Harry Cooney • Jess Hancock • Daisy Jones • Jun 2024 • 292 pages

ENTER YOUR PURCHASE DETAILS

Enter Unique Code *

E.g 123456789

 Where To Find This?

Check this box to receive emails from us about new features and promotions on our other certification books. You can opt out anytime.

REQUEST ACCESS

Figure 9.3 - Enter your unique sign-up code to unlock the resources

PACKT PRACTICE RESOURCES

You've just unlocked the free online content that came with your book.

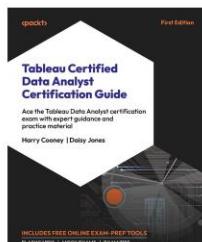


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Unlock Successful

Click the following link to access your practice resources at any time.

Pro Tip: You can switch seamlessly between the ebook version of the book and the practice resources. You'll find the ebook version of this title in your [Owned Content](#)

OPEN PRACTICE RESOURCES 

Figure 9.4 - Page that shows up after a successful unlock



Figure 9.5 - Dashboard page for Tableau Certified Data Analyst practice resources

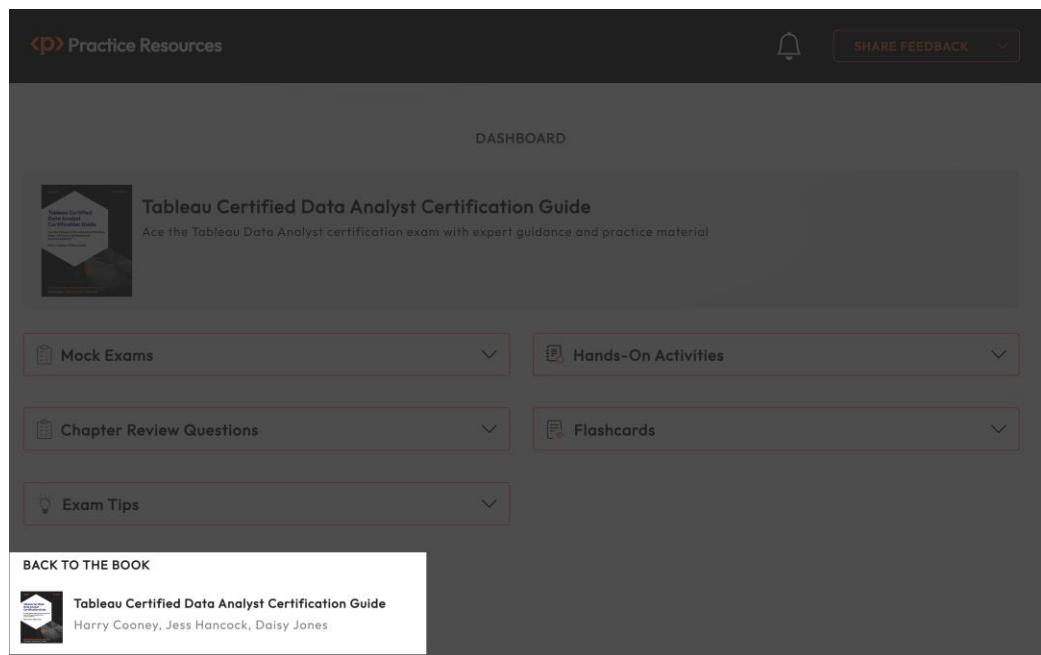


Figure 9.7 - Dashboard page for Tableau Certified Data Analyst practice resources