

Professional Course in Business Analytics & Data Science

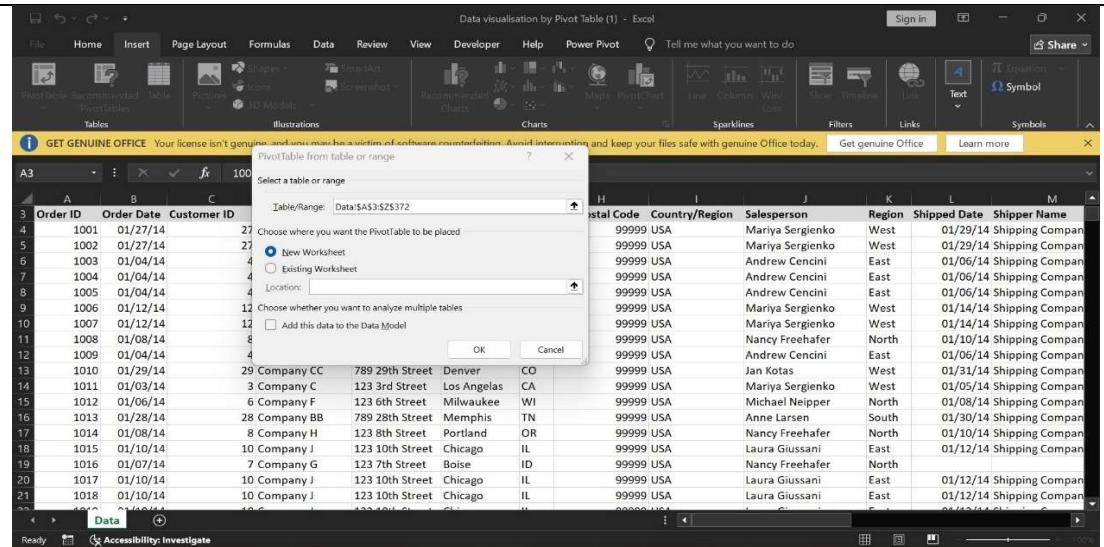
Data Analytics Logbook

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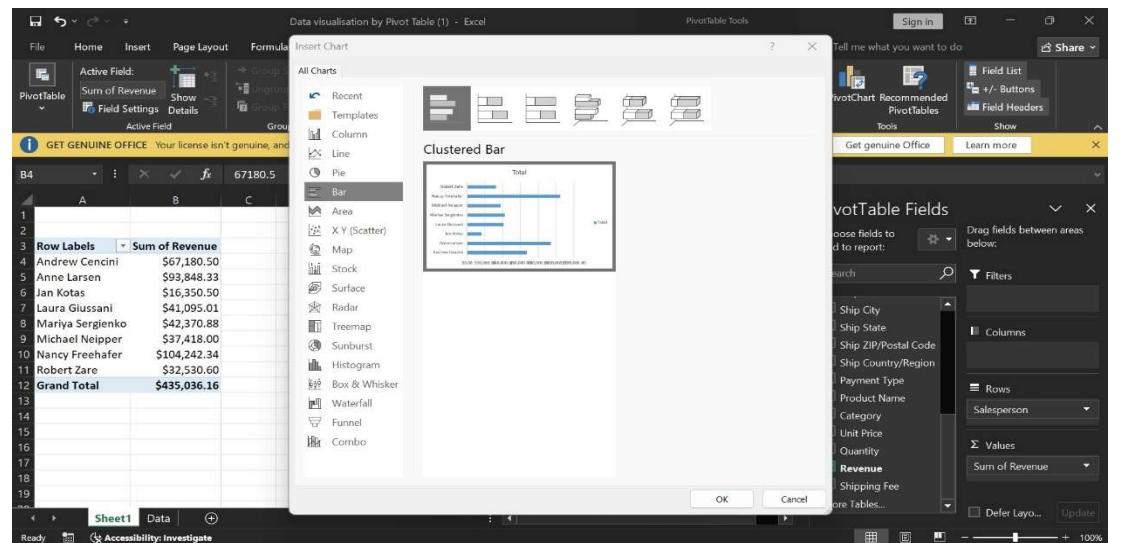
INTRODUCTION

Modern Excel tools transform raw data into professional reports through automation and advanced modeling. This project covers Power Query for data cleaning, Power Pivot for complex relationships, and DAX for sophisticated calculations. Completion of these lessons enables the creation of interactive, high-impact dashboards in minimal time.

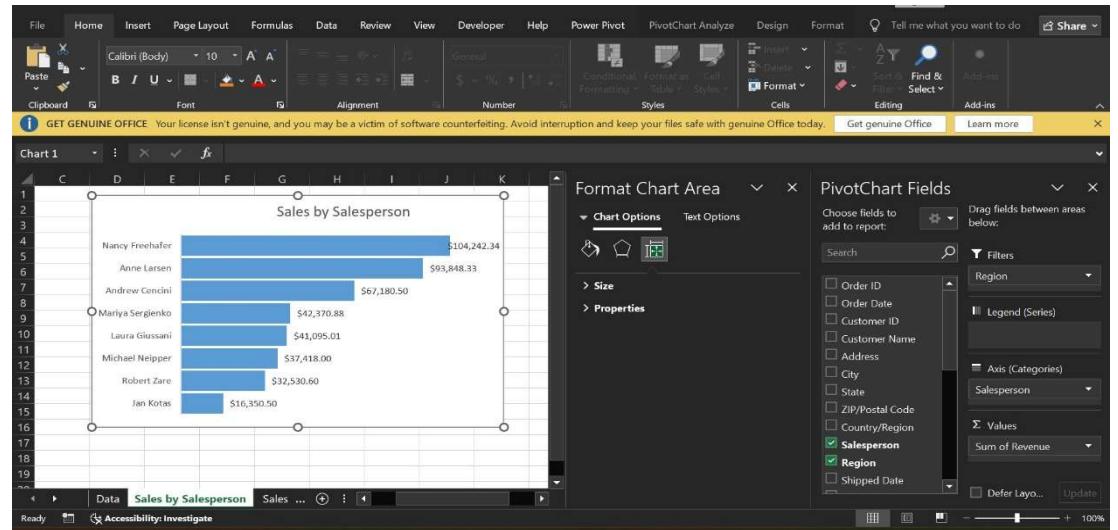
RESULTS AND IMPACT (Data visualisation by Pivot Table)



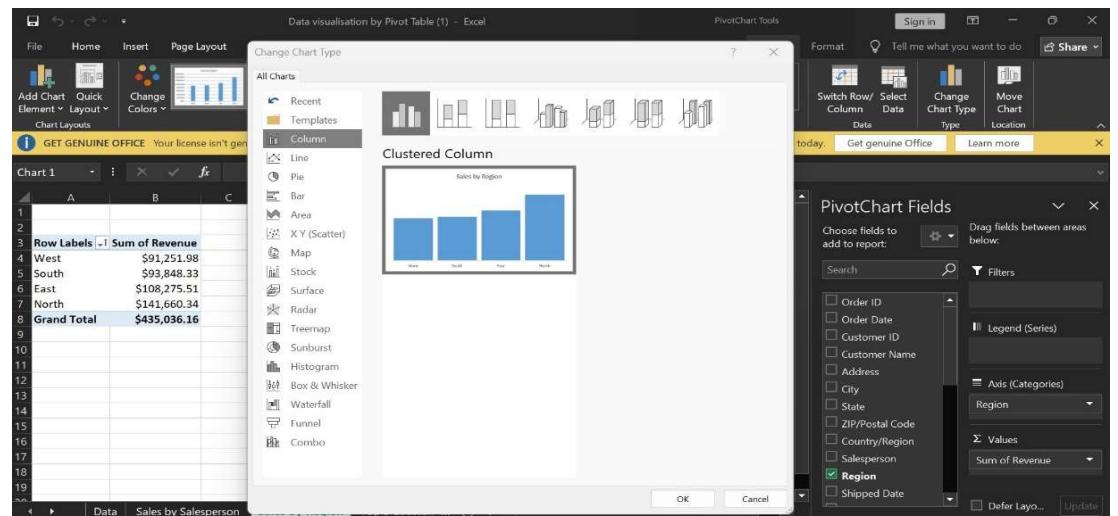
The process begins with a structured dataset containing fields such as Order Date, Revenue, Salesperson, Region, and Customer Name. A PivotTable is created from the selected data range using the Insert tab and placed on a new worksheet for organization.



It shows the procedure to insert a Clustered Bar chart to visualize the existing PivotTable data, which summarizes the revenue performance of different salespeople.



