

TASK -1

Step 1: Loading the Superstore data.

The screenshot shows the Power BI desktop application interface. The ribbon at the top has 'File', 'Home', and 'Help' tabs. The 'Home' tab is selected. The 'Data' tab is highlighted in the ribbon. The main area displays the 'Orders' table, which contains fields such as Category, City, Country, Customer ID, Customer Name, Discount, Order Date, Order ID, and Postal Code. A 'Properties' pane on the right side shows settings for 'Cards': 'Show the database in the header when applicable' (No), 'Show related fields when card is collapsed' (Yes), and 'Pin related fields to top of card' (No). The status bar at the bottom shows the weather as 80°F Rain, system language as ENG_IN, and the date/time as 5:19 PM 11/4/2024.

Step 2: Create a parameter Table as go to the Modeling Table >> Selecting the New Table >> and giving the query.

The screenshot shows the Power BI Data Editor interface. On the left, there's a clipboard with a snippet of DAX code defining a ParameterTable:

```
ParameterTable = {
    "Sales",
    "Profit",
    "Quantity",
    "Discount"
}
```

Below the clipboard, a list of columns is visible, including City, Country, Customer ID, Customer Name, Discount, Order Date, Order ID, and Postal Code. A ParameterTable is selected, showing a single column Value.

The right side of the screen displays the Properties pane for the ParameterTable. The Name is set to ParameterTable. The Description field contains the placeholder "Enter a description". Under Synonyms, "parameter table, ParameterTable" is listed. The Row label and Key column fields are empty. The Is hidden and Is featured table checkboxes are unchecked. An Advanced section is partially visible.

Step 3 : Going to the Report view and then dragging the slicer visual in the report . Now the that act as the selecting which metric to display in the visualization.

The screenshot shows the Power BI Report view. On the left, a navigation pane lists fields: Value, Discount, Profit, Quantity, and Sales. The main area is currently empty, showing a large white space.

The right side of the screen displays the Visualizations pane. It includes sections for Filters, Visualizations, and Data. The Filters section shows a dropdown for Value with the option "is (All)" selected. The Visualizations section shows a grid of visualization icons, including various charts and tables. The Data section shows a search bar and a list of tables: Orders and ParameterTable, with the Value column selected.

Step 4 : Changing the name Value to Mark a selection.

The screenshot shows the Microsoft Power BI desktop application. The ribbon is visible at the top with the 'Home' tab selected. The main workspace is mostly empty, indicating a new or blank report. On the left, there's a 'Clipboard' pane titled 'Make a Selection' which contains four items: 'Discount', 'Profit', 'Quantity', and 'Sales', each with a checkbox next to it. On the right side, there are three main sections: 'Filters', 'Visualizations', and 'Data'. The 'Data' section is expanded, showing a hierarchical tree structure with 'Orders' and 'ParameterTable' under the root node 'Make a Selection'. At the bottom, the status bar displays 'Page 1' and 'Upcoming Earnings'.

Step 5 : Creating the dynamic measure that changes based on the selected item in the slicer.
Modeling Tab >> New Measure >> giving the query.

Screenshot of Power BI desktop interface. The ribbon is at the top with tabs: File, Home, Insert, Modeling, View, Optimize, Help, Table tools, Measure tools. The 'Measure tools' tab is selected. In the center, under 'Calculations', there is a list of measures. One measure is expanded: 'User Selection' with the formula: `User Selection = SELECTEDVALUE(ParameterTable[Make a Selection])`. To the right is the 'Data' pane, which contains sections for Visualizations, Data, and a search bar. Under 'Data', there are several collapsed sections: Orders, Products, Customers, and ParameterTable. The 'ParameterTable' section is expanded, showing 'Make a Selection' and 'User Selection'. At the bottom, there's a status bar with system icons.

Step 6 : creating a new measure for the calculation.

Screenshot of Power BI desktop interface. The ribbon is at the top with tabs: File, Home, Insert, Modeling, View, Optimize, Help, Table tools, Measure tools. The 'Measure tools' tab is selected. In the center, under 'Calculations', there is a list of measures. One measure is expanded: 'Calculation' with the formula: `1 Calculation = SWITCH(1, [user Selection]= "Sales", SUM(Orders[Sales]), [user Selection]= "Profit", SUM(Orders[Profit]), [user Selection]= "Quantity", SUM(Orders[Quantity]), [user Selection]= "Discount", AVERAGE(Orders[Discount])), "Select any single calculation"`. To the right is the 'Data' pane, which contains sections for Visualizations, Data, and a search bar. Under 'Data', there are several collapsed sections: Orders, Products, Customers, and ParameterTable. The 'ParameterTable' section is expanded, showing 'Calculation' and 'User Selection'. At the bottom, there's a status bar with system icons.

Step 7: Dragging the card and adding on Parameter Table > Value to fields.

The screenshot shows the Microsoft Power BI desktop interface. On the left, there is a card titled "Quantity" with the subtext "First Make a Selection". Above the card, a slicer is visible with options: "Make a Selection", "Discount" (unchecked), "Profit" (unchecked), "Quantity" (checked), and "Sales" (unchecked). In the top navigation bar, the "Home" tab is selected. On the right side of the screen, the "Data" pane is open, displaying a hierarchical list of fields from the "Orders" table. Under "Values", there are several fields listed: Category, City, Country, Customer ID, Customer Name, Σ Discount, Order Date, Order ID, Postal Code, Product ID, Product Name, Σ Profit, Σ Quantity, Region, Σ Row ID, Σ Sales, Segment, Ship Date, Ship Mode, State, Sub-Category, and a section for "ParameterTable" containing Calculation, Make a Selection, and User Selection. The "ParameterTable" section is currently expanded. At the bottom of the screen, the taskbar shows various application icons, the date (11/4/2024), and the time (5:37 PM).

Clicking on the slicer option and observing the changes on the card.

Step 8 : Selecting the table and dragging year and month from the orders table and calculating the parameter table.

Untitled - Power BI Desktop

Home

File Insert Modeling View Optimize Help Format Data / Drill

Clipboard Cut Copy Format painter Get data Excel OneLake SQL Server Enter data Dataverse Recent sources Transform Refresh data New visual Text box More visuals New calculation measure New quick calculation measure Insert Calculations Sensitivity Share Publish Copilot

Year Month Calculation

Year	Month	Calculation
2014	January	284.00
2014	February	159.00
2014	March	585.00
2014	April	536.00
2014	May	466.00
2014	June	547.00
2014	July	550.00
2014	August	609.00
2014	September	1,000.00
2014	October	573.00
2014	November	1,219.00
2014	December	1,079.00
2015	January	236.00
2015	February	239.00
2015	March	515.00
2015	April	543.00
2015	May	575.00
2015	June	486.00
2015	July	557.00
2015	August	598.00
Total		37,873.00

Quantity
First Make a Selection

Filters

Search

Filters on this visual

Calculation is (All)

Order Date - Month is (All)

Order Date - Year is (All)

Add data fields here

Filters on this page

Add data fields here

Filters on all pages

Add data fields here

Drill through

Cross-report (On)

Keep all filters (On)

Add drill-through fields here

Visualizations

Build visual

Data

Search

Orders

- Category
- City
- Country
- Customer ID
- Customer Name
- Σ Discount
- Σ Order Date
 - Date Hierarc...
 - Year
 - Quarter
 - Month
 - Day
 - Order ID
 - Σ Postal Code
 - Product ID
 - Product Name
 - Σ Profit
 - Σ Quantity
 - Region
 - Σ Row ID
 - Σ Sales
 - Segment
- Ship Date
- Ship Mode
- State
- Sub-Category

ParameterTable

- Calculation
- Make a Selection
- User Selection

Page 1 of 1

Page 1

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Step 9 : Dragging the category and sub-category to the table after creating another table.

Sandhyannanpaneni_tutorial1 • Last saved: Today at 5:18 PM

Home

File Insert Modeling View Optimize Help

Clipboard Cut Copy Format painter Get data Excel OneLake SQL Server Enter data Dataverse Recent sources Transform Refresh data New visual Text box More visuals New calculation measure New quick calculation measure Insert Calculations Sensitivity Share Publish Copilot

Year Month Calculation

Year	Month	Calculation
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2014	September	1,000.00
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2015	March	515.00
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2015	June	486.00
2015	July	557.00
2015	August	598.00
Total		37,873.00

Quantity
First Make a Selection

Filters

Search

Filters on this page

Add data fields here

Filters on all pages

Add data fields here

Values

Add data fields here

Drill through

Cross-report (On)

Keep all filters (On)

Add drill-through fields here

Visualizations

Build visual

Data

Search

Orders

- Category
- City
- Country
- Customer ID
- Customer Name
- Σ Discount
- Σ Order Date
 - Date Hierarc...
 - Year
 - Quarter
 - Month
 - Day
 - Order ID
 - Σ Postal Code
 - Product ID
 - Product Name
 - Σ Profit
 - Σ Quantity
 - Region
 - Σ Row ID
 - Σ Sales
 - Segment
- Ship Date
- Ship Mode
- State
- Sub-Category

ParameterTable

- Calculation
- Make a Selection
- User Selection

Page 1 of 1

Page 1

86%

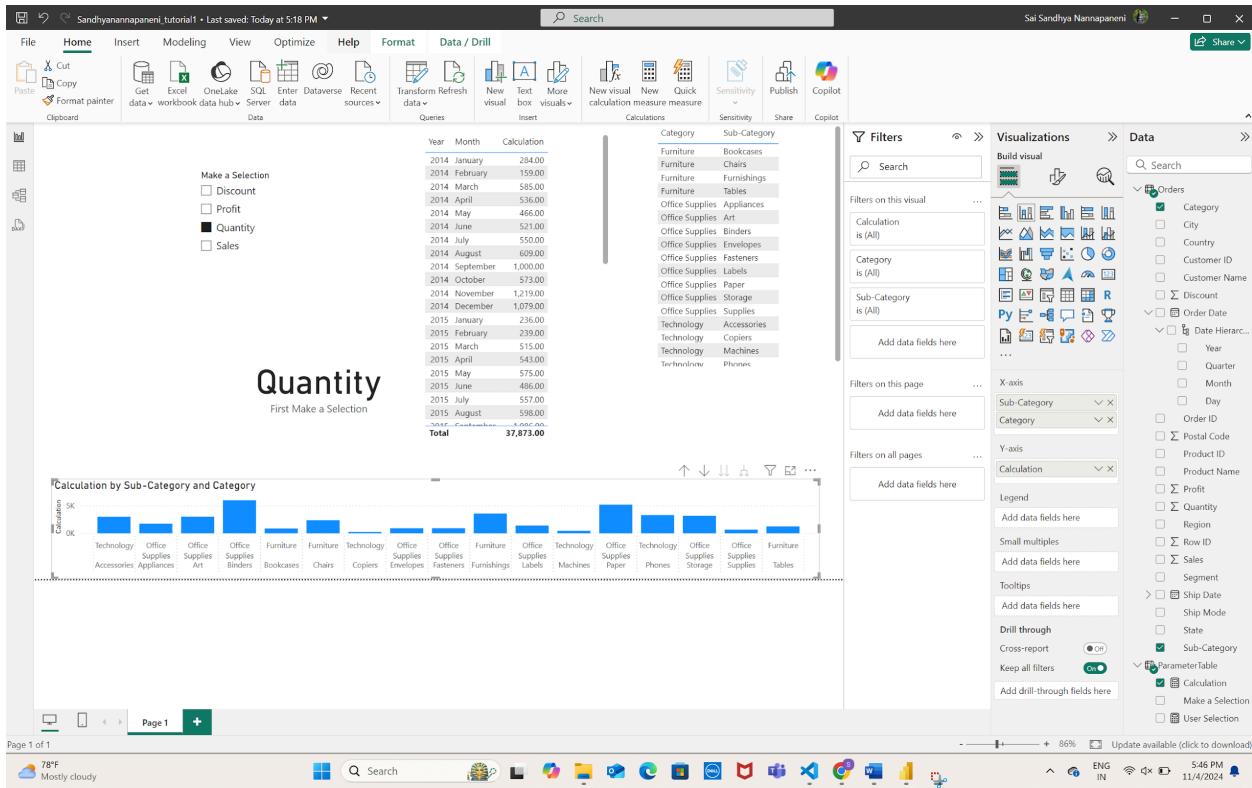
Update available (click to download)

