1. Download the Superstore excel sheet from the Google Drive Link provided.
2. Store it on your local Desktop

2. DATA RELATIONS

Icons & Data Types

When you first access the data, you will see different icons on each column showing you the data types that you will be looking at

Icon	Data Type
#	numbers
Abc	words
Calendar	date/time

Change to list view: you may also rename or hide your columns if you feel they need changes or are unnecessary for your analysis.

Joining Data

1. Creating inner join between orders and people
2. Creating left join between orders and returns

JOIN TYPE	ROWS RETURNED
INNER JOIN	Only matching rows from both tables
LEFT JOIN	All rows from the left table, and matching rows from the right table (or NULL if no match)
RIGHT JOIN	All rows from the right table, and matching rows from the left table (or NULL if no match)

How to Decide Which Join to Use:

1. **INNER JOIN:**
   - When you only want **matched records** from both tables.
   - If you only care about complete data where both sides have relevant information.
2. **LEFT JOIN:**
   - When you want **all records from the left table**, and don't mind if the right table has missing data.
   - If the left table is your **main dataset** and the right table has optional or supplementary information.
3. **RIGHT JOIN:**
   - When you want **all records from the right table**, and don't mind if the left table has missing data.
   - If the right table is your **main dataset**, but you want to include matching data from the left table when available.

Now that you have joined your data, you can start visualizations! Easy one: how much is each salesperson's revenue for the Superstore in their respective regions?
Columns: Person
Rows : SUM(Sales)
drag a person to color

This is **_JOINING_** data.

What is the difference between **_JOINING and BLENDING_** data?
- **Joins** work on data from the same source or database, combining tables.
- **Blending** merges data from different sources, creating temporary connections.

Showing Hierarchies

Drilling up/ drilling down to navigate hierarchies
Eg year - quarter - month - week - day - hour

Using Fields on Shelves

OR Using Headers
- referred to as an 'uneven drill' as only desired members are displayed
- click on the header and drill down or up -> shows quartile, then further down shows months, then further down shows dates

Columns : YEAR(Order Date)
Rows : SUM(Sales)

Right-click on Year on the x-axis > Drill down to Quartile > then to months etc

3. Working with AGGREGATION / MEASURE OPTIONS

Random example
Column : SUM(Sales)
Row: SubCategory

To display $___
Click on the labels icon > Right-click on Subcategory under DATA PANE (LHS) > Default
Properties > Number Format > Currency Custom > ok

To change the type of stats we are looking at
Right click Subcategory icon on COLUMNS > click Measure and u will see :
sum,avg, median, count, count distinct
minimum, maximum, std dev, std dev (pop), variance

3. Getting Grand Totals & Subtotals

Columns : YEAR(Order Date)
Rows: Category, Sub-Category

Show Me > Text Table
click on Analysis > Totals > Show Row G.Totals, Show Col G.Total, Add All Subtotals

editing color on the text table
format > line > change field > change colours!

4. Tableau Calculation: Quick Table Calculations

Running total
Difference
Percent Diff
Percent to Total
YTD Total
Year to Year Growth
YTD Growth

Click label icon at the middle top => to display labels on a line chart

Right click on the second SUM(Sales) > quick table calc > percent of total -> read and analyze which year and which quarter contributed the most to overall sales over the 4 years

Can add a second SUM(Sales) to color, and edit colors with gradients!

5. Tableau Calculation: Calculated Fields

WHAT ARE CALCULATED FIELDS?

Calculated fields in Tableau are user-created fields that allow you to perform calculations on your data, enabling more advanced analysis. They help you create new data from existing data, apply custom formulas, and go beyond the basic dataset. You can use calculated fields for tasks like:

- Doing math (e.g., calculating profit by subtracting costs from sales)
- Manipulating text (e.g., combining first and last names)
- Working with dates (e.g., extracting the year or calculating age)
- Applying logic (e.g., categorizing data based on conditions)

In short, calculated fields give you more control over analyzing and presenting your data in Tableau.

a. ARITHMETIC CALC

Columns: SUM(Sales), Product name COUNTD
Rows: State

At this point, you have a chart that tells you several unique products sold in that particular State, and the total sales of that State.