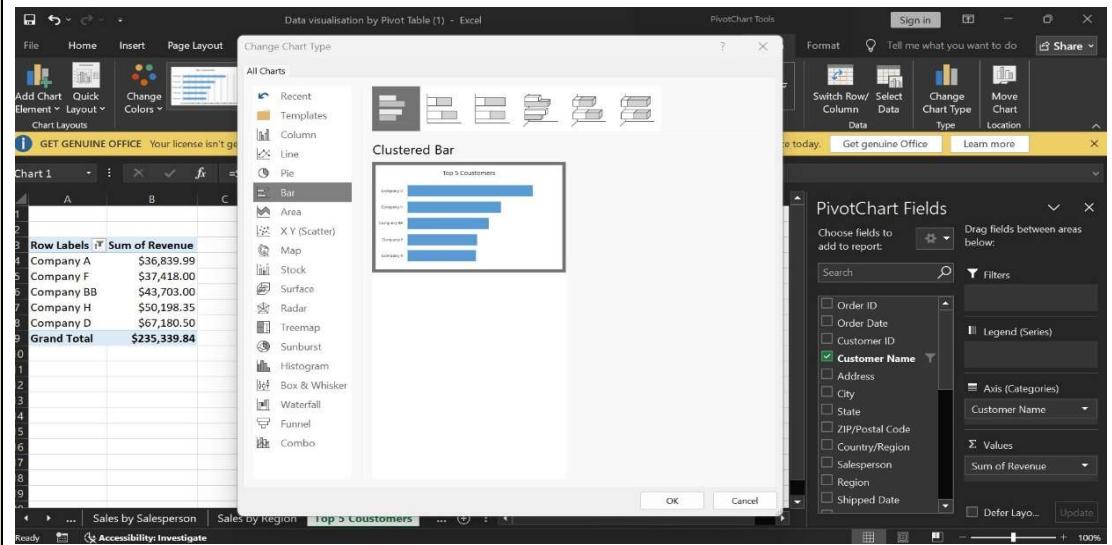
This screenshot displays a Microsoft Excel interface with a PivotChart showing "Sales by Salesperson" by filtering for Salesperson and Region fields and applying design and format to make it more presentable.



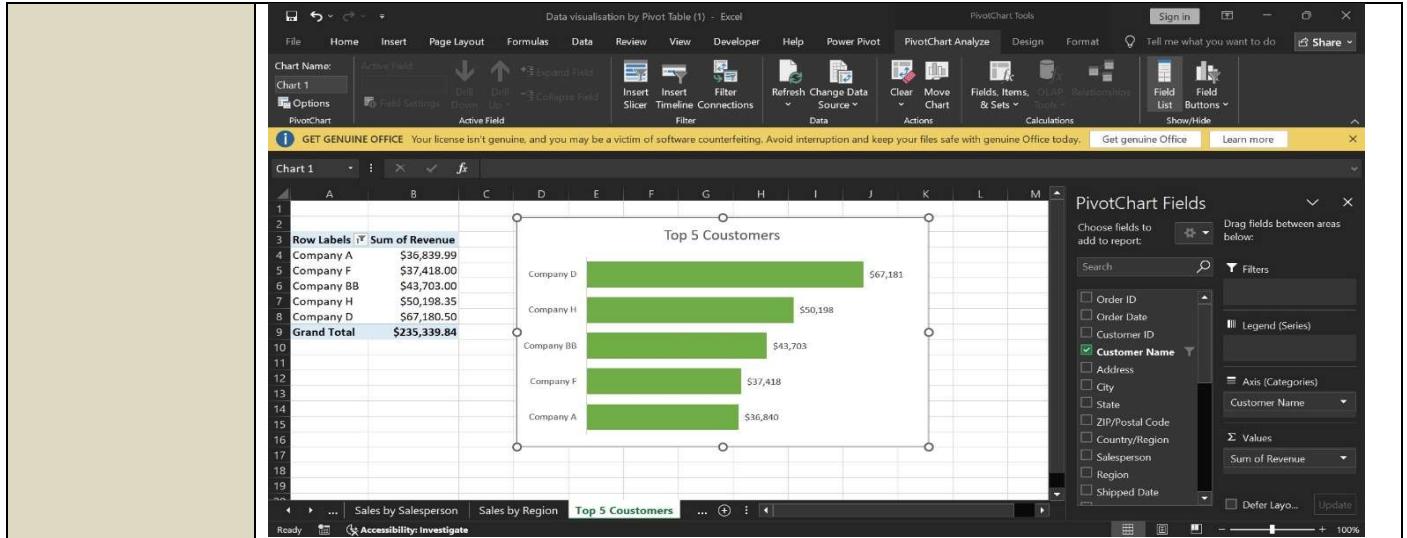
Illustrated regional performance by generating a Bar Chart that calculates the Sum of Revenue across each Region for a clear financial comparison.



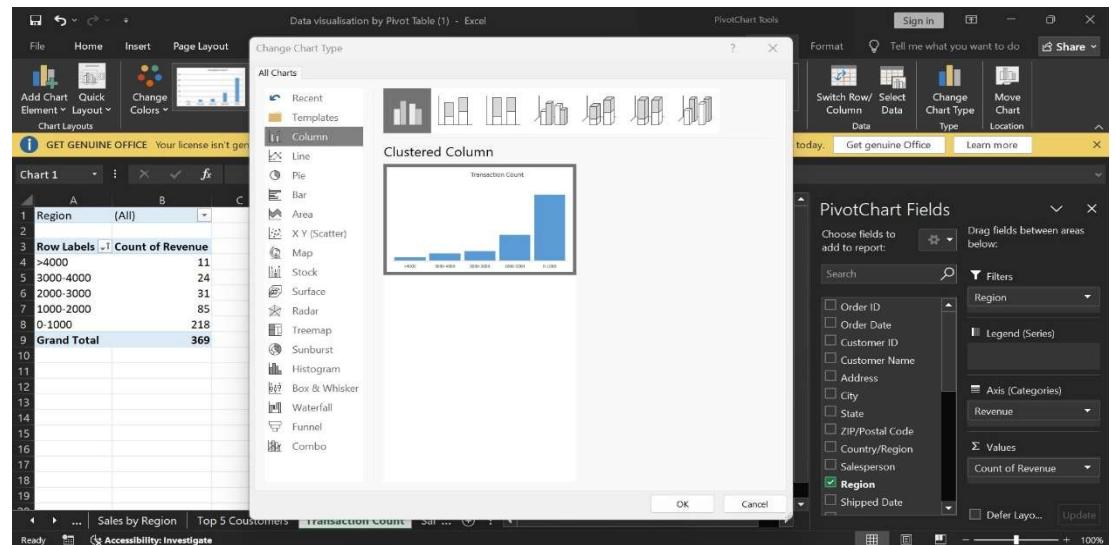
This screenshot shows an Excel PivotChart and its corresponding PivotTable summarizing "Sales by Region" across different geographical areas.



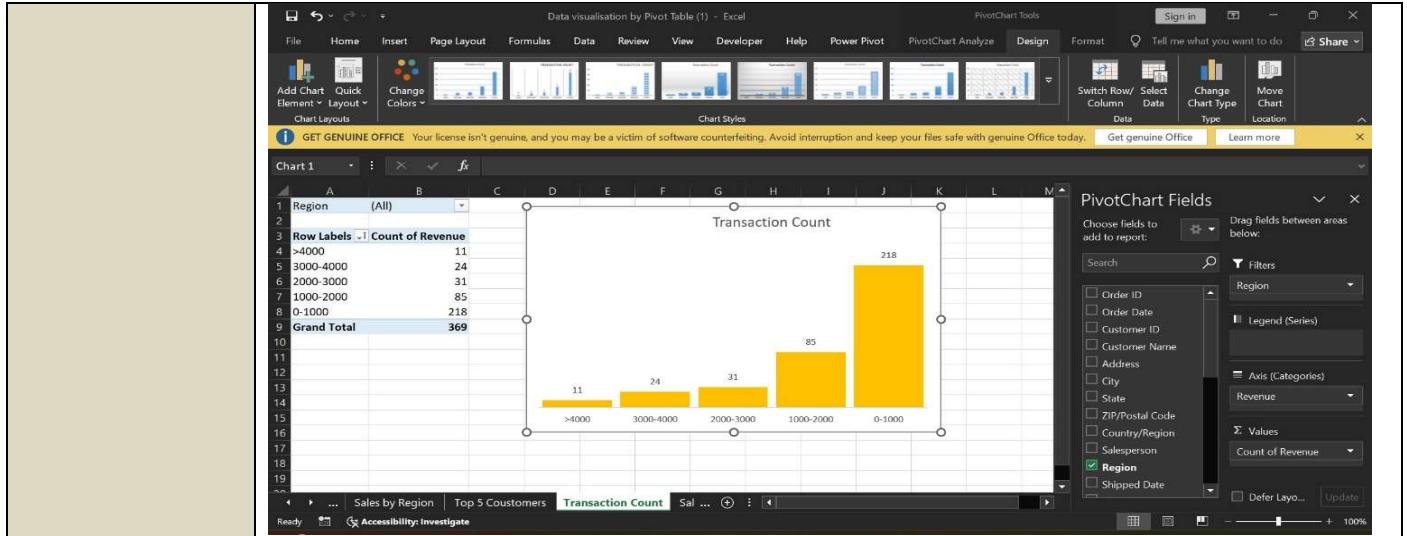
Generated a Clustered Bar Chart summarizing Revenue by Customer.