78°F Mostly cloudy

Search

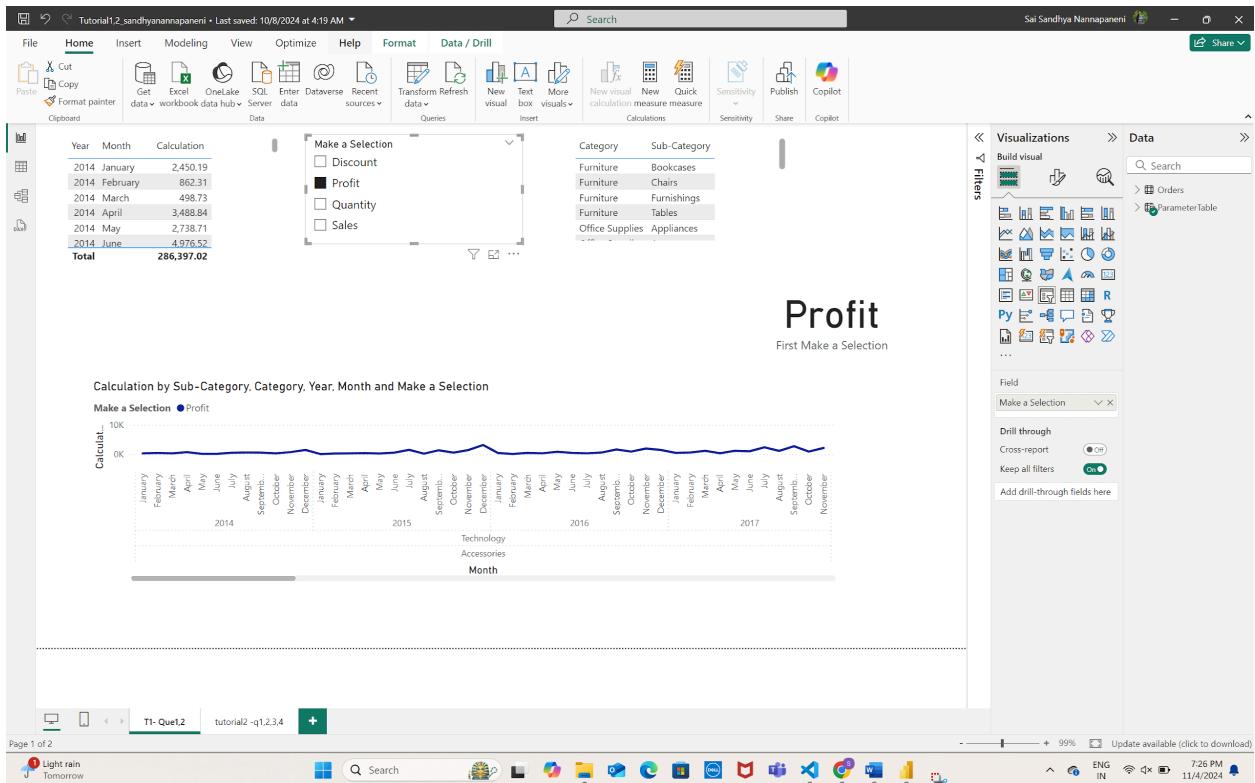
ENG IN 5:42 PM 11/4/2024

Step 10 : Selecting the column chart, Using the Category, Sub-Category and Calculation into the chart.



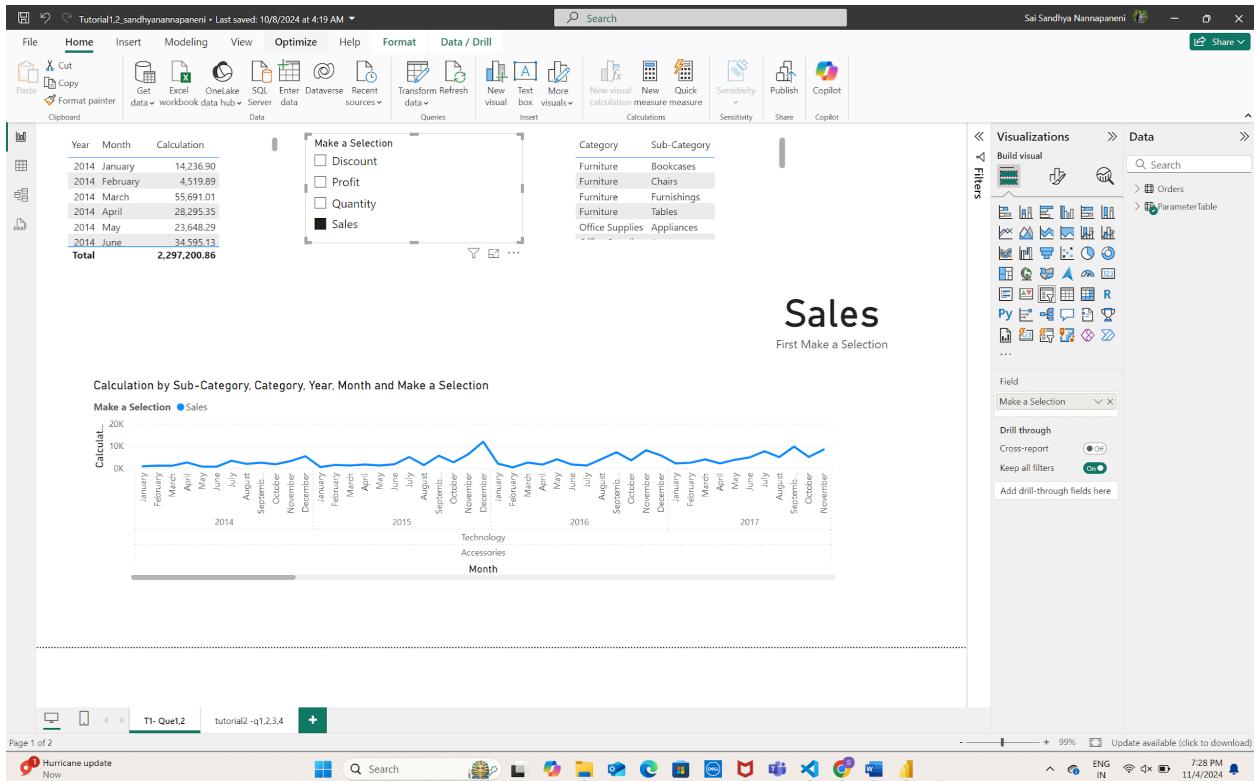
Question

- 1) Creating the line chart instead of bar chart for every parameter table over year and month.



- 2) Sales, Profit, Discount, and Quantity for multiple Sub Categories against time.
Following is an analysis based on these metrics:

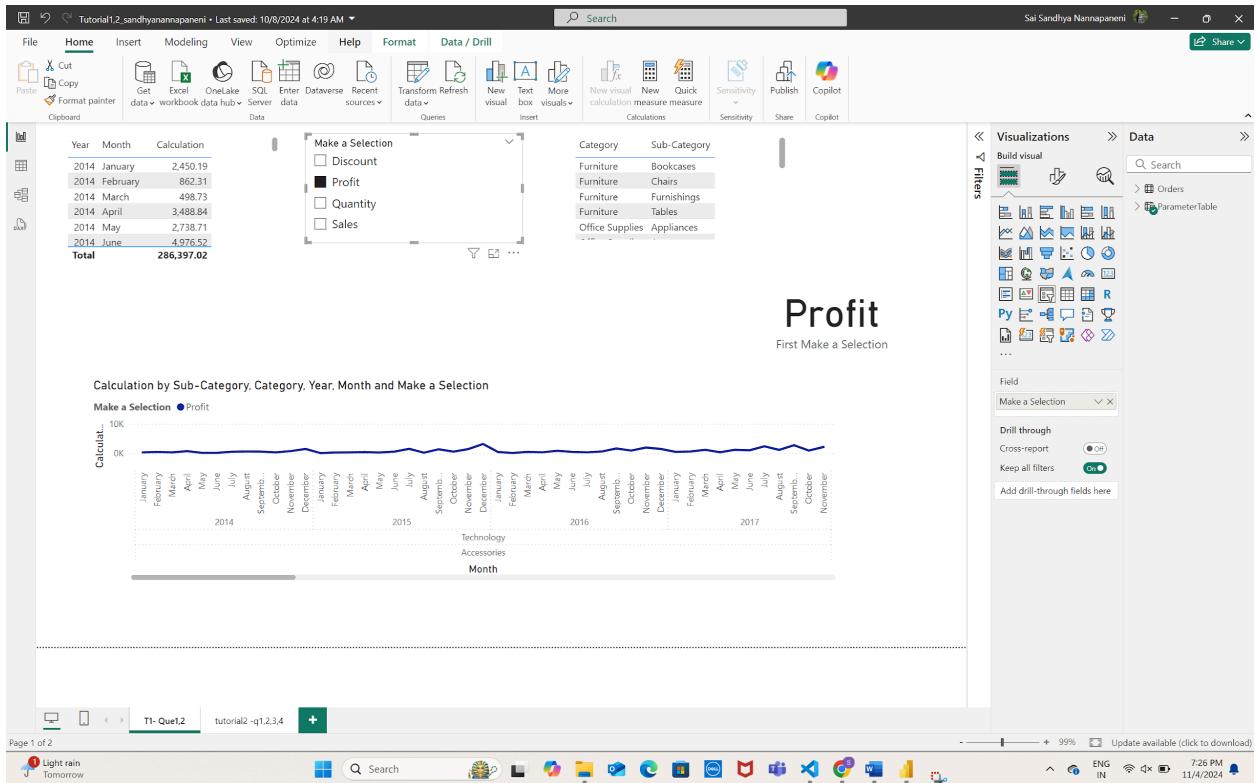
Sales Trends : The sales trend shows an overall improvement with time, reaching peaks during particular months of each year. This might suggest a potential seasonality in sales. This could be because sales during certain times of the year are more than others, probably during holiday seasons or end-of-year spending.
Sub-Categories can be used to filter and identify high performing categories in regard to sales. It would appear that Technology and Office Supplies generally have higher peaks-meaning they are more constant high-demand categories.



Profit Trends

- Profit seems stable but with less amplitude in peaks compared to Sales. This would prove that while the volumes may vary in sales, profitability remains reasonably constant.

The peak difference between Sales and Profit can provide information on margins; some categories may have high sales but lower profits, possibly due to discounts or lower margins on those products.



Discount Trends

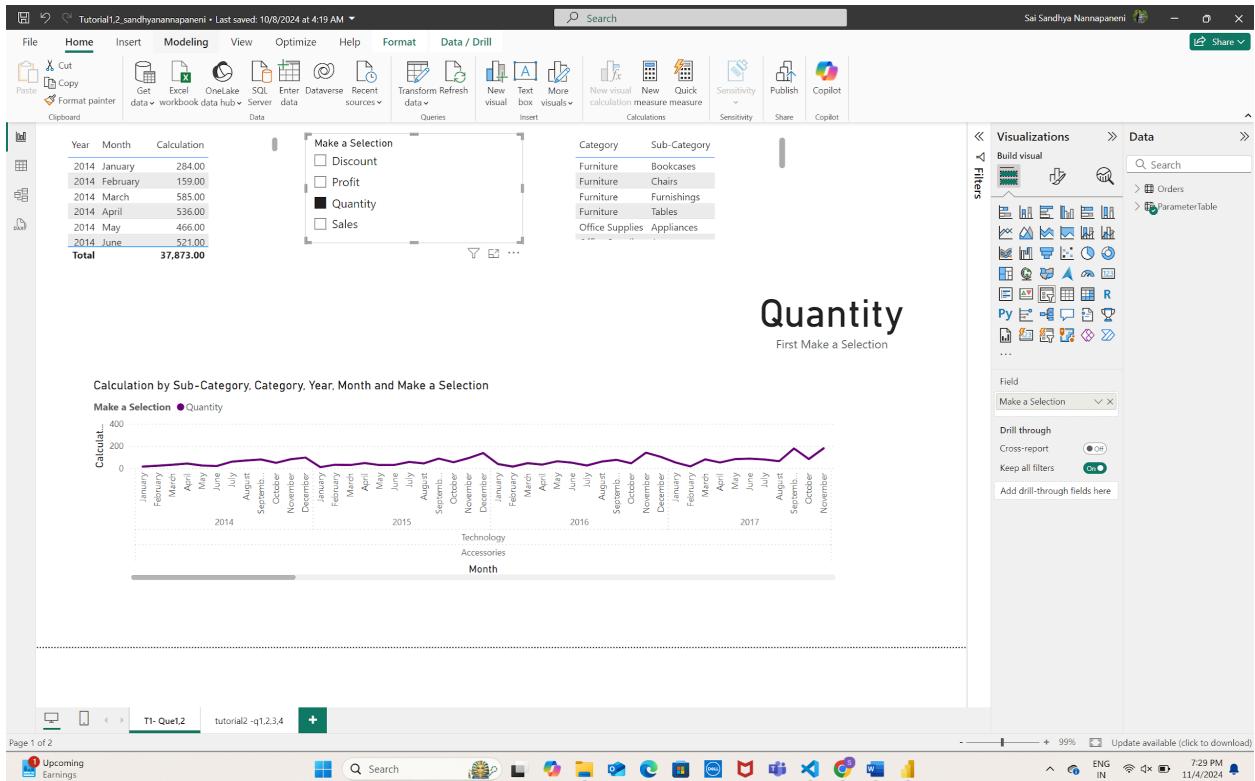
The discount trend is generally low, which suggests that discounts are not heavy across these categories. However, sometimes the spikes of discounts may fall on a sales peak to show this probably is the promotional period.