1. Right click on Sales > Create > Calculated Field > name "Sales Per Item"
2. Key in

SUM([Sales]) / COUNTD([Product Name])
3. Drag "Sales Per Item" into Columns, replacing COUNTD(Product Name)

This gives you the Average Prices of each unique item sold in each State and total sales in each corresponding State.

b. STRING CALC

At this point, you get a full list of profits earned per customer.

1. Create calculated field > Name "Customer with S"
   *there will be a box. On its right side a little arrow which if u click, shows a list of commands for calculated fields
2. Key in
   STARTSWITH([Customer Name], "S")
3. Creates a new dimension: "Customer with S"
4. add that into the filter box > click True > you will only see customers names starting with S

Now what you have is the list of profits earned per customer whose names start with an S

c. DATE CALC

1. Create calculated field > name "Days to Ship"
2. Key in
   DATEDIFF('day', [Order Date], [Ship Date])
3. Creates new Calculation : "Days to Ship"
4. Drag that into Columns - SUM(Days to Ship)

d. LOGICAL CALC

Currently we are looking at the overall sales performance of each sub-category.
But if we want to view whether these products are hitting our KPI aka Sales Targets normally set by companies as a benchmark to optimise profits, we can do this:

1. Create Calculated field > name "Sales KPI"
2. Key in
   IF SUM([Sales]) < 500,000 THEN "LOW"
   ELSEIF SUM([Sales]) >= 1,000,000 THEN "HIGH"
   ELSE "MEDIUM"
   END
3. Creates new Measure : "Sales KPI" with abc icon
4. add Sales KPI in Color , u can edit colors!

6. CHART TYPES

How to beautify - use Marks Card Controls (the 5 boxes on LHS)
<u>Color</u>**: Use it to differentiate data categories or ranges visually.**
<u>Detail</u>**: Add more granularity to your marks without changing the visual appearance.**
<u>Size</u>**: Represent data magnitude by varying the size of marks.**
<u>Label</u>**: Show text labels on or near the marks for clarity.**
<u>Tooltip</u>**: Provide extra information in hover-over pop-ups without cluttering the visual.**

A. MAPPING

Working with Geocoding and Geographic Mapping

Tableau auto assigns geographic roles to fields with common geographical names, such as :
Country, State/Province, City etc

double click State > Map > Background Maps > Normal
(remember edit location to US)
drag Sales to Color > edit color > select 'Orange Blue Divergent' > 6 steps
then add Region to Columns for a better view

B. BOXPLOTS

Columns : Segment
Rows : SUM(Profit)

Drag 'Order Date' to Detail

right click on y-axis > add reference line,band or box > click box plot > pick red for fill and whiskers

Columns : Segment, Region
Rows : SUM(Discount)

Show Me -> click box plot

drag region back to columns
click on Analysis > uncheck Aggregate Measures => now u get box plot for every region ! Can swap axis for Better view (icon right beside arrange by descending icon)

C. SCATTER PLOTS

Columns : SUM(Sales)
Rows : SUM(Profit)

Add Category and City to Detail

From the scatterplot u can identify the relation between Profits and Sales => higher sales = higher profits?

D. COMBINATION CHARTS

Columns : Sub-Category
Rows : SUM(Sales), AVG(Profit)

drag AVG(Profit) to right side of the chart (will show coloured dots)
click on Marks box on the left > click AVG(Profit) > Line instead of Auto

now u can see sales as bar chart, avg profit as line chart

7. ORGANISING DATA

a. QUICK FILTERS

<u>Goal</u> : Perform quick and easy filters to only see what you need

<u>How to</u> :
Add a dimension to filter box > Show quick filter > click on filters listed to include

Columns : Person
Rows : SUM(Sales)

drag person into filter box > show filter > play around

b. SORTING DATA

Sorting data by axis (chronologically, alphabetically) OR manually using options in the axis menu

Will be doing the manual way !

ACTIVITY 1 : Problem Statement
Find best-selling furniture products in 2014 !