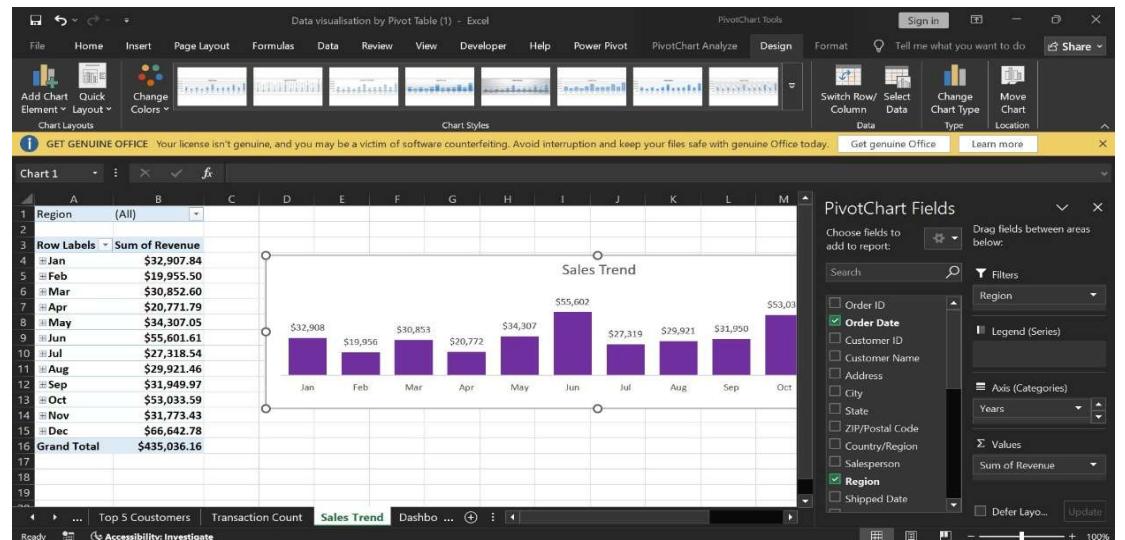
Generated a horizontal bar chart visualizing the Top 5 Customers by their Sum of Revenue.



Created a Clustered Column PivotChart summarizing the number of transactions, displayed as the Count of Revenue, across different operational Regions



Created a Clustered Column PivotChart summarizing the number of transactions, displayed as the Count of Revenue, across specific Revenue Ranges.



Fields like Revenue are added to Values while categories such as Salesperson, Region, or Customer Name are placed in Rows and Filters to summarize performance. A PivotChart (bar or column) is then inserted to visualize the results, and formatting tools such as sorting, Top 5 filtering, data labels, and color adjustments are applied to clearly highlight key trends like top performers, regional sales, and transaction counts.



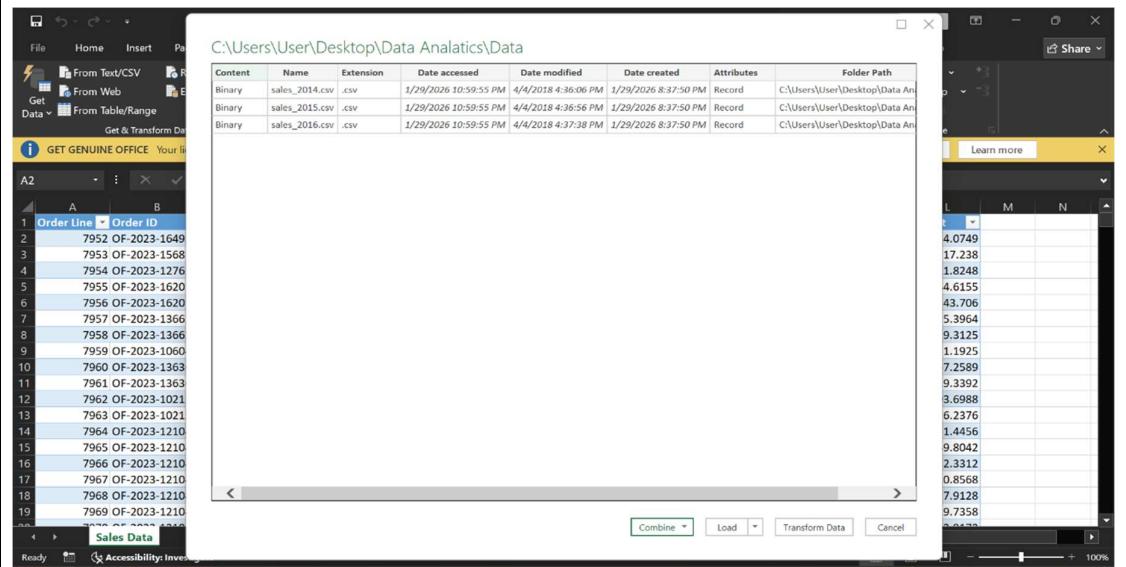
This interactive Excel dashboard provides a clear overview of annual sales performance of Global Academy of Business – GAB. It shows monthly sales trends, sales by salesperson and region, transaction distribution, and the top five customers. It contains five visualizations, two slicers, and one timeline, which allow dynamic filtering by salesperson, region, and order date. This design supports effective decision-making by providing quick insights into revenue drivers and sales performance.

The screenshot shows the Microsoft Excel ribbon with the "Data" tab selected. The "Get Data" section is open, displaying various options for importing data from files, databases, and cloud services.

The main area displays a table of sales data with the following columns:

	Ship Date	Ship Mode	Customer ID	Product ID	Sales	Quantity	Discount	Profit	
1	05-01-2025	Standard Class	KN-16390	OFF-LA-10004272	8.67	3	0	4.0749	
2	03-01-2025	Second Class	JD-16015	TEC-AC-10002323	132.6	6	0	17.238	
3	07-01-2025	Standard Class	NW-18400	OFF-AR-10001166	30.32	4	0	11.8248	
4	08-01-2025	Standard Class	KB-16240	TEC-AC-10003832	1287.45	5	0	244.6155	
5	08-01-2025	Standard Class	KB-16240	OFF-AP-10003040	168.1	5	0	43.706	
6	06-01-2025	Standard Class	TS-21430	TEC-PH-10000000	71.952	6	0.2	5.3964	
7	12446653	01-01-2025	01-01-2025	OFF-BI-10003708	29.8	5	0.2	9.3125	
8	68728870	02-01-2025	02-01-2025	OFF-PA-10000791	3.816	1	0.2	1.1925	
9	34695537	03-01-2025	03-01-2025	TEC-PH-10003885	39.594	1	0.4	-7.2589	
10	7961 OF-2023-136364	64485645	03-01-2025	01-01-2025	FUR-FU-10002501	91.008	9	0.2	19.3392
11	7962 OF-2023-102155	30629795	03-01-2025	01-01-2025	OFF-ST-10001496	36.38	2	0	93.6988
12	7963 OF-2023-102155	61937279	03-01-2025	01-01-2025	OFF-PA-10003673	13.56	2	0	6.2376
13	7964 OF-2023-121048	89708580	04-01-2025	08-01-2025	OFF-BI-10004022	4.448	2	0.2	1.4456
14	7965 OF-2023-121048	49069757	04-01-2025	08-01-2025	FUR-FU-10003601	276.69	3	0	49.8042
15	7966 OF-2023-121048	28294983	04-01-2025	08-01-2025	OFF-FA-10000490	4.96	4	0	2.3312
16	7967 OF-2023-121048	7816539	04-01-2025	08-01-2025	OFF-AR-10004042	71.92	4	0	20.8568
17	7968 OF-2023-121048	54652978	04-01-2025	08-01-2025	FUR-FU-10002960	18.84	3	0	7.9128
18	7969 OF-2023-121048	55773764	04-01-2025	08-01-2025	TEC-AC-10000991	140.97	3	0	19.7358
19	7970 OF-2023-121048	74170762	04-01-2025	08-01-2025	TEC-PH-10001027	470.376	2	0.2	52.0473

The sequence for accessing the From Folder option in Power Query within Microsoft Excel is: Go to the Data tab, click Get Data, select From File, and then click From Folder.



Then selected the folder path and choose **Combine & Load**.

Power Query Editor was used to clean and transform the customer dataset by connecting to the source files, filtering out hidden files, and applying a custom

transformation function. Columns were renamed, unnecessary columns were removed, and the table was expanded to include the required fields. Data types were adjusted for accuracy, and a conditional column was added to classify customers into Age Categories (Young, Middle, Senior).

The screenshot shows the Microsoft Power Query Editor interface. A dialog box titled "Add Conditional Column" is open, allowing the creation of a new column based on existing data. The "New column name" is set to "Age Category". The logic is defined with three clauses:

- If [Age] is less than 35, Then [Age] is Young.
- Else If [Age] is greater than 60, Then [Age] is Senior.
- Else [Age] is Middle.

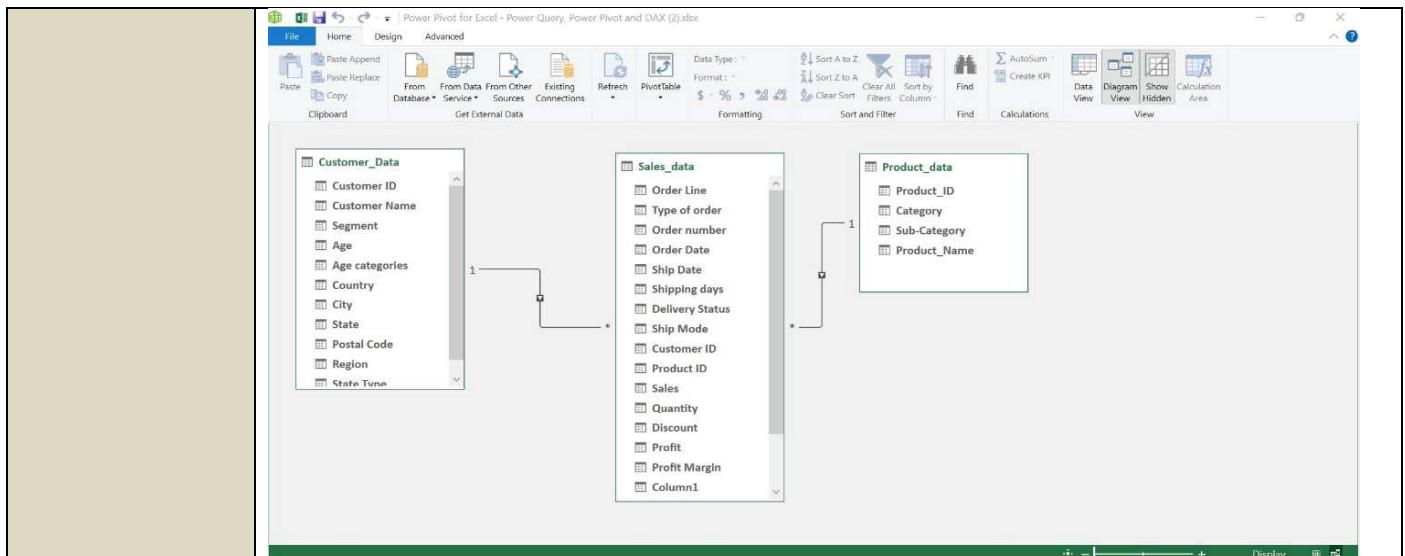
Below the dialog, a preview of the data table is visible, showing columns such as Name, Office, and various geographical and numerical fields.