Monitoring the discount pattern with regards to Sales and Profit will provide insight into how discounts affect overall profitability. Categories offering large discounts without a significant increase in profit need an adjustment of the strategy.

Quantity Trends

Quantity trends are flat, meaning that even though the number of items sold is stable, sometimes the revenue will be very different.

While categories that have high sales and quantity but low profit might involve low-margin products, the ones that present low quantity but high profits point toward high-value items.



Seasonal Trends and High Performing Categories

Seasonal peaks in sales suggest higher customer demand during those times, which could be targeted with marketing efforts accordingly.

Since Technology and Office Supplies consistently show high performance in Sales and Profit, these categories must be considered a focus to drive revenues.

2) It can be seen the question above the figures that constitute the above question demonstrate the following question

When dynamic diagrams are used in practice, we investigate the implications of the changes in sales, profit, and volume across different product sales categories. We notice different things when we change these categories: The question arises whether Profit helps; because in that case, it often happens that high relevant Sales are not financially reasonable due to the huge finance or cost caused by the high Sales. Sales typically illustrate climactic highs most usually around additional or promotional periods. Quantity trends regarding how products are reaching customers and hence these trends will not corroborate with revenue-oriented explanations which tend to focus on more sales but cheaper goods. Working with trends, scanning for high-potential categories For dynamic changes to the measures values in DAX, it is recommended to use the SWITCH function. According to the selected criteria, Sales, Profit, and Quantity may alternation, or rather be switched, by the patients. This is a useful feature in analyzing multiple KPIs in real time because you can view all the columns at once, allowing you to interrogate such data. Also once the breakdown of charts or tables is adjusted, there will

not be a need of creating a new layout every now and then, so as to facilitate understanding.

3) The SWITCH function in your DAX calculation enables the dynamic switching between various metrics in the charts through a parameter table and a slicer. Here's how this works based on the process from your report setup:

->1. Parameter Table and Slicer Setup:

You created a parameter table with values like "Sales," "Profit," "Quantity," and "Discount." It's linked to a report slicer that allows users to select which of the metrics they want to see in this chart.

->2. User Selection and SWITCH Function:

- The slicer value is captured via the function `SELECTEDVALUE` (User Selection). Consequently, the SWITCH function evaluates the selected value to return the appropriate calculation:

```
DAX
Calculation =
SWITCH(
    TRUE(),
    [User Selection] = "Sales", SUM(Orders[Sales]),
    [User Selection] = "Profit", SUM(Orders[Profit]),
    [User Selection] = "Quantity", SUM(Orders[Quantity]),
    [User Selection] = "Discount", AVERAGE(Orders[Discount]),
    BLANK()
)
```

- In this formula, the SWITCH function checks what value is selected and performs an aggregation based on that chosen metric SUM or AVERAGE. In case "Sales" is selected, then the sum of the Sales column is calculated, and so on for other metrics.

-> 3. Dynamic Updating of Visualizations:

The resultant calculation that's created `Calculation` is then used in your visualizations. When the user selects a different choice in the slicer, the SWITCH function re-calculates itself based on that new selection and the visualizations update themselves with the right metric over time automatically.

This setup allows the report to be flexible and interactive, in that end users can analyze multiple metrics by using different metrics with each visual without having separate

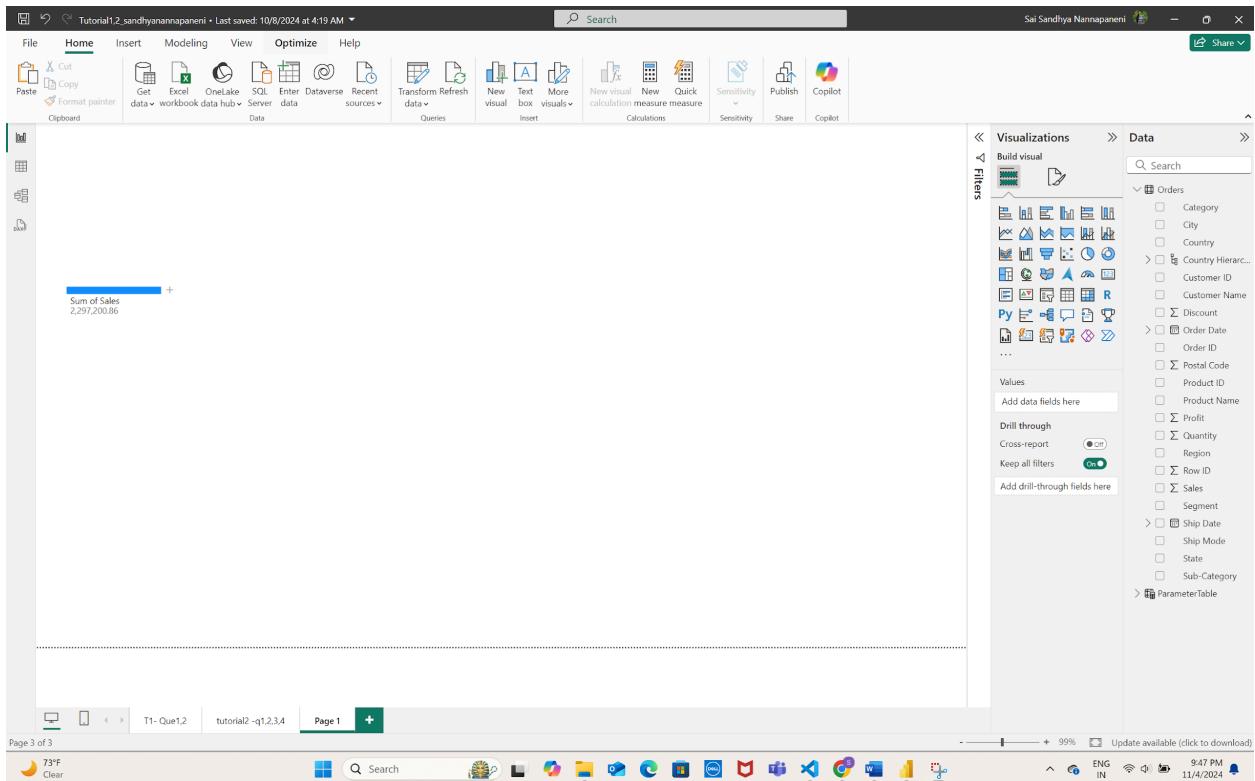
visuals for each metric. This enables the report to be less crowded and thus more user-friendly.

TASK - 2

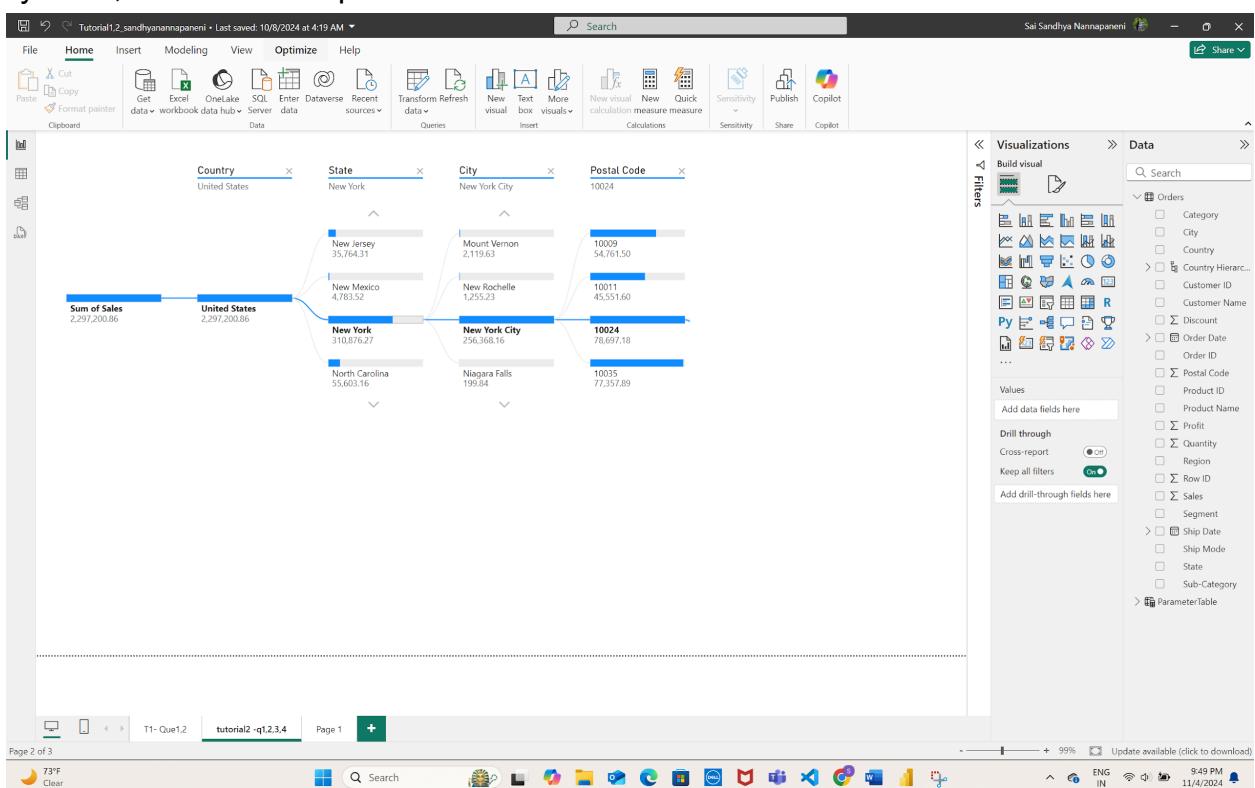
Step 1 and 2 : Loaded the dataset and created the Hierarchy and added State, city , and postal code.

The screenshot shows the Power BI Desktop interface. The top menu bar includes File, Home, Insert, Modeling, View, Optimize, and Help. The ribbon below has sections for Clipboard, Data, Queries, Insert, Calculations, Sensitivity, Publish, and Copilot. The main workspace is titled "Build visual" with the sub-instruction "Build visuals with your data" and the note "Select or drag fields from the Data pane onto the report canvas." A cursor is hovering over a dashed-line box on the canvas. To the right is the "Data" pane, which lists fields under "Orders" and "Values". The "Orders" section includes fields like Category, City, Country, Customer ID, Customer Name, Discount, Order Date, Order ID, Postal Code, Product ID, Product Name, Profit, Quantity, Region, Row ID, Sales, Segment, Ship Date, Ship Mode, State, Sub-Category, and ParameterTable. The "Values" section includes fields like Sum(Profit), Sum(Quantity), Sum(Sales), and Sum(Segment). There are also sections for Drill through, Cross-report, and Keep all filters. At the bottom, the status bar shows "Page 3 of 3", "T1-Que1.2", "tutorial2-q1.2.3.4", "Page 1", and a plus sign for adding new pages. The taskbar at the bottom includes icons for search, file explorer, and various applications, along with system status indicators like battery level, signal strength, and date/time.