ANSWER
Columns : SUM(Sales)
Rows : SubCategory

drag categories to Filter shelf > only tick Furniture box
drag order date to Filter shelf > select filter field as 'Years' > 2014
drags sales to Filter shelf > #sum > click at least ; key in 30,000

now you have a chart displaying best selling Furniture products in 2014
Ans : CHAIRS AND TABLES

c. COMBINED SETS AND GROUPS

ACTIVITY 2 :
Greg wants to launch an advertising scheme for certain product subcategories that are related to each other. He will need to find out the bottom subcategories by sales.

ANSWER
Columns : SUM(Sales)
Rows : Category,Sub-Category

1. Group Chairs and Tables (click the items while holding CTRL/CMD button)
2. Create set under SubCategory, name "Bottom 5 SubCategories by Sales" > click Top > select bottom ; 5 ; Sales ; Sum > drag set into filter box

shows only bottom 5!

d. PARAMETERS

- Top N parameters !
- Date Field Parameter
- Dynamic Measures
- Dynamic Dimensions
- Dynamic Measures & Dimensions !
- Reference Lines
- Sets

Top N Parameter

Columns : SUM(Sales)
Rows : Sub-Category

1. sort from ascending icon
2. Create New Parameter > name "Top N Parameter"

Name

Top N Parameter

Properties

Data type	Display format
Integer ▾	15 ▾

Current value	Value when workbook opens
Top 15 ▾	Current value ▾

Allowable values

○ All ◉ List ○ Range

Value	Display As
5	Top 5
10	Top 10
15	Top 15
Click to add	

◉ Fixed
○ When workbook opens

Add values from ▾

Remove Selected

Cancel   OK

3. drag subcategory into filter box > filter by Top > create click Top; Top N Parameter; ok
4. Right click Top 15 Parameter > show parameter > select top 10

Date Field Parameter (REVISIT)TBC

Columns : YEAR(Order Date)
Rows : SUM(Sales)

1. drag profit to Text : fill in table's blanks
2. Click on downward arrow > create parameter > name as "Date Field Parameter" > data type : String > List of values : Year, Quarter, Month, Week, Day
3. Create calculated field > name as "Date Field Calculation"
4. Key in
CASE [Date Field Parameter]
WHEN "Year" THEN STR(YEAR ([Order Date]))
WHEN "Quarter" THEN STR(YEAR([Order Date])) + "/Q"+ DATENAME('quarter', [Order Date])
WHEN "Month" THEN DATENAME('month', [Order Date]) + ""+ STR(YEAR([Order Date]))
WHEN "Day" THEN STR(DATE ([Order Date]))
END

*we did not input WEEK as Tableau does not calculate in weeks automatically (i am not too sure why yet)

5. Drag Date Field Calculation into Columns
6. Right click Date Field Parameter > Show Parameter

Dynamic Measures and Dimensions

1. Create parameter > name "Dynamic Dimensions Parameter"
2. Create calculated field > name "Dynamic Dimensions Calculation"
3. key in :
   CASE [Dynamic Dimensions Parameter]
   WHEN "Category" THEN [Category]
   WHEN "Ship Mode" THEN [Ship Mode]
   WHEN "Segment" THEN [Segment]
   END

4. Columns : Dynamic Dimensions Calculation, Category
   Rows : SUM(Sales)
5. Click on dynamic dimensions parameter > Show parameter

Dynamic Measures and Dynamic Dimensions in Tableau provide flexibility by allowing users to switch between different fields - MEASURES (e.g., Sales, Profit, Quantity) OR DIMENSIONS (like Region, Product Category, or Customer Segment) on the fly, enhancing the interactivity of dashboards and visualizations. This approach is particularly useful when you want to give users the ability to change which data is displayed without having to create multiple static views. Caters to specific needs surrounding the same categories