Creating a new column named "Age Category" with the following logic:

- If the Age column value is less than 35, the output is "Young".
- Else if the Age column value is greater than 60, the output is "Senior".
- Else the output is "Middle".

RESULTS AND IMPACT (Power Query, Power Pivot and DAX)

An automated sales performance analysis system was built using Power Query and Power Pivot. Raw data from three sources (Sales, Products, and Customers) was extracted, cleaned, and transformed, with custom categories created (such as customer age groups) to support business analysis.



The steps shown are a data modeling process in Excel Power Pivot where you import data and create relationships (Customer_Data and Product_Data to Sales_data) to enable integrated analysis.

The screenshot shows the Microsoft Power Pivot ribbon interface. A PivotTable is displayed with Row Labels showing categories like Furniture, Office Supplies, Technology, and Grand Total. The PivotTable Fields pane on the right shows fields from Customer_Data, Sales_data, and Product_data being dragged into the report. A 'Manage Measures' dialog box is open, showing a table with a single measure named 'Profit Margin Mea...' with the formula `[Total Profit]/[Total Sales]`. The formula bar also shows `Total Profit` and `Total Sales`.

Calculated complex measures like Profit Margin Measure, which uses a DAX formula to divide Total Profit by Total Sales across categories.

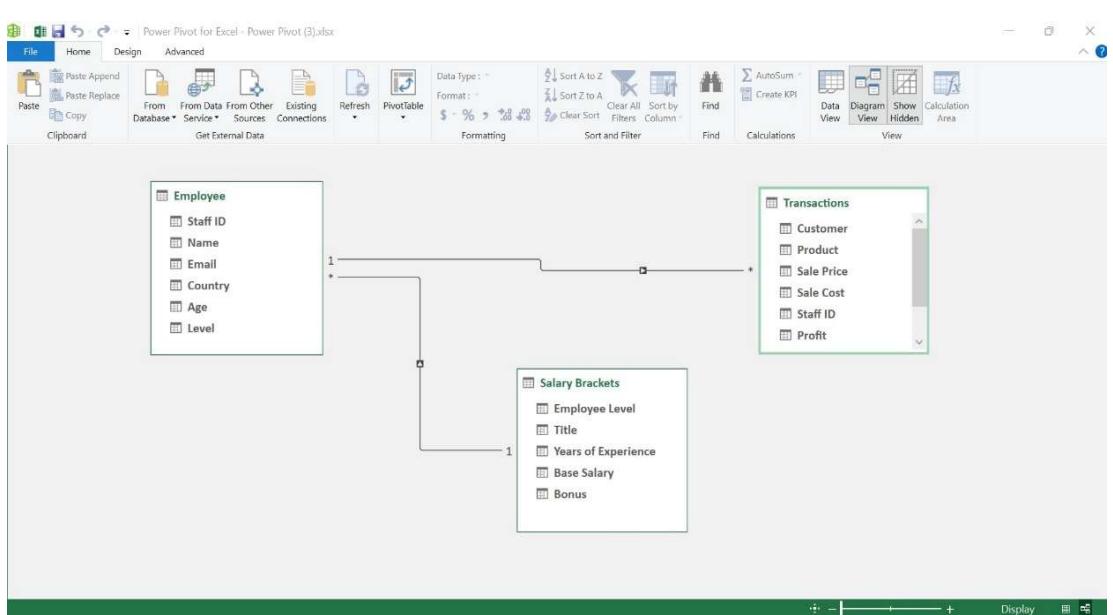
The screenshot shows a Microsoft Excel spreadsheet titled "Power Pivot for Excel - Power Query, Power Pivot and DAX (2).xlsx". The formula bar displays the DAX formula: `=IF([Customer_Data[State]]="California"||Customer_Data[State]="New York"||Customer_Data[State]="Texas","Top","Others")`. The main area is a PivotTable with columns for Customer ID, Name, Segment, Age category, Cou..., C..., St..., Postal C..., Regi..., State Type, and Add Column. The "State Type" column uses the formula to categorize customers from California, New York, or Texas as "Top" and others as "Others". The table contains 793 records.

The DAX formula identifies customers in California, New York, or Texas. This formula creates a column that automatically labels a customer as "Top" if they reside in one of those three states, and "Others" otherwise.

A relational model was developed by linking tables through Customer ID and Product ID, and DAX explicit measures (including Total Sales and Profit Margin) were written to evaluate performance. The analysis showed that Technology and Office Supplies have the highest profit margins ($\approx 17\%$), while Furniture has a much lower profit margin.

The screenshot shows a Microsoft Excel spreadsheet titled "Power Pivot for Excel - Power Pivot (3).xlsx". The formula bar displays the DAX formula: `=RELATED(Employee[Name])`. The main area is a PivotTable with columns for Customer, Product, Sale Price, Sale Cost, Staff ID, Profit, and Name. The "Name" column displays employee names from the related Employee table. The table contains 15 records.

A relational data model was created in Excel using Power Pivot by linking the Employee, Salary Brackets, and Transactions tables to analyze sales performance. The DAX function was used to bring employee names into the Transactions table, improving data accuracy and enabling more detailed reporting.



To create a data model in Power Pivot for Excel, first imported data and then build relationships between the tables, typically in the Diagram View. This allows to analyze data from multiple sources together using a single PivotTable

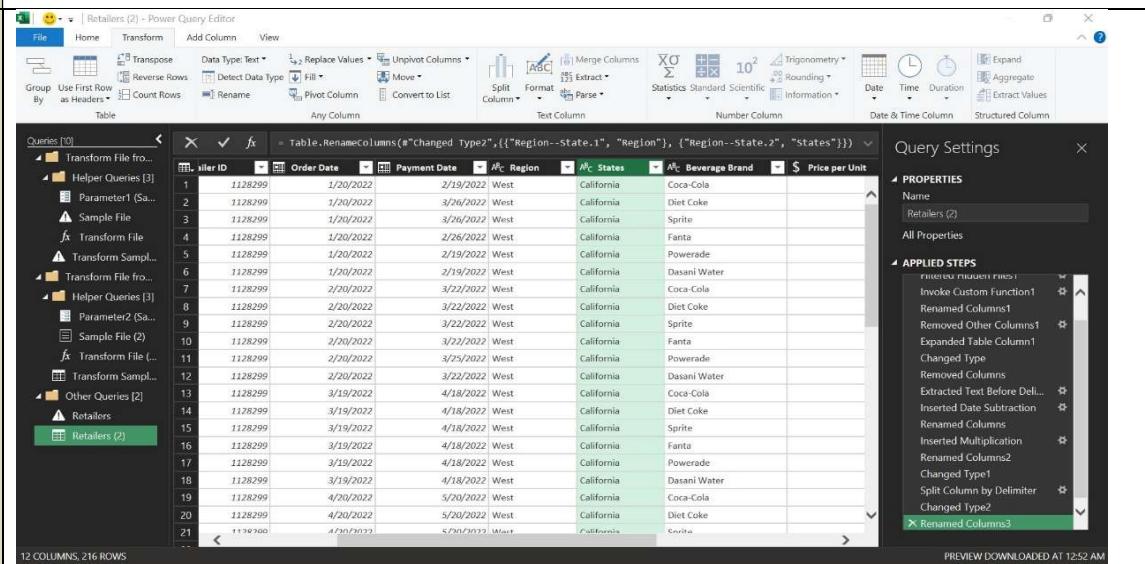
The screenshot shows the Power Pivot for Excel interface with a PivotTable Fields pane on the right and a data grid on the left. The PivotTable Fields pane shows fields from the Employee and Salary Brackets tables, with 'Name' selected in the Rows section and 'Sum of Profit' selected in the Values section. The data grid shows a list of employees with their names and total profit.

	Row Labels	Sum of Profit	Total Profit	Status
1				
2	Alex	\$35,802.45		Green
3	Ana	\$22,125.00		Green
4	Jones	\$13,182.70		Yellow
5	Mike	\$48,280.75		Green
6	Sam	\$5,800.00		Red
7	Sarah	\$29,829.50		Green
8	Grand Total	\$155,020.40		Green

Power Pivot in Excel was used to manage a relational data model and track sales performance. Data Analysis Expressions (DAX) was applied to pull the correct

salesperson's name into each transaction row, improving reporting accuracy and making filtering easier. The resulting PivotTable summarizes profit by employee, allowing quick comparison of sales performance across the team. Icon Set Conditional Formatting was added to provide a clear visual status report, making key performance results easy to interpret at a glance

RESULTS AND IMPACT (Power Query to automate)



The screenshot shows the Microsoft Power Query Editor interface. The main area displays a table of beverage sales data for California. The columns include Order ID, Order Date, Payment Date, Region, State, Beverage Brand, and Price per Unit. The data shows various transactions for brands like Coca-Cola, Diet Coke, Sprite, Fanta, and Powerade. The Power Query ribbon is visible at the top, and the Query Settings pane on the right shows the steps taken to process the query, including 'Renamed Columns3'.