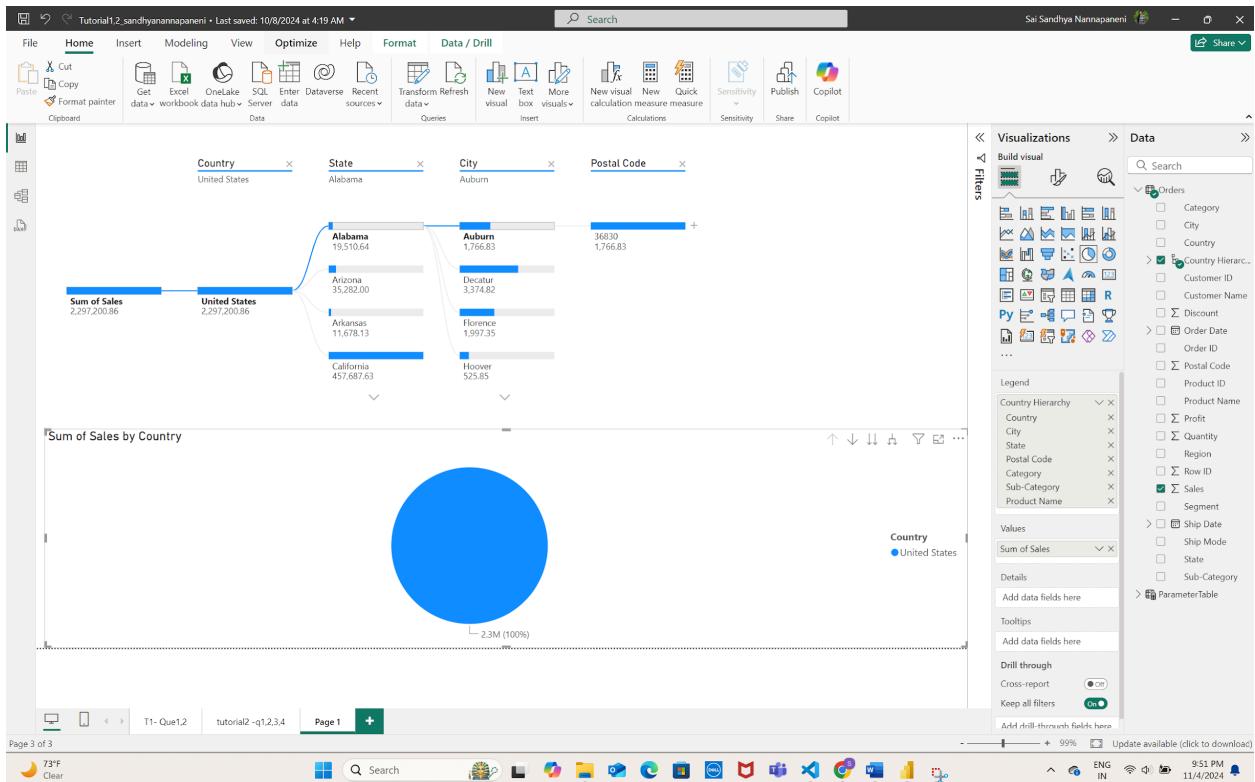
Step 3: Going to report view. Selecting the Decomposition Tree visual and to explain by the section of the decomposition tree we created the country hierarchy.



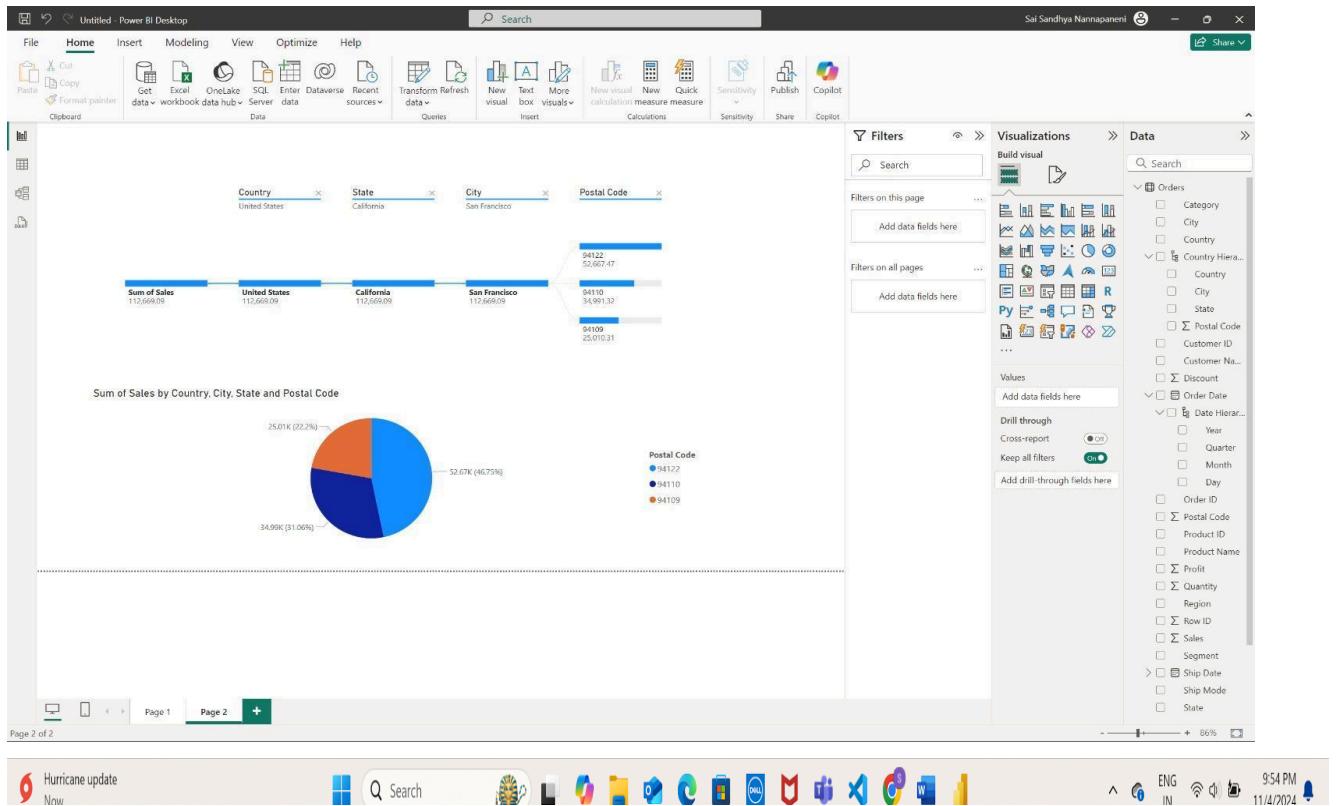
Step 4: Clicking on the + and selecting the country for drill down in the country followed by state,cities and then postal codes.



Step 5: Selecting the pie chart from the visualization pane .



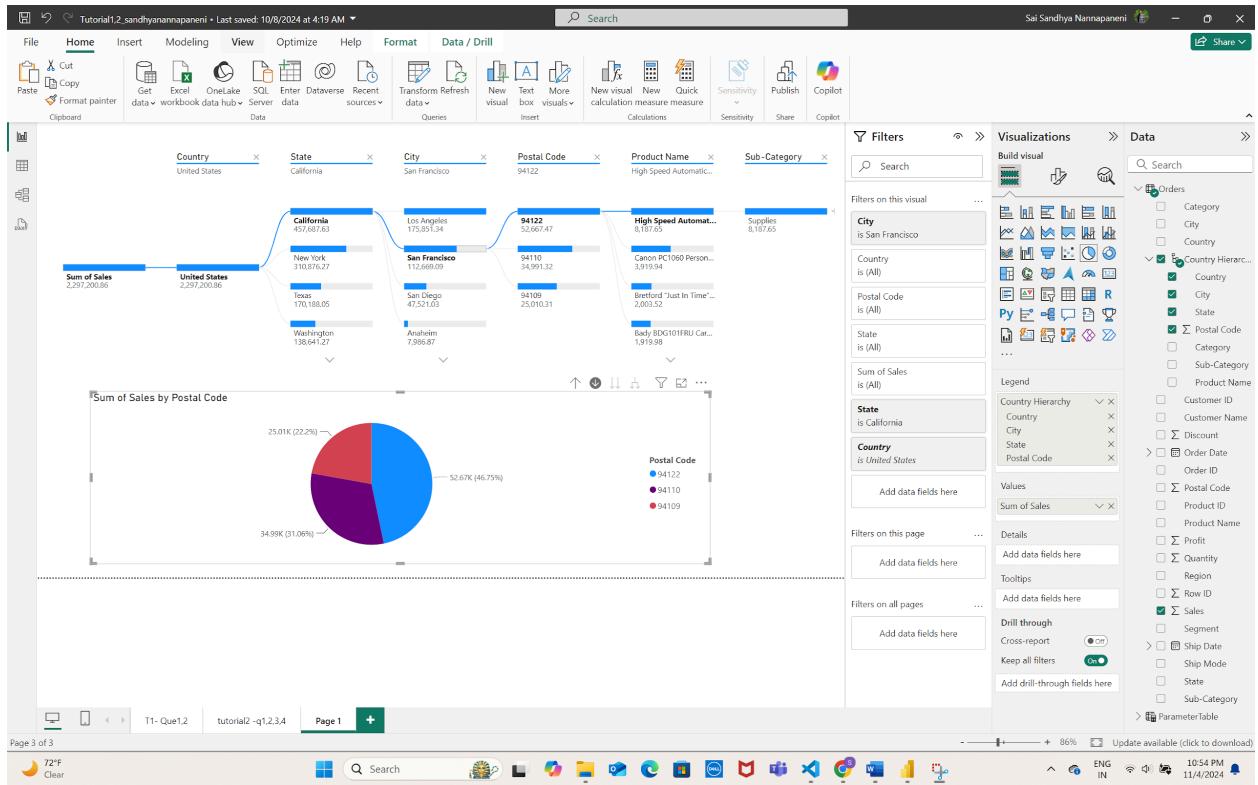
Step 6 : The piechart will give the particular date for the selected state and city.