8. CREATING A DASHBOARD
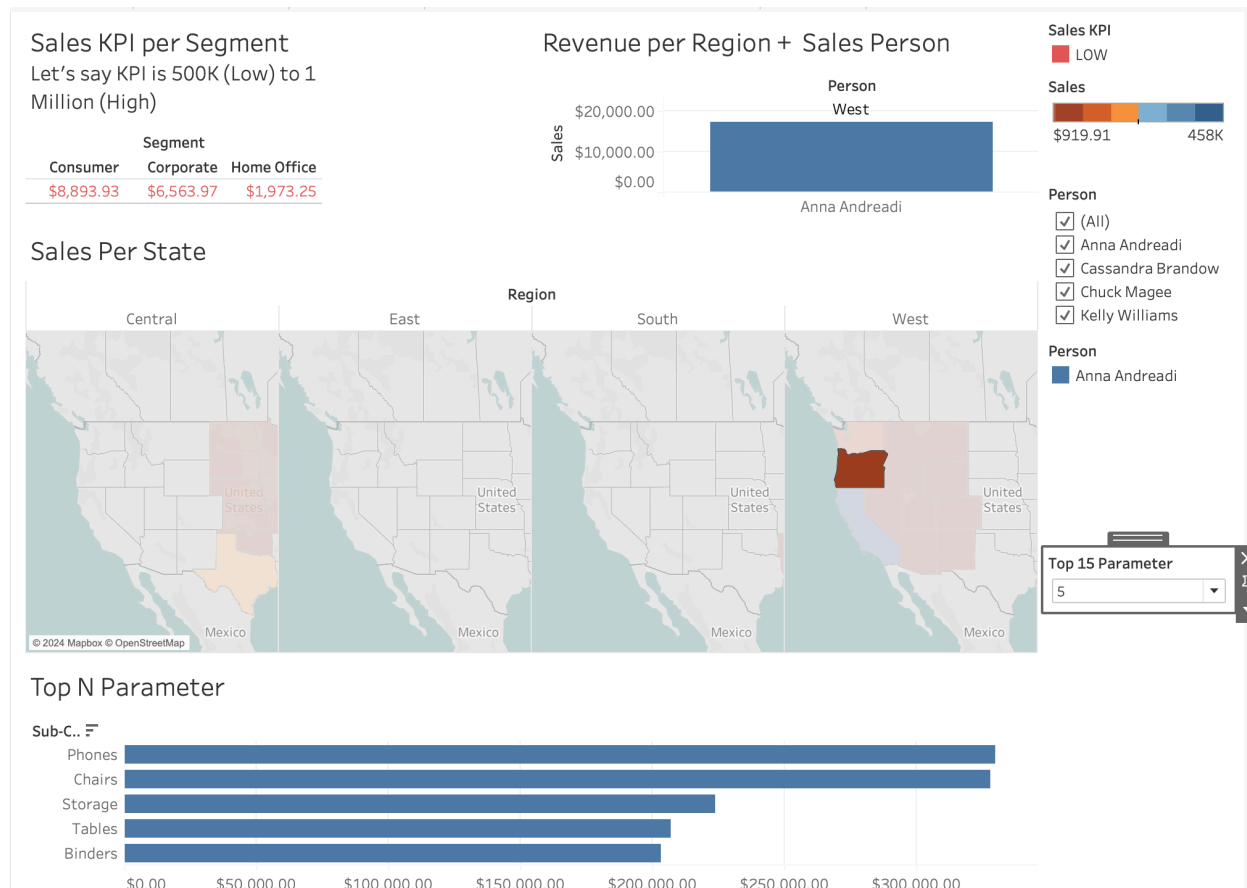
open new Dashboard > name it "Executive Overview"
sheets we will need :
1. Logical Calculations - Sales KPI per Segment
2. Revenue Per Region + Sales Person
3. Mapping - Sales per State
4. Top N Parameter - filter set at Top 5 only

Go to Dashboard at the top Control Panel > Actions > Add Action > Filter

Edit Filter Action ✕

Name

State Filter   Insert ▾

Source Sheets

⊞ OVERVIEW ▾

☐ Logical Calculations
☑ Mapping
☐ Quick Filter
☐ Top N Parameter

Run action on

○ Hover
◉ Select
○ Menu
☐ Single-select only

Target Sheets

⊞ OVERVIEW ▾

☑ Logical Calculations
☐ Mapping
☑ Quick Filter
☑ Top N Parameter

Clearing the selection will

○ Keep filtered values
◉ Show all values
○ Exclude all values

Filter

○ All fields   ◉ Selected fields

	Source Field	Target Data Source	Target Field
☐	State ▾	Orders+ (Superstore) ▾	State ▾
☐	Click to add ▾		

Remove

Cancel   OK

Click on the different states and play!