Order ID	Order Date	Payment Date	Region	State	Beverage Brand	Price per Unit
1128299	1/20/2022	2/19/2022	West	California	Coca-Cola	
1128299	1/20/2022	3/26/2022	West	California	Diet Coke	
1128299	1/20/2022	3/26/2022	West	California	Sprite	
1128299	1/20/2022	2/26/2022	West	California	Fanta	
1128299	1/20/2022	2/19/2022	West	California	Powerade	
1128299	1/20/2022	2/19/2022	West	California	Dasani Water	
1128299	2/20/2022	3/22/2022	West	California	Coca-Cola	
1128299	2/20/2022	3/22/2022	West	California	Diet Coke	
1128299	2/20/2022	3/22/2022	West	California	Sprite	
1128299	2/20/2022	3/22/2022	West	California	Fanta	
1128299	2/20/2022	3/25/2022	West	California	Powerade	
1128299	2/20/2022	3/22/2022	West	California	Dasani Water	
1128299	3/19/2022	4/18/2022	West	California	Coca-Cola	
1128299	3/19/2022	4/18/2022	West	California	Diet Coke	
1128299	3/19/2022	4/18/2022	West	California	Sprite	
1128299	3/19/2022	4/18/2022	West	California	Fanta	
1128299	3/19/2022	4/18/2022	West	California	Powerade	
1128299	3/19/2022	4/18/2022	West	California	Dasani Water	
1128299	4/20/2022	5/20/2022	West	California	Coca-Cola	
1128299	4/20/2022	5/20/2022	West	California	Diet Coke	

The Power Query Editor interface showing a data table listing beverage sales information for various Coca-Cola brands in California.

This Excel data automation workflow uses Power Query to clean and transform messy beverage sales data from multiple retailers—Costco, Target, Walgreens, and Walmart—into a structured dataset ready for analysis. In the Power Query Editor, several steps are automated, including splitting combined fields like Region and State into separate columns and creating custom calculated columns such as Days to Payment and Revenue (Price × Units).

The workflow tracks pricing and unit volume for six major beverage brands (including Coca-Cola, Sprite, and Fanta) and then loads the refined data into Excel for reporting. The final output is a Revenue Dashboard that highlights key performance insights: Walmart is the top-performing retailer, and Coca-Cola and Dasani Water consistently stand out as the strongest revenue contributors across most retailers.

RESULTS AND IMPACT (Data Cleaning with Power Query)

Order ID	Order Date	Arrival Date	Days to Arrive	Employee Name	Department, Region
25691	3/8/2024	3/16/2024	8	Bill Smith	Cloud Tech, Texas
27870	1/7/2024	3/31/2024	84	Ken Singh	Strategy, New York
46726	7/9/2024	8/8/2024	30	Harley Fritz	Strategy, New York
35895	7/31/2024	9/16/2024	47	Nyla Novak	Operations, Florida
27303	12/30/2023	3/18/2024	79	David Rasmussen	Operations, Florida
25985	10/1/2024	10/25/2024	24	Ivan Hiney	Cloud Tech, Texas
46600	8/4/2024	8/18/2024	14	Jonha Ma	Cloud Tech, Texas
32107	2/3/2024	3/4/2024	30	Jordan Boone	Cloud Tech, Texas
47750	4/8/2024	5/30/2024	52	Kylee Townsend	Cloud Tech, Texas
27691	9/16/2024	11/13/2024	58	Nora Rollins	Cloud Tech, Texas
47557	4/4/2024	5/8/2024	34	Brendan Wallace	Cloud Tech, Texas
46669	1/21/2024	4/5/2024	75	Conor Wise	Operations, Florida
38741	9/23/2024	12/10/2024	78	Steven Michael	Big Data, California
18517	3/15/2024	5/1/2024	47	Lucia McKay	Big Data, California
15314	12/1/2024	1/19/2025	49	José Roach	Big Data, California
16569	1/3/2024	1/30/2024	27	Franklin Wright	Big Data, California
32159	7/22/2024	9/12/2024	52	Alfa Thornton	Operations, Florida
12997	7/8/2024	9/12/2024	66	Denzel Flores	Operations, Florida
33650	7/3/2024	9/2/2024	61	Conor Wise	Operations, Florida
28321	6/26/2024	7/4/2024	8	Steven Michael	Big Data, California
25767	2/9/2024	5/21/2024	64	Raven Cordeiro	Big Data, California

In Power Query (Table1), the transformations applied—removed duplicates, merged columns, and renamed columns—are recorded in the applied steps pane of the power query editor.

The screenshot shows the Power Query Editor interface for a project named "Payment Analysis". The main area displays a table with three columns: "Payment Type", "AV Rev", and "AV Profit Margin". The table has two rows: "Card" and "Transfer". The "AV Rev" column contains values 32010.64286 and 33417.09412 respectively. The "AV Profit Margin" column contains values 0.798848368 and 0.511933277 respectively. The "Count" column shows the number of rows for each payment type: 14 for Card and 17 for Transfer.

Query Settings

- Properties**: Name = Payment Analysis
- Applied Steps** (scrollable list):
 - Removed Duplicates
 - Changed Type1
 - Inserted Date Subtraction
 - Reordered Columns
 - Renamed Columns
 - Trimmed Text
 - Capitalized Each Word
 - Replaced Value
 - Merged Columns
 - Added Custom
 - Reordered Columns1
 - Removed Columns
 - Added Custom1
 - Changed Type2
 - Renamed Columns1
 - Grouped Rows

The formula groups the data by the "Payment Type" column and calculates the average revenue, average profit margin, and total count of rows for each unique payment type.

The screenshot shows the Power Query Editor interface for a project named "Days Analysis". The main area displays a table with four columns: "Department, Region", "AV Days", "Min", and "Max". The table has four rows: Cloud Tech, Texas; Strategy, New York; Operations, Florida; and Big Data, California. The "AV Days" column contains values 31.42857143, 44.75, 54.71428571, and 42 respectively. The "Min" column contains values 8, 9, 3, and 8 respectively. The "Max" column contains values 58, 84, 79, and 84 respectively.

Query Settings

- Properties**: Name = Days Analysis
- Applied Steps** (scrollable list):
 - Removed Duplicates
 - Changed Type1
 - Inserted Date Subtraction
 - Reordered Columns
 - Renamed Columns
 - Trimmed Text
 - Capitalized Each Word
 - Replaced Value
 - Merged Columns
 - Added Custom
 - Reordered Columns1
 - Removed Columns
 - Added Custom1
 - Changed Type2
 - Renamed Columns1
 - Grouped Rows

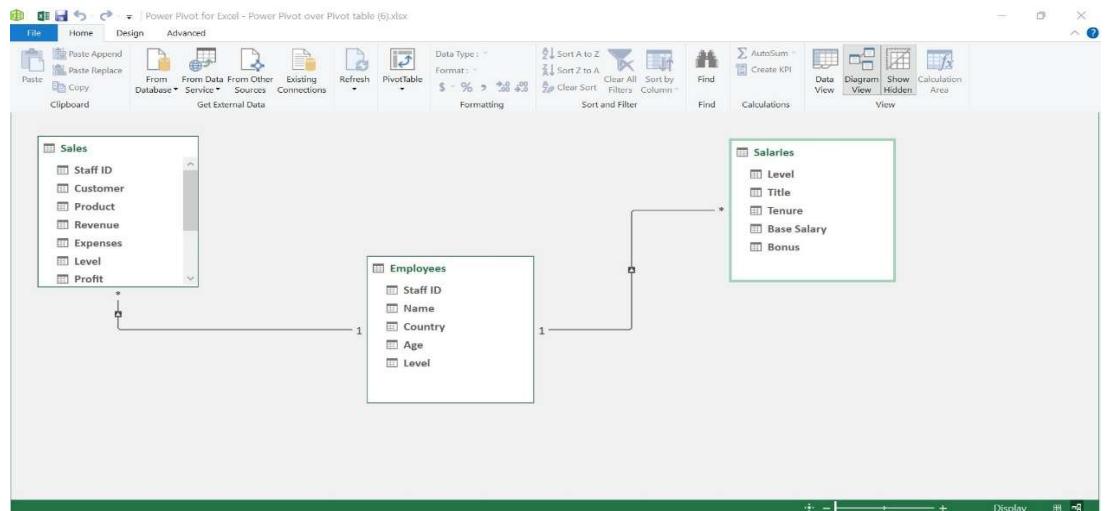
This Power Query project transforms a raw sales dataset into actionable insights by cleaning and standardizing regional data, calculating key metrics like Days to Arrive and Profit Margin %, and ensuring accuracy through duplicate removal and proper data types. The analysis highlights a logistics gap: Cloud Tech, Texas ships most

efficiently, while Operations, Florida experiences the longest average wait times. Profitability insights also reveal that although Transfers bring slightly higher revenue, Card payments deliver much higher profit margins.