Questions

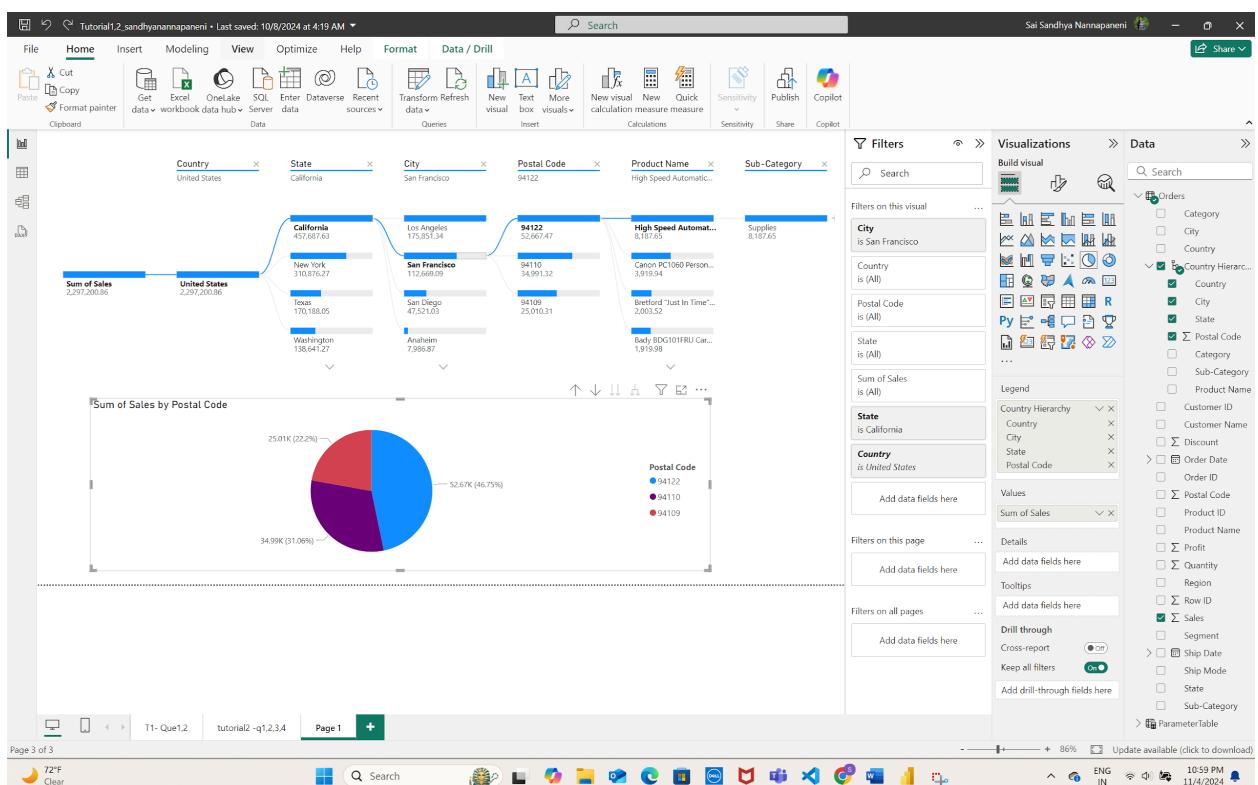
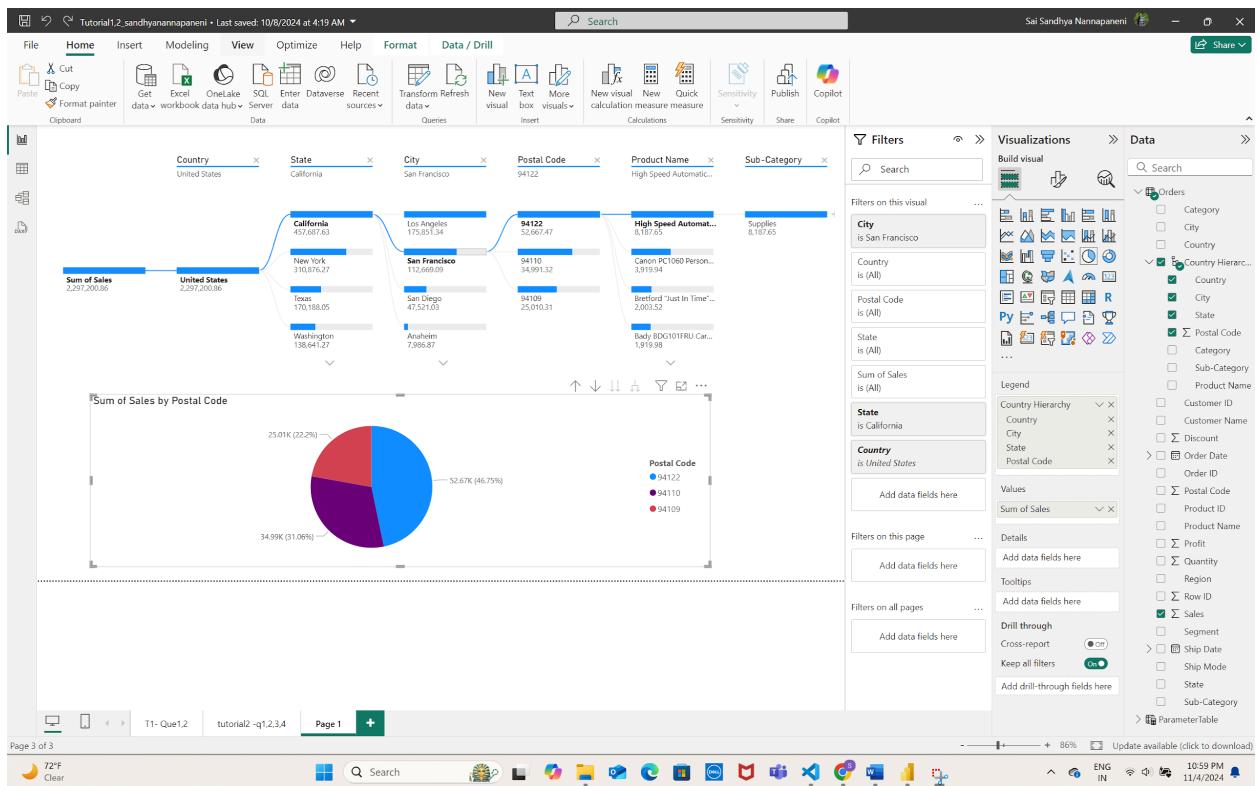
- 1) Extend the hierarchy to Category, Sub-Category, and Product Name from the Superstore data set. You want to drill down from Country to Product Name to review the sales performance of each product.

Product sales data indicates that, out of all office supplies sold in San Francisco, the "High-Speed Automatic Electric Stapler" is the best seller in the 94122 postal code and comprises 46.75% of total sales. Other products, such as the "Compact Automatic Electric Pencil Sharpener" and "Acme Tagit Stainless Steel Scissors", though their sales are low, also contribute to the overall revenue. The sales are scattered over the pin codes 94110 and 94109, which indicates the scope for focused marketing in these regions. Office Supplies heads the list of categories in terms of sales. Under this category, the demand for the subcategory "Supplies" is high, especially in regards to basic office stationery. These will help formulate supply and marketing policies concerning different products to elicit the best performance from each product category by matching demand in these localities.



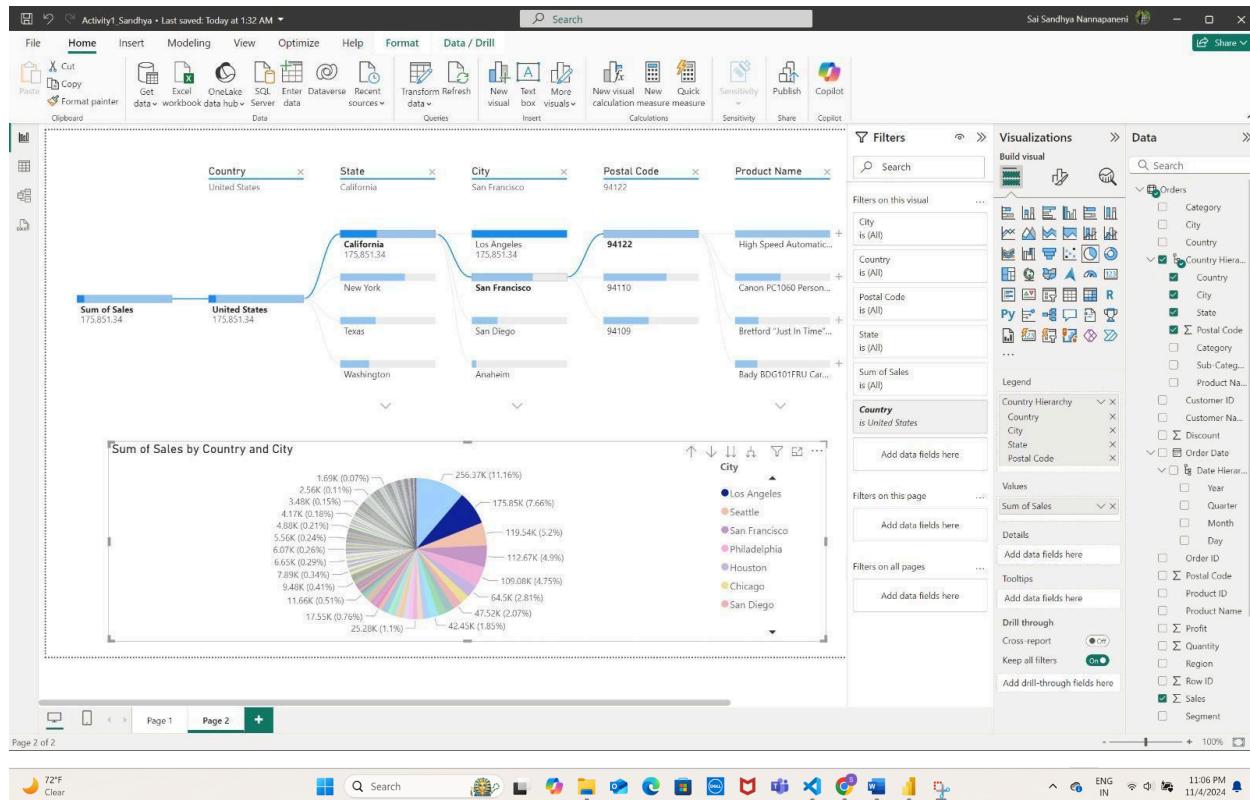
2) the State of California specifically and continue drilling down into City, Postal Code, and Product Name.

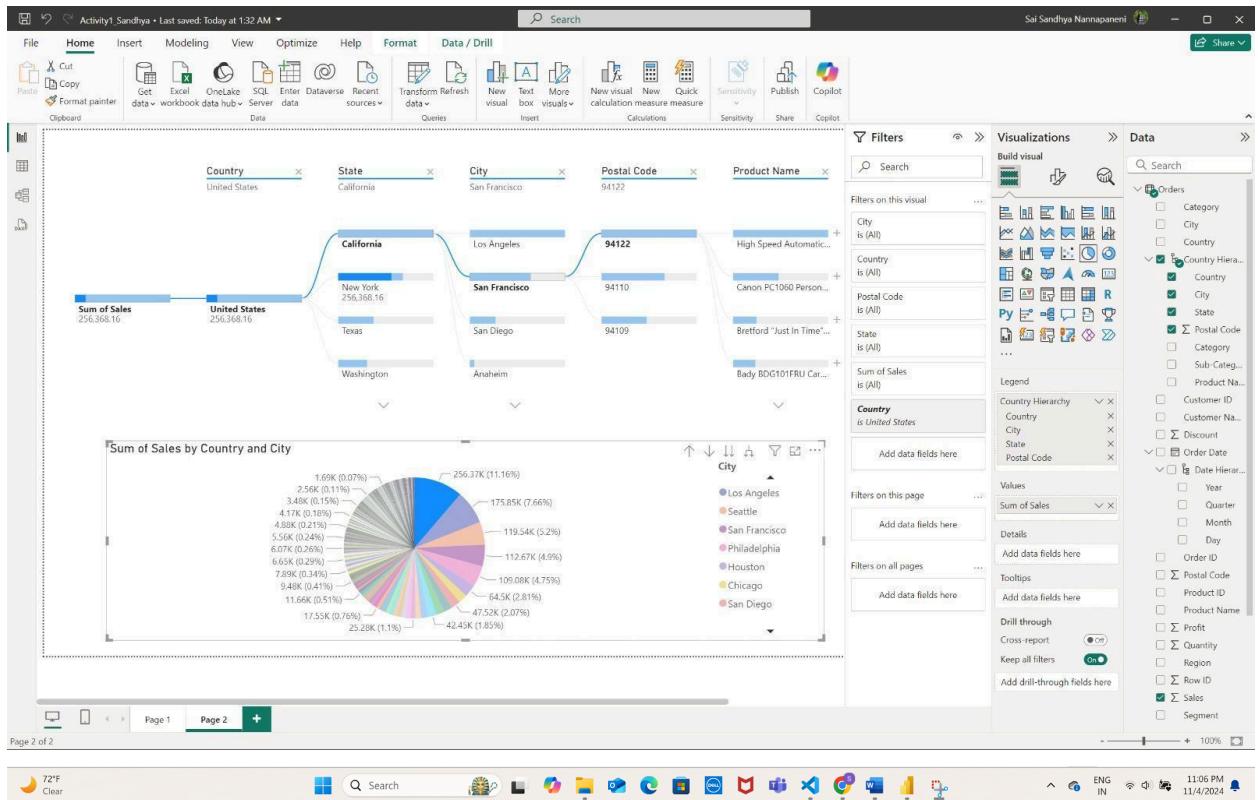
The product contributions to sales in California are from the High-Speed Automatic Electric Stapler, which is the best performer in the Office Supplies category, more so within the area with the 94122 postal code. Other important products included the Canon PC1060 Personal Copier and Bretford Just In Time Cart, a testament to very strong sales in office equipment and ancillary products. Hence, these best sellers indirectly point toward the likeliness of office stationery and technology accessories.



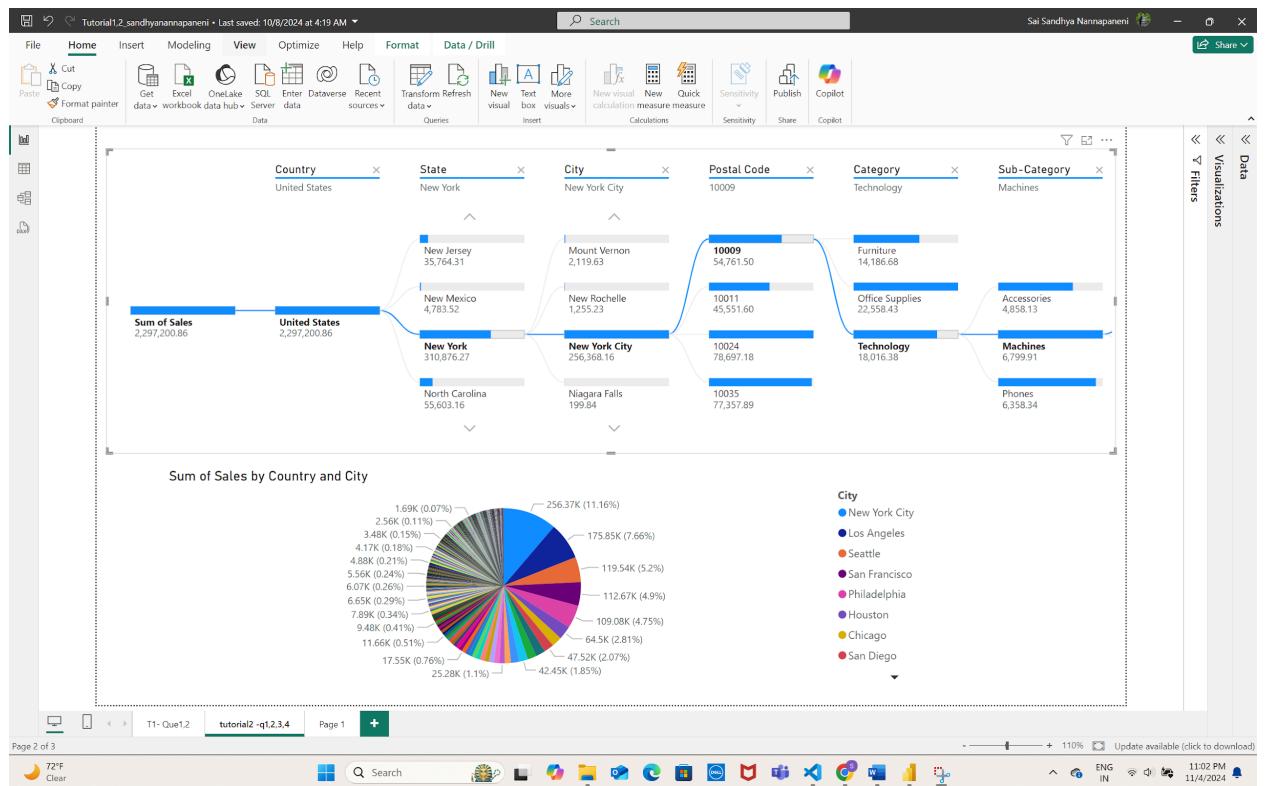
3) the pie chart, compare the total sales between two states of your choice (e.g., New York and Texas).

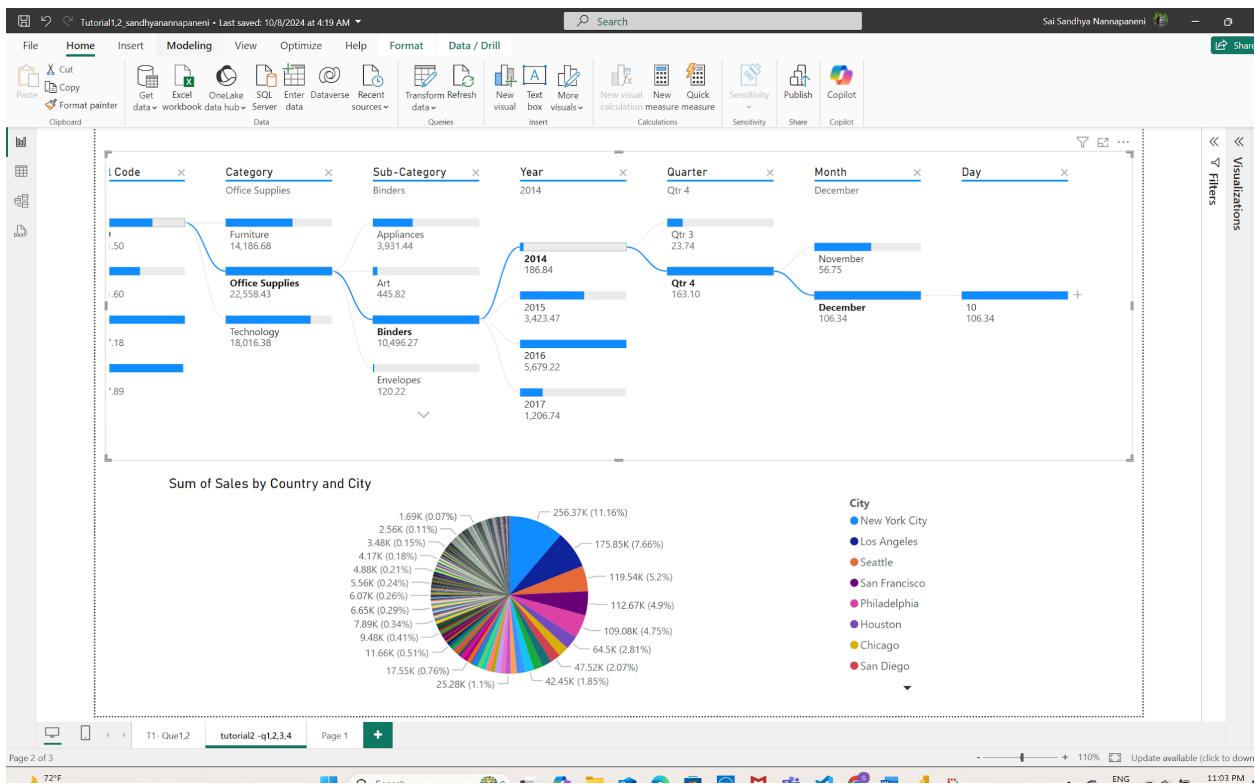
In California, the sales trend is highly contrasted with New York in different product categories. This is also where the sales volume is higher, with high sales of Office Supplies and Technology categories, which are predominantly because of demand from big cities like San Francisco and Los Angeles. While New York experiences strong sales in categories concerning Furniture and Office Supplies, other categories show a rather even sales distribution pattern. It means, though in California, the market might be more concentrated towards technology and office essentials, New York shows category engagement in a wider sense, probably reflecting regional consumer preferences and business needs.





3) I have taken New York as an example and in 2014 it showed high performance.





Task 3:

Step 1: Loading the Industries layoff Data.

Sai Sandhya Nannapaneni

Navigator

Display Options

Industries, layoff data.xlsx [2]

Table1

Sheet1

Import data from

Table1

Preview downloaded on Tuesday, October 8, 2024

#	Company	Location_HQ	Country	Continent
3	ShareChat	Bengaluru	India	Asia
4	Insightec	Haifa	Israel	Asia
6	Emphaze Energy	San Francisco Bay Area	USA	North
7	Udyan	Bengaluru	India	Asia
14	Cruise	San Francisco Bay Area	USA	North
16	Bolt	San Francisco Bay Area	USA	North
20	Invitae	San Francisco Bay Area	USA	North
21	Etsy	New York City	USA	North
27	Chiper Cash	San Francisco Bay Area	USA	North
37	Zulily	Seattle	USA	North
37	ZestMoney	Bengaluru	India	Asia
38	Navon	San Francisco Bay Area	USA	North
39	Incredibuild	Tel Aviv	Israel	Asia
44	Spotify	Stockholm	Sweden	Europe
50	Loco	Mumbai	India	Asia
52	Zepz	London	United Kingdom	Europe
56	Unity	San Francisco Bay Area	USA	North
57	Datamine	New York City	USA	North
62	Our Next Energy	Detroit	USA	North
70	Physics Wallah	Noida	India	Asia
92	TripAdvisor	Boston	USA	North
110	Viasat	San Diego	USA	North

Load Transform Data Cancel

Page 1 of 1

73°F Clear

10:21 PM 11/4/2024

Step 2: Select the Stacked Column Chart and visualize.