RESULTS AND IMPACT (Power Pivot over Pivot table)

	S...	Customer	Product	Revenue	Expenses	Level	Profit	Name	Add Column
1	20004	Diana	Ginger Ale	75.75	39.75	4	36	Emma	
2	20005	Ivy	Water	95	48.75	5	46.25	Ava	
3	20004	Bob	Cola	67.25	59.75	4	7.5	Emma	
4	20004	Bob	Ginger Ale	83.25	27.5	4	55.75	Emma	
5	20001	Hank	Root Beer	39	37.5	1	1.5	Liam	
6	20002	Charlie	Root Beer	104	23.5	2	80.5	Olivia	
7	20002	Jake	Energy Drink	81.5	54.25	2	27.25	Olivia	
8	20002	Hank	Iced Tea	91.75	45.75	2	46	Olivia	
9	20003	Hank	Orange Juice	46.5	56	3	-9.50000000000001	Noah	
10	20002	Frank	Energy Drink	72	21.5	2	50.5	Olivia	
11	20002	Diana	Lemonade	56.75	52.25	2	4.5	Olivia	
12	20003	Bob	Energy Drink	72	45.75	3	26.25	Noah	
13	20001	Alice	Ginger Ale	68.5	53.5	1	15	Liam	
14	20005	Jake	Root Beer	71.25	47	5	24.25	Ava	
15	20002	Charlie	Energy Drink	100.5	41.25	2	59.25	Olivia	
Unique Product 1: 8									
Sum of Profit: 3454									
Average of Profit: 34.54									

The DAX formulas used to calculate Unique Product, Sum of Profit and Average of Profit to gain actionable business insights and evaluate performance.



The screenshot shows a Microsoft Excel spreadsheet titled "Power Pivot over Pivot table (6) - Excel". The ribbon menu is visible at the top, and the "PivotTable Tools" tab is selected. A yellow banner at the top of the screen reads "GET GENUINE OFFICE Your license isn't genuine, and you may be a victim of software counterfeiting. Avoid interruption and keep your files safe with genuine Office today." Below the banner, the main content area displays a PivotTable with the following data:

	Sum of Revenue	Sum of Age	Sum of Base Salary
Olivia	2270.75	27	40000
Emma	1881.25	24	80000
Noah	1481.5	30	60000
Liam	1226.25	23	20000
Ava	663.25	28	100000
Grand Total	7523	132	300000

To the right of the table, the "PivotTable Fields" pane is open, showing the fields used in the report. The "Rows" section includes "Name" and "Age". The "Values" section includes "Sum of Revenue". The "Columns" section is currently empty.

The Excel workbook utilizes Power Pivot to manage a relational data model and create a summary PivotTable, linking sales performance with employee details and salary tiers. The data model connects three tables: Employees as the central hub, Sales containing transactional data, and Salaries representing compensation tiers. Custom calculations, such as a "Unique Product" count and total "Sum of Profit", are used to monitor business performance. The PivotTable combines these sources to provide insights, revealing that while Olivia generated the highest revenue, Ava occupies the top salary tier despite contributing relatively low revenue.

RESULTS AND IMPACT (DAX Fundamentals)

The screenshot shows a Microsoft Power BI interface. On the left, the "DAX Fundamentals (7) - Last saved: 1/27/2026 at 1:46 PM" query editor is open. It displays a table with columns: Date, Region, State, Beverage Brand, Price per Unit, Units Sold, Revenue, Expenses, and Region and State. A formula is defined for the "Category" column:

```
1 Category = IF(Data[Units Sold]<5000,"Small",IF(Data[Units Sold]<10000,"Medium","Large"))
```

The table contains several rows of data, mostly from January and February 2022, showing sales for various brands like Coca-Cola, Diet Coke, Dasani Water, and Fanta across different regions and states. On the right, a data visualization is displayed, showing a hierarchy of categories: Beverage Brand, Category, Date, Expenses, Price per Unit, Profit, Profit Margin %, Region, Retailer, Retailer ID, Revenue, Sprite and Fanta Revenue, State, Total Revenue, and Unique Brands. The visualization shows a breakdown of revenue by category and state.

DAX Fundamentals (7) - Last saved: Today at 10:53 AM

Measure tools

Name: Profit Margin % | Format: Percentage | Data category: Uncategorized

Structure: 1 Profit Margin % = DIVIDE([Profit], [Total Revenue])

Properties: Calculations

Visualizations: Data

Search: Profit Margin %

Filters on this page: is (All)

Filters on all pages: Add data fields here

Update available (click to download): 62%

DAX Fundamentals (7) - Last saved: Today at 10:53 AM

Measure tools

Name: Sprite and Fanta Re... | Format: General | Data category: Uncategorized

Structure: 1 Sprite and Fanta Revenue = CALCULATE([Total Revenue], OR(Data[Beverage Brand] = "Sprite", Data[Beverage Brand] = "Fanta"))

Properties: Calculations

Visualizations: Data

Search: Sprite and Fanta Revenue

Filters on this page: is (All)

Filters on all pages: Add data fields here

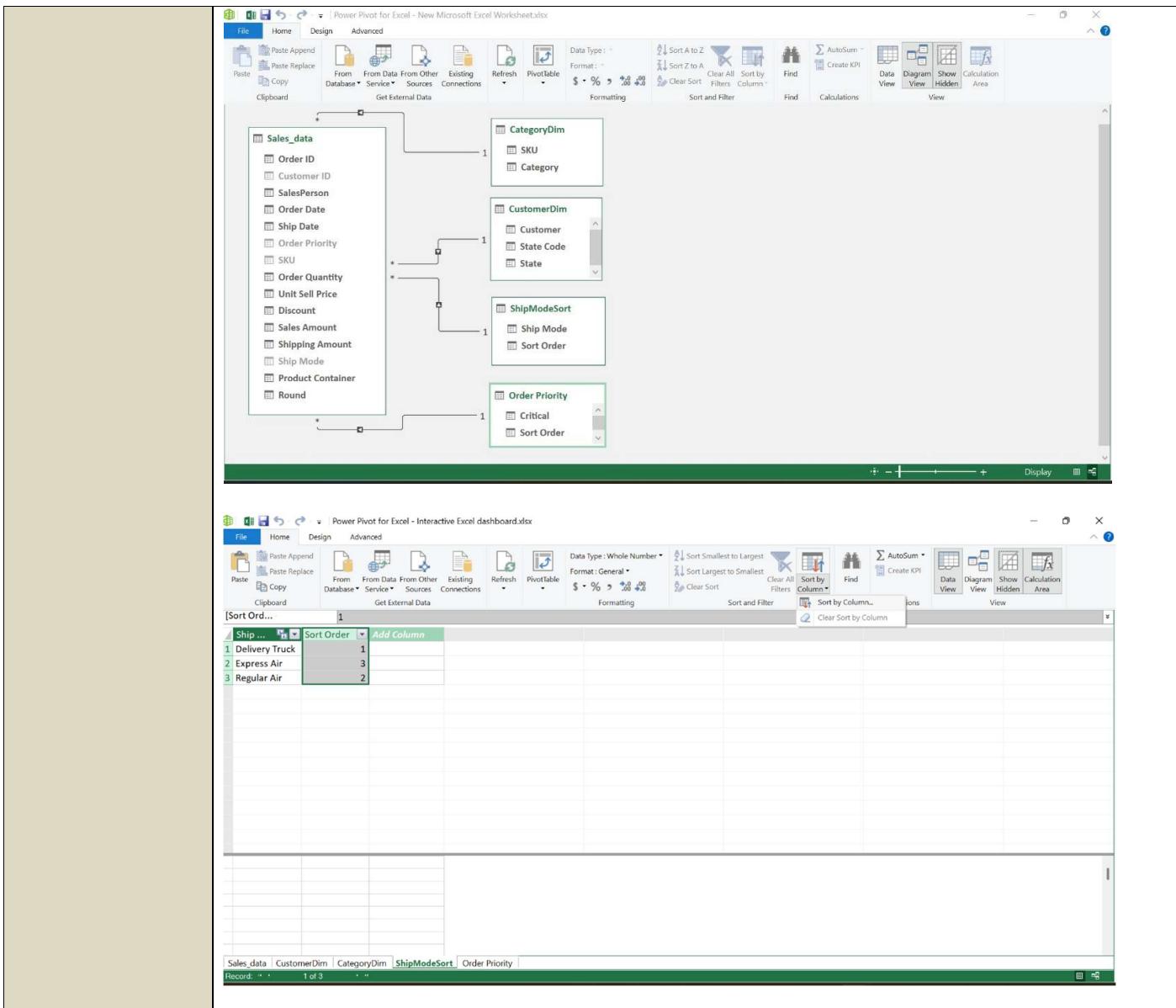
Update available (click to download): 62%

The screenshot shows the Power BI DAX Fundamentals interface. In the center, there is a table with columns: Total Revenue, Profit, Unique Brands, Profit Margin %, Sprite and Fanta Revenue. The 'Unique Brands' column contains the formula: `1 Unique Brands = DISTINCTCOUNT(Data[Beverage Brand])`. The 'Profit Margin %' column contains the formula: `// This are the unique brands we sell`. On the right side, there is a 'Data' pane listing various measures and columns like Beverage Brand, Category, Profit, Profit Margin %, Region, and Unique Brands.

This Power BI beverage sales model combines calculated columns and DAX measures to provide clear insights. A new calculated column, Category, uses a nested IF statement based on Units Sold to classify products as Small (<5,000 units), Medium (<10,000 units), or Large (10,000+ units). Several key performance indicators (KPIs) track unique brands, profit margin, and revenue for specific products like Sprite and Fanta. Using row-level logic and aggregate measures, the report shows a 79% profit margin across six unique brands.

RESULTS AND IMPACT (Interactive Excel dashboard with power query and power pivot)

The screenshot shows an Interactive Excel dashboard. The main area displays a table with columns: Customer, State Code, State, SKU, Category, Ship Method, Sort Order, and several other columns that are mostly empty or have placeholder text like 'Not Specified'. The table has 19 rows, each corresponding to a different customer entry. The dashboard includes tabs for Manage, Measures, KPIs, Add to Data Model, Detect, and Settings. The ribbon at the top shows tabs for File, Home, Insert, Page Layout, Formulas, Data, Review, View, Developer, Help, and Power Pivot.



The screenshot shows two Microsoft Excel windows side-by-side.

Top Window: Power Pivot for Excel - Interactive Excel dashboard.xlsx

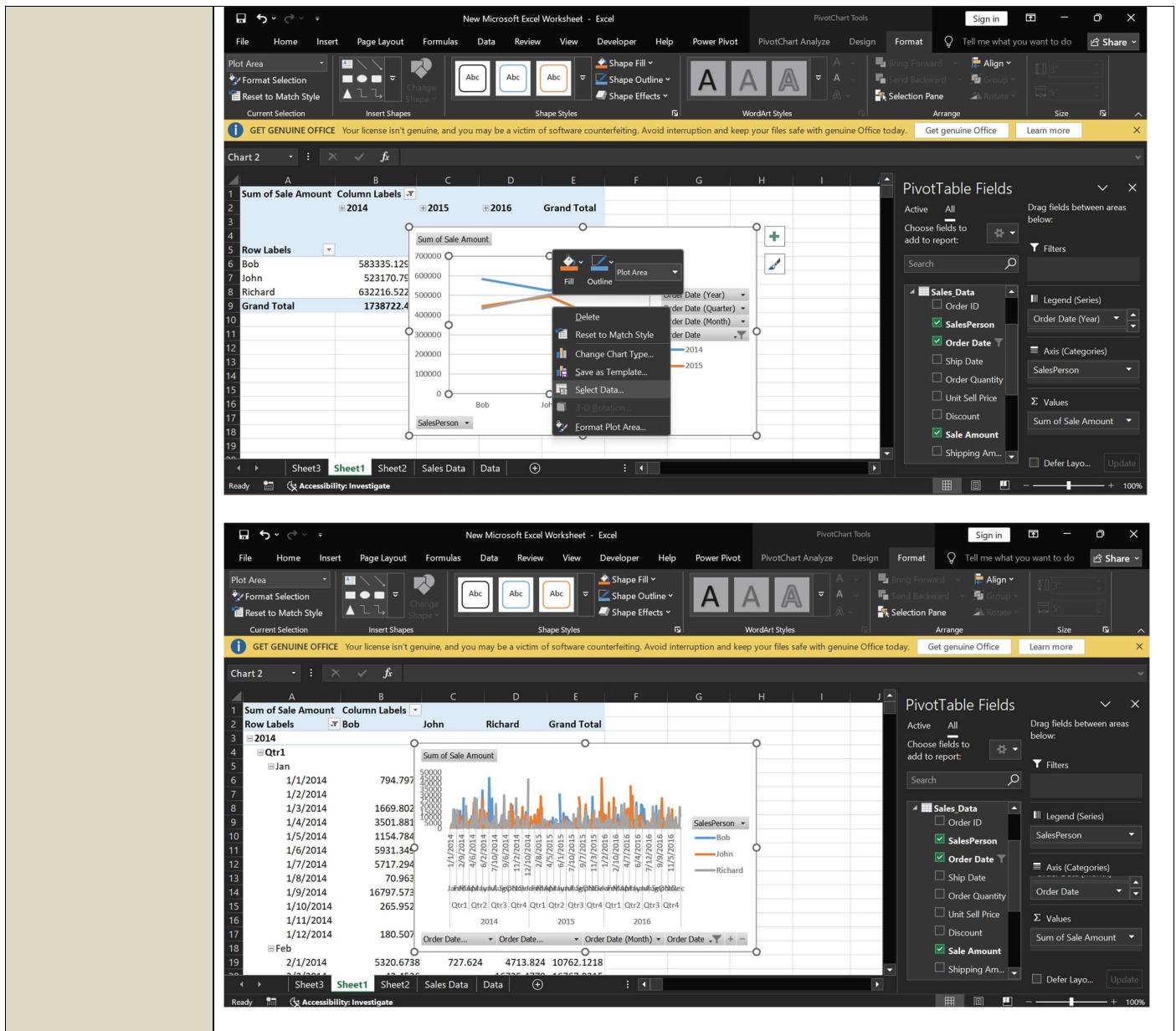
- Toolbar:** File, Home, Design, Advanced, Paste Append, Paste Replace, Copy, From Database, From Data Services, From Other Sources, Refresh, PivotTable, Data Type: Whole Number, Sort Smallest to Largest, Sort Largest to Smallest, Clear All Filters, Sort by Column, Find, AutoSum, Create KPI, Data View, Diagram View, Show Hidden, Calculation Area.
- Table:** A table titled "Sort Ord..." with columns Ship Mode and Sort Order. The rows are Delivery Truck (Sort Order 1), Express Air (Sort Order 3), and Regular Air (Sort Order 2).
- Dialog Box:** "Sort by Column" dialog showing "Sort" (Column: Ship Mode) and "By" (Column: Sort Order). Buttons OK and Cancel are visible.
- Bottom Status Bar:** Sales data, CustomerDim, CategoryDim, ShipModeSort, Order Priority, Record: 1 of 3.

Bottom Window: New Microsoft Excel Worksheet - Excel

- Toolbar:** File, Home, Insert, Page Layout, Formulas, Data, Review, Developer, Help, Power Pivot, Table Tools, Query Tools, Sign in, Share.
- Table:** Sales_Data (A2:13729) showing columns Order ID, Customer ID, SalesPerson, Order Date, Ship Mode, Price, Discount, Sale Amount, Shipping Amount.
- Dialog Box:** "PivotTable from table or range" dialog showing "Table/Range: Sales_Data". Options for "New Worksheet" (selected) and "Existing Worksheet" are shown. Buttons OK and Cancel are visible.
- Status Bar:** Ready, Accessibility: Investigate.

The top screenshot shows the Microsoft Excel ribbon with the "PivotTable Tools" tab selected. A context menu is open over a PivotTable in the worksheet area, specifically at cell A5. The menu options include "Sort", "Filter", "Subtotal", "Expand/Collapse", "Move", "Remove", "Show/Hide Fields", "Show Properties in Report", "Show Properties in Tooltips", "Additional Actions", "Field Settings...", and "PivotTable Options...".

The bottom screenshot shows the Microsoft Excel ribbon with the "Insert" tab selected. A "PivotTable Fields" ribbon tab is also visible. An "Insert Chart" dialog box is open, showing various chart types like Line, Bar, Area, etc., with a "Line" chart previewed. The "PivotTable Fields" ribbon tab displays fields from the "Sales Data" source, including SalesPerson, Order Date, Ship Date, Order Quantity, Unit Sell Price, Discount, and Sale Amount.



Measure Dialog (Top):

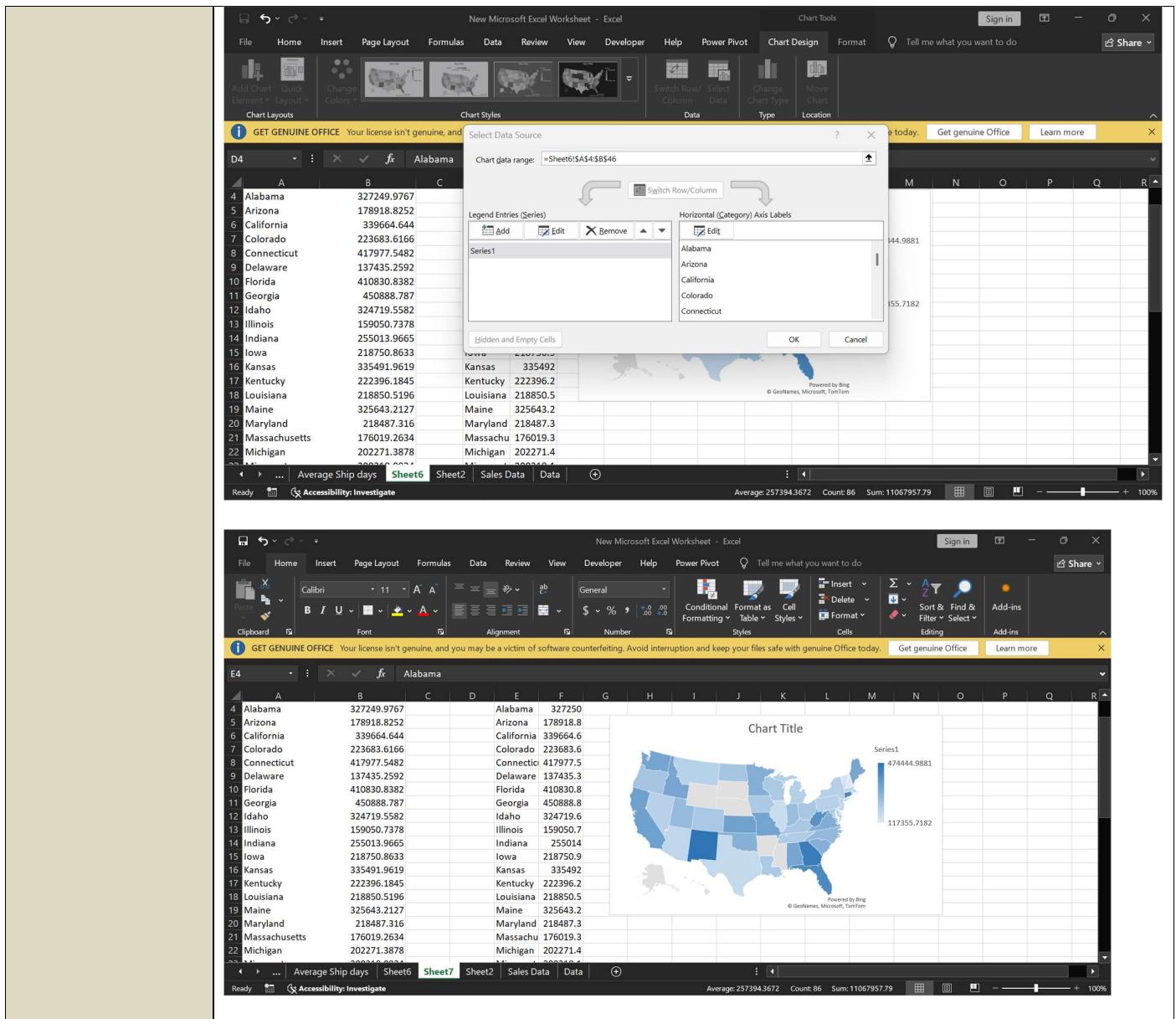
Table name:	Sales_Data
Measure name:	measure 1
Description:	
Formula:	=DIVIDE(SUM(Sales_data[Shipping Amount]),SUM(Sales_data[Order Quantity]),")