Sai Sandhya Nannapaneni

Select or drag fields to populate this visual

Filters

Filters on this visual

Add data fields here

Filters on this page

Add data fields here

Filters on all pages

Add data fields here

X-axis

Add data fields here

Y-axis

Add data fields here

Legend

Add data fields here

Small multiples

Add data fields here

Tooltips

Add data fields here

Drill through

Cross-report

Keep all filters

Add drill-through fields here

Visualizations

Build visual

Py

Data

Search

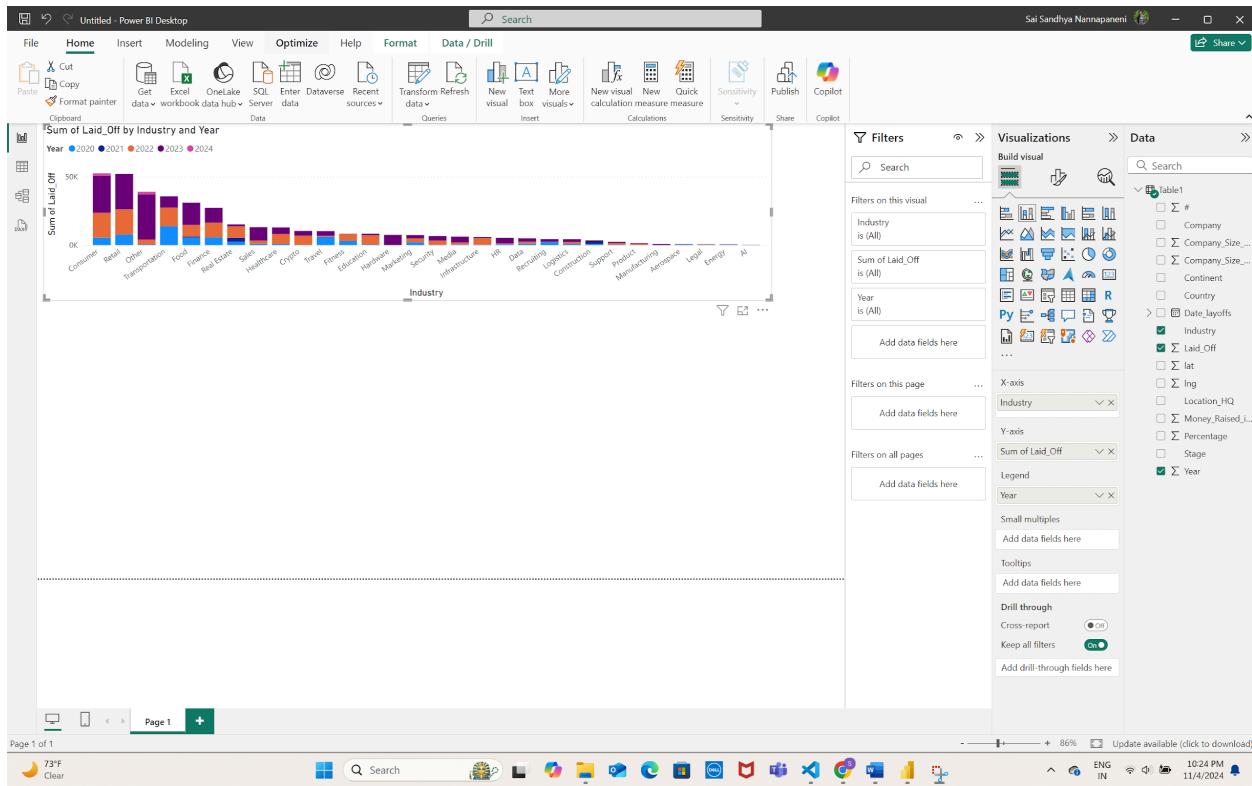
Table1

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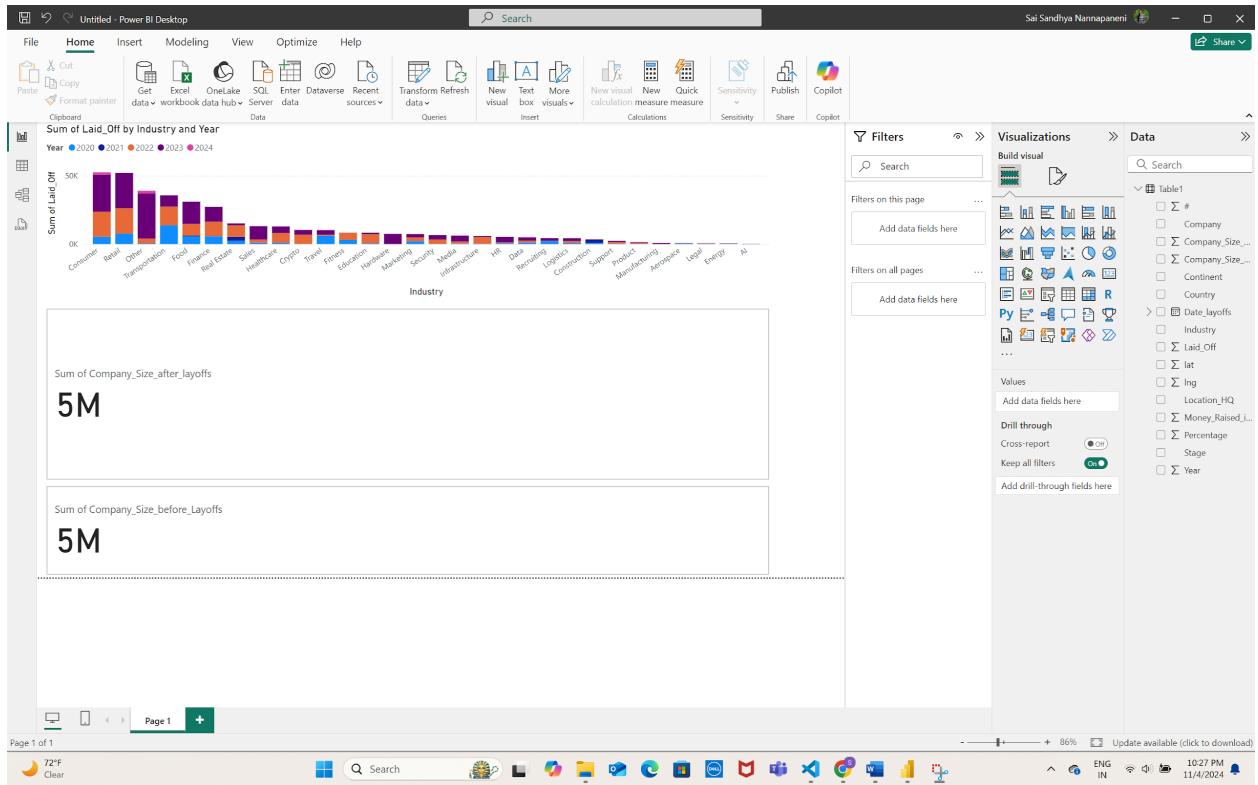
73°F Clear

10:22 PM 11/4/2024

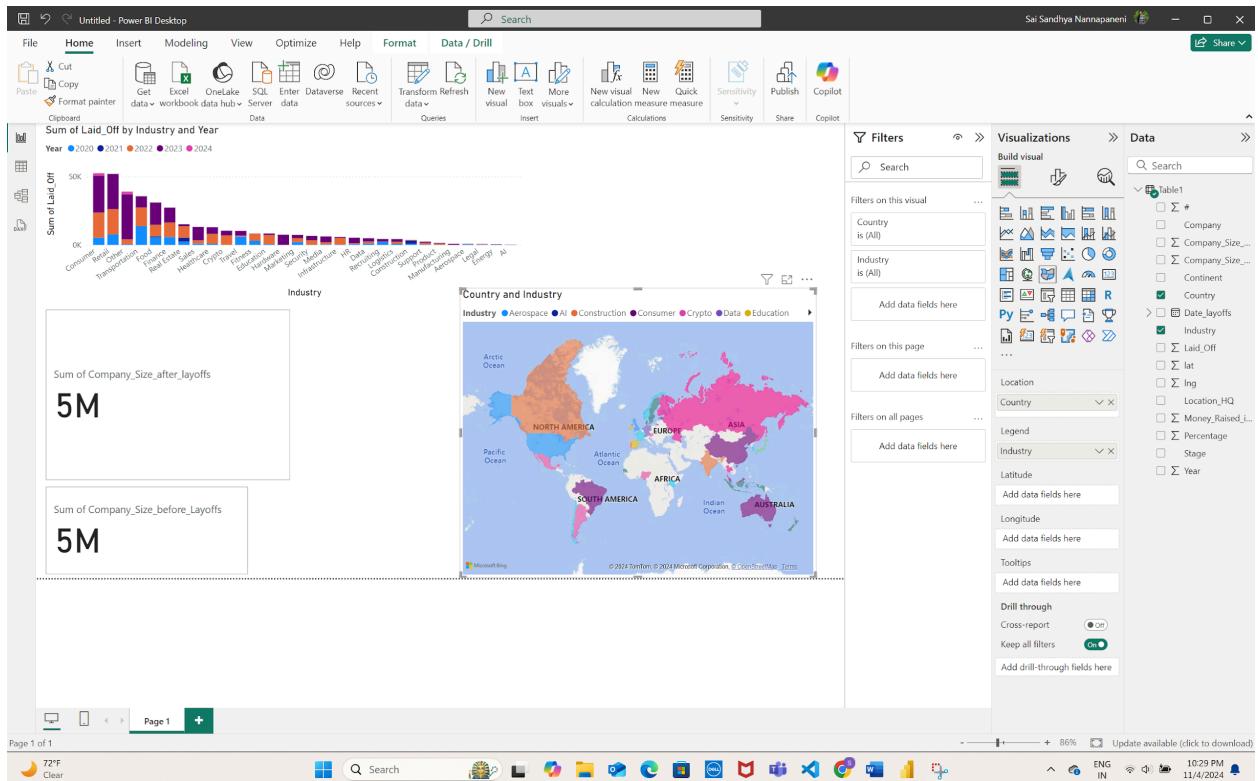
Step 3: Displaying the layoffs by Industry and year and we are taking Industry in X-axis and Laid_off field in Y-axis and the year to legend.



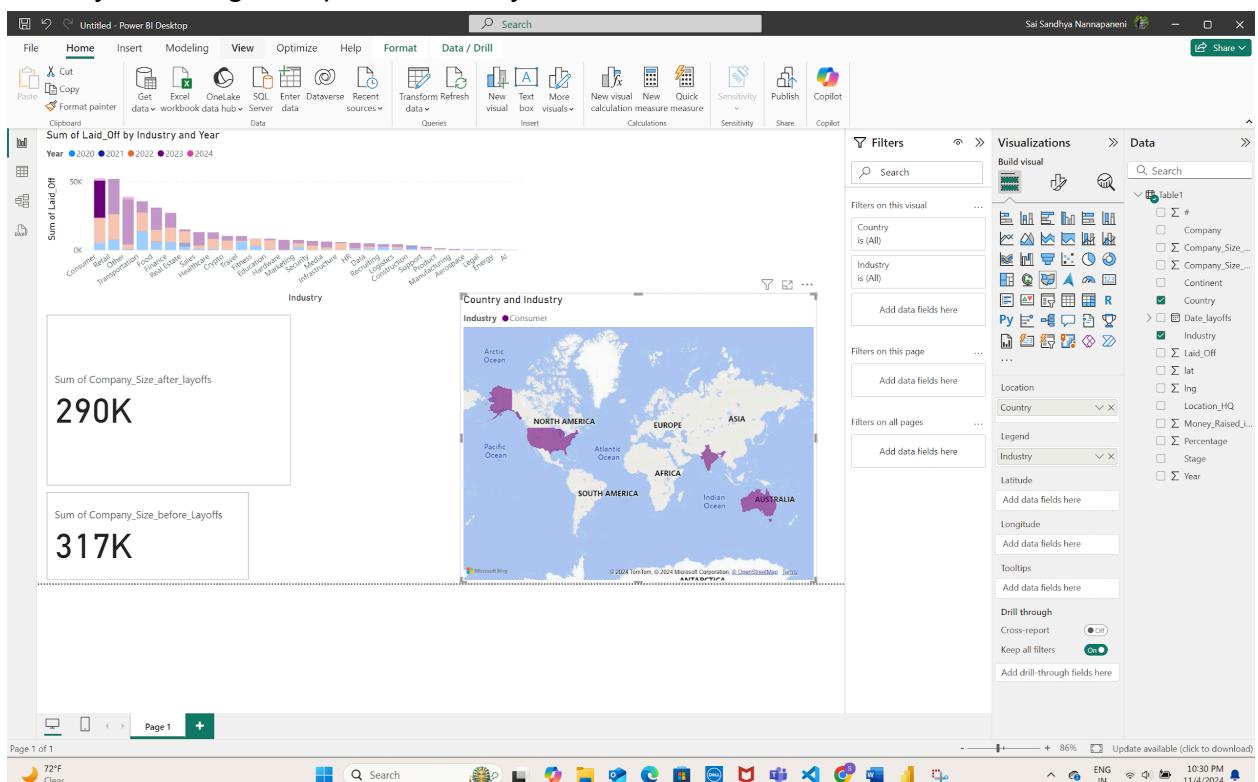
Step 4 : For displaying the company size before layoffs and after the layoffs we are adding the cards.



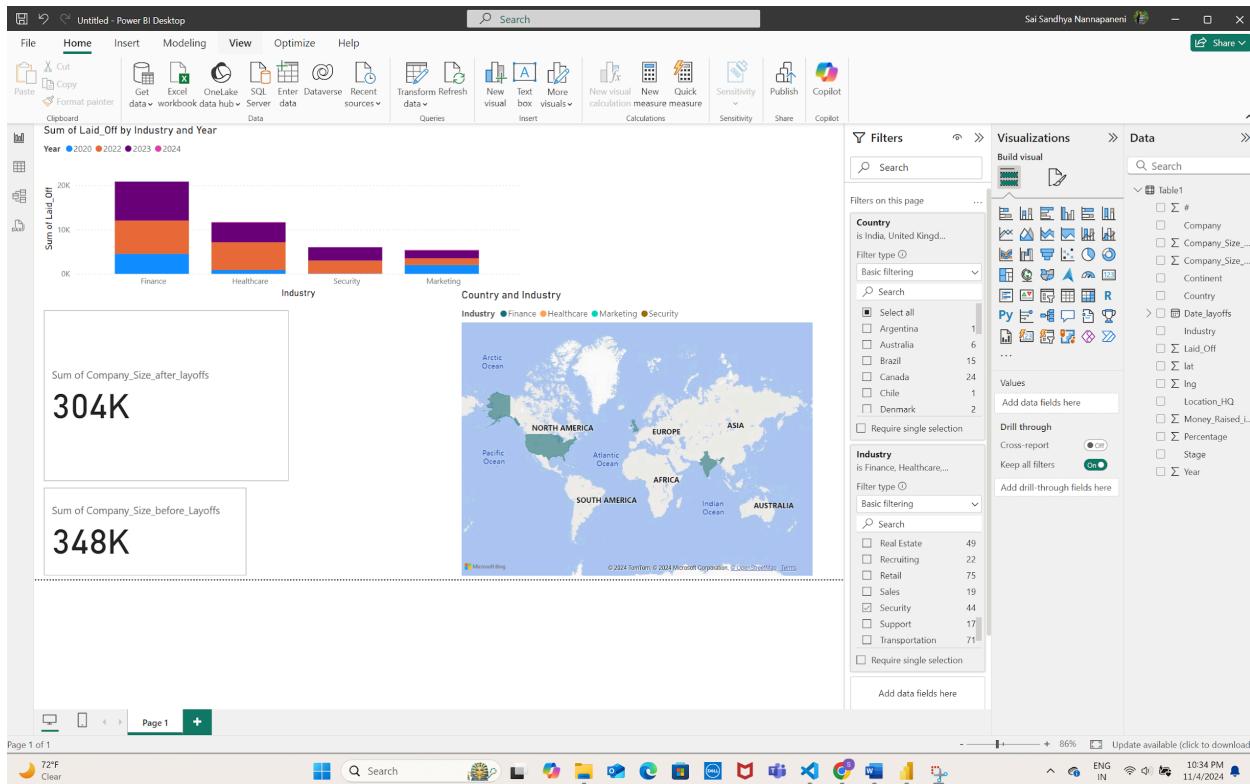
Step 5: Selecting the Industry and country attributes and by using this we are incorporating a map.