Value Field Settings Dialog (Bottom):

Source Name:	Days to ship
Custom Name:	Average of Days to ship
Summarize Values By:	Show Values As
Summarize value field by:	Average
Number Format:	

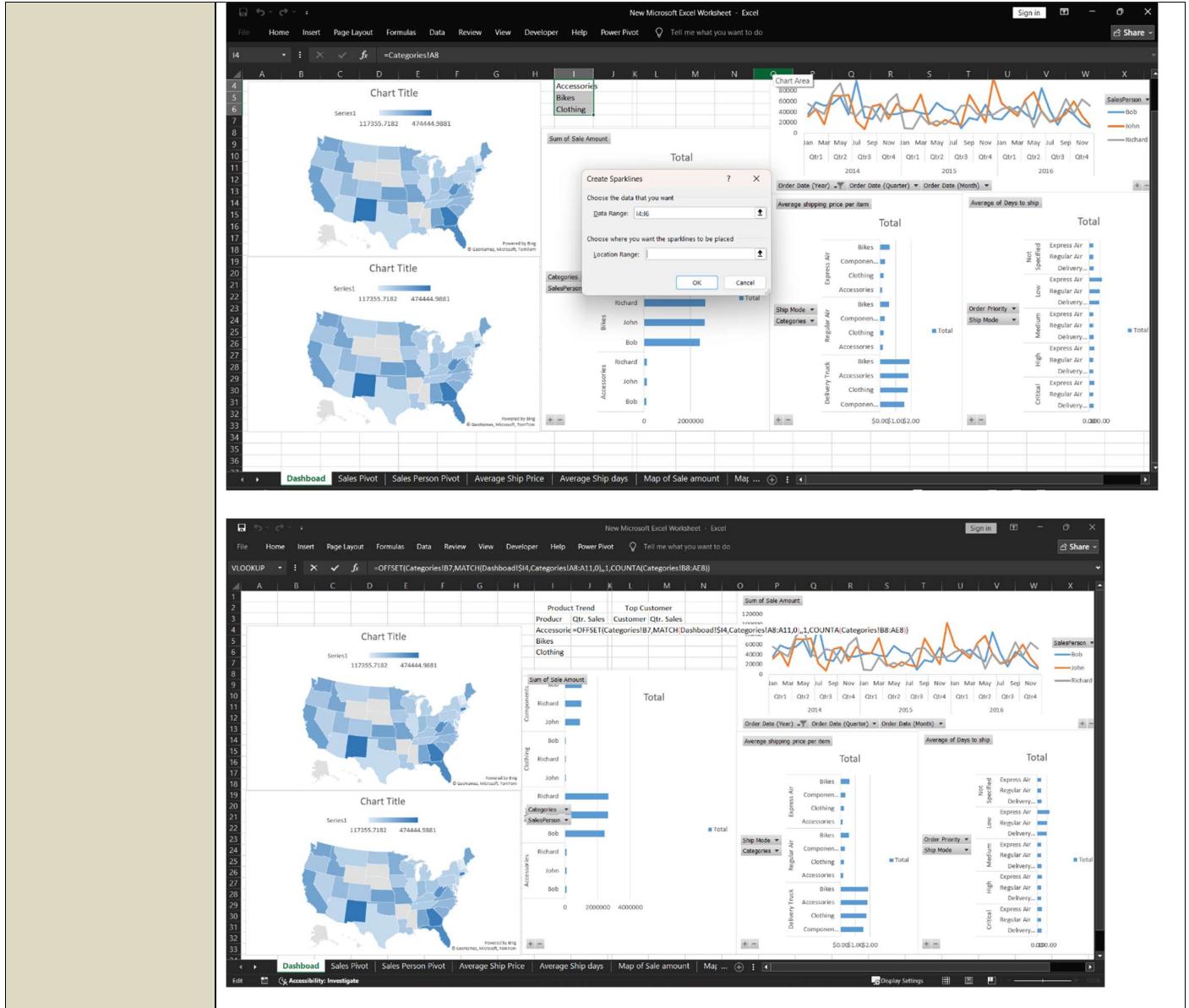
PivotTable Fields (Right):

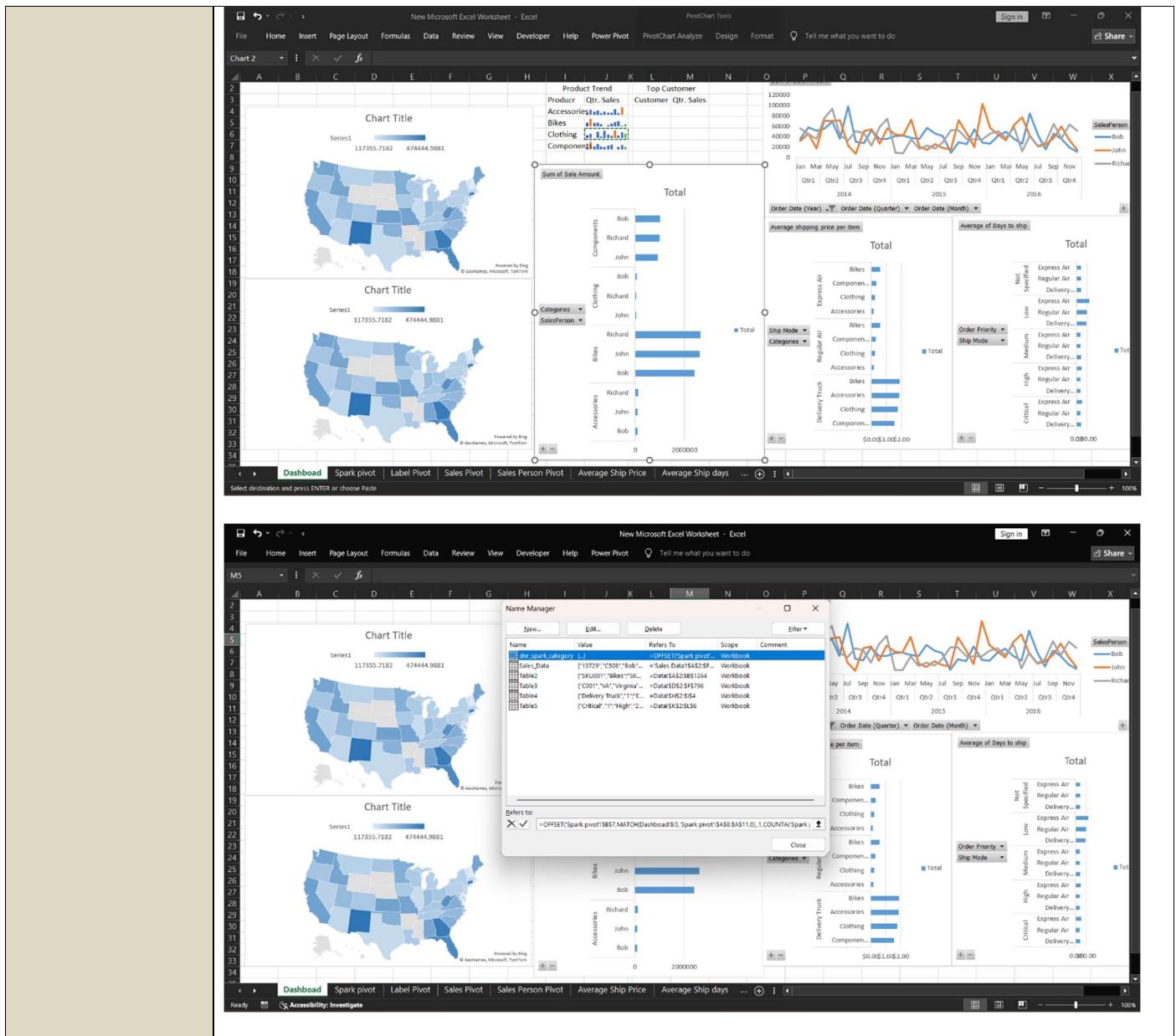
- Active: All
- Choose fields to add to report:
 - Category
 - Customer
 - Order Data
 - Sales_Data
 - Shipping
- Filters
- Columns
- Rows
- Ship Mode
- Values