Step 6: The count of layoffs as well as the company size before and after layoffs we can view by selecting the specific industry

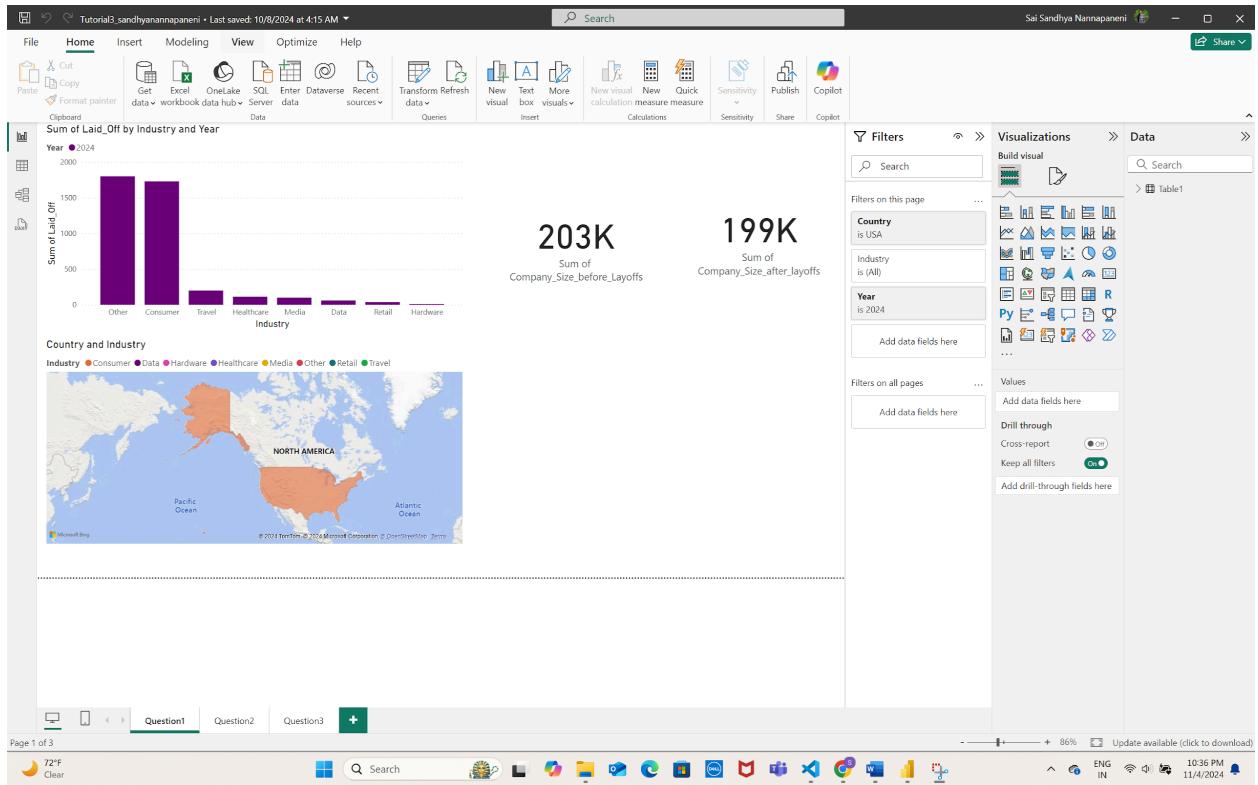


Step 7: In the filters we added India, United Kingdom and USA under Country and selected the finance ,healthcare, marketing and security under industry.

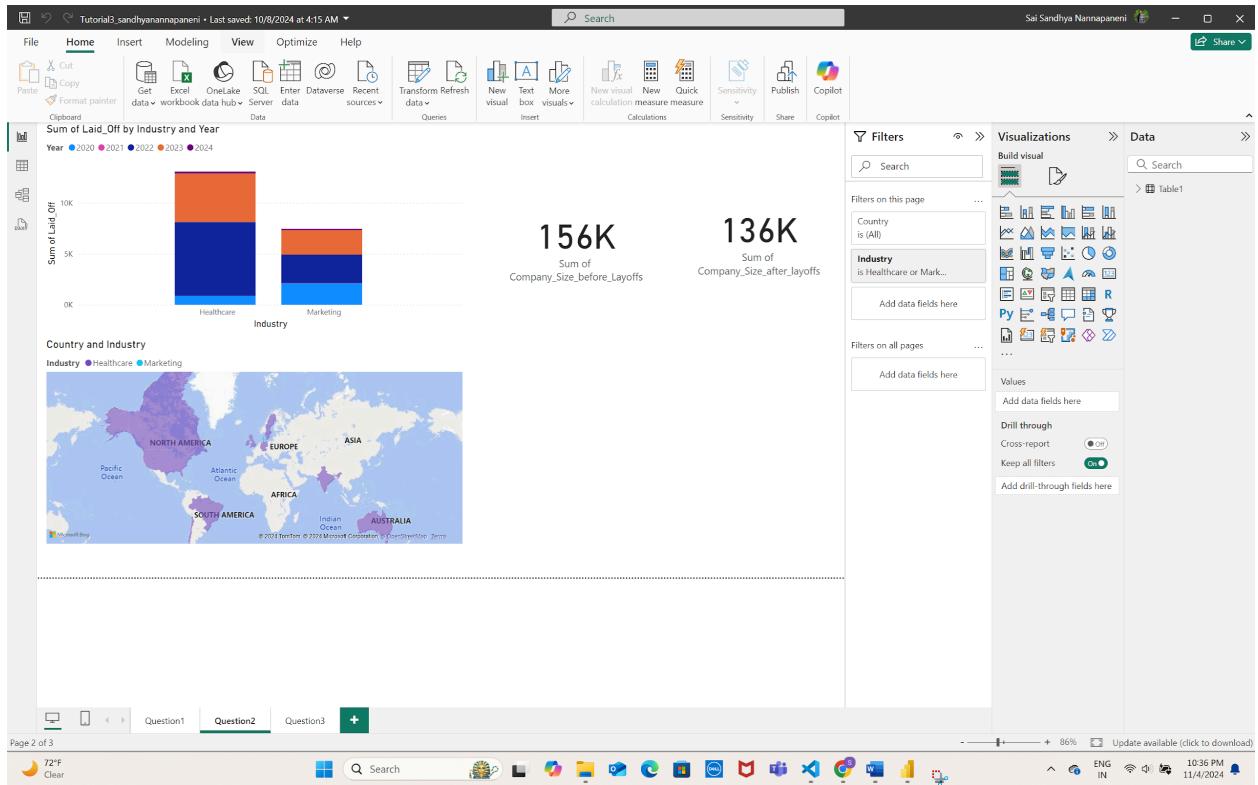


QUESTIONS:

- 1) Apply the filter for Country and select only USA. Layoffs in the USA focus on some industries that, within the course of years, are huge or less huge. The Technology industry contributed the most considerable number of layoffs in 2024, as can be seen from the high bar in this chart for this year. That means the workforce was drastically reduced in the very period other industries did not post such huge layoffs. Layoffs occur in other industries, such as Consumer and Retail, but not as many as Technology has in the year 2024. Perhaps this may be due to shifts and changes that are constantly going on in the Technology sector.

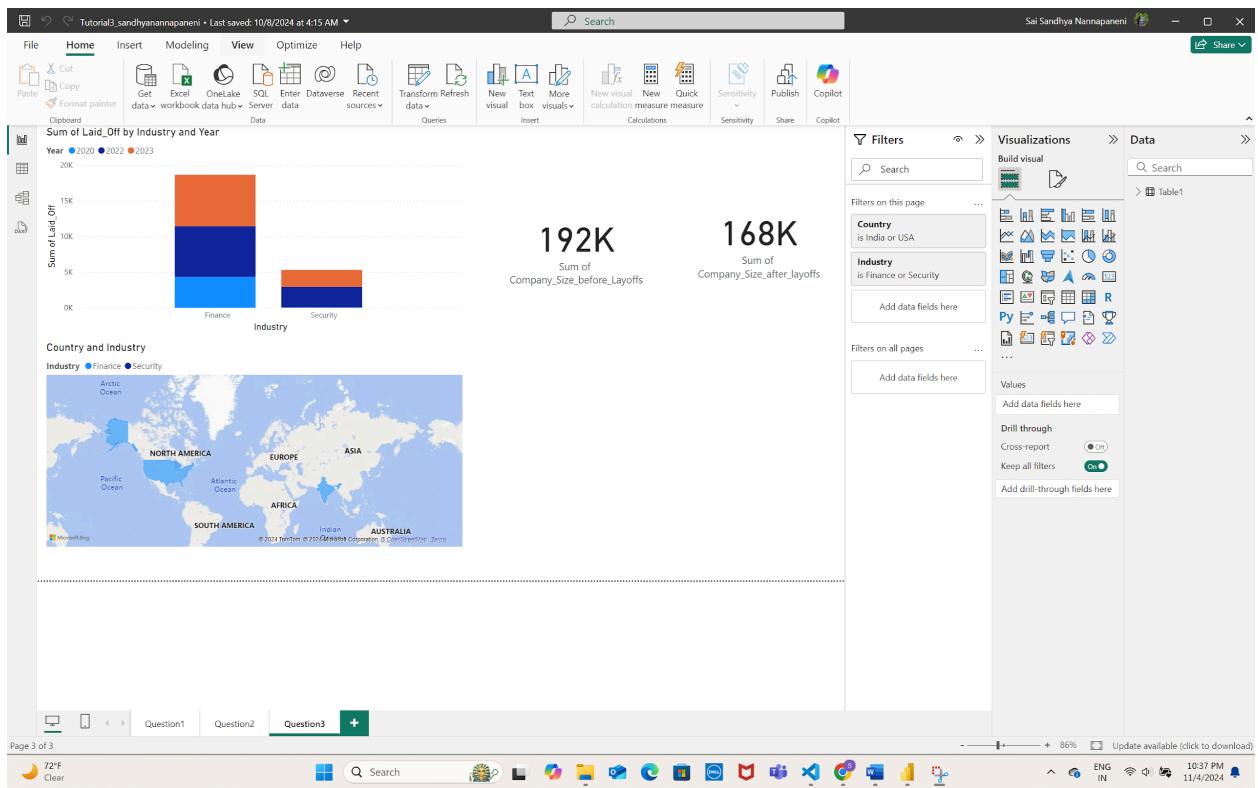


2) Apply filters to select only the Healthcare and Marketing industries. Compared with marketing, the higher bar in the chart refers to the healthcare industry. This simply means that more layoffs have hit the healthcare industry than the marketing one. In addition, the larger reduction in company size has always been shown in the healthcare industry, which is wider regarding its effect on headcounts. This is perhaps because healthcare has different challenges, such as regulatory changes or cost-cutting measures, compared to marketing.



3) Apply filters for Country (select India, USA) and Industry (select Finance and Security). In the Finance and Security sectors of the chosen countries, India and the USA, the layoffs in the finance industry are higher as compared to the security sector, reflected by a bigger bar in the graph. This means that the finance sector has been more affected by the layoffs in general.

Regarding company size, the trend in both sectors is that of a decline after layoffs; however, this decline is more profound in Finance. This would imply that, whereas the overall size of companies in the Finance sector decreases from 192K to 168K, this signals a heavy downsizing. In contrast, Security also experiences layoffs but with a relatively smaller reduction. This trend indicates that while both are hit, the effect of workforce reduction in Finance is stronger than in Security, reflecting probably differences in the resilience of the industries or operational adjustments therein.



4) This is the analysis of sales and layoff data to build dynamic, interactive visualizations by using Power BI. You then analyze the sales trends over time, such as Sales, Profit, Quantity, and Discount. The use of the SWITCH function in DAX will dynamically switch between these measures. Further, the analysis drills down from country to product to find the top-selling products, and then compares sales across states. You now look at various industries over many years and filter for countries like USA and India, comparing company size pre- and post-layoffs. Even Health-care is contrasted with Marketing and Finance with Security as an endeavor to understand how layoff effective causes variability across sectors and regions. You will use decomposition trees, pie, and bar charts in your comprehensive analysis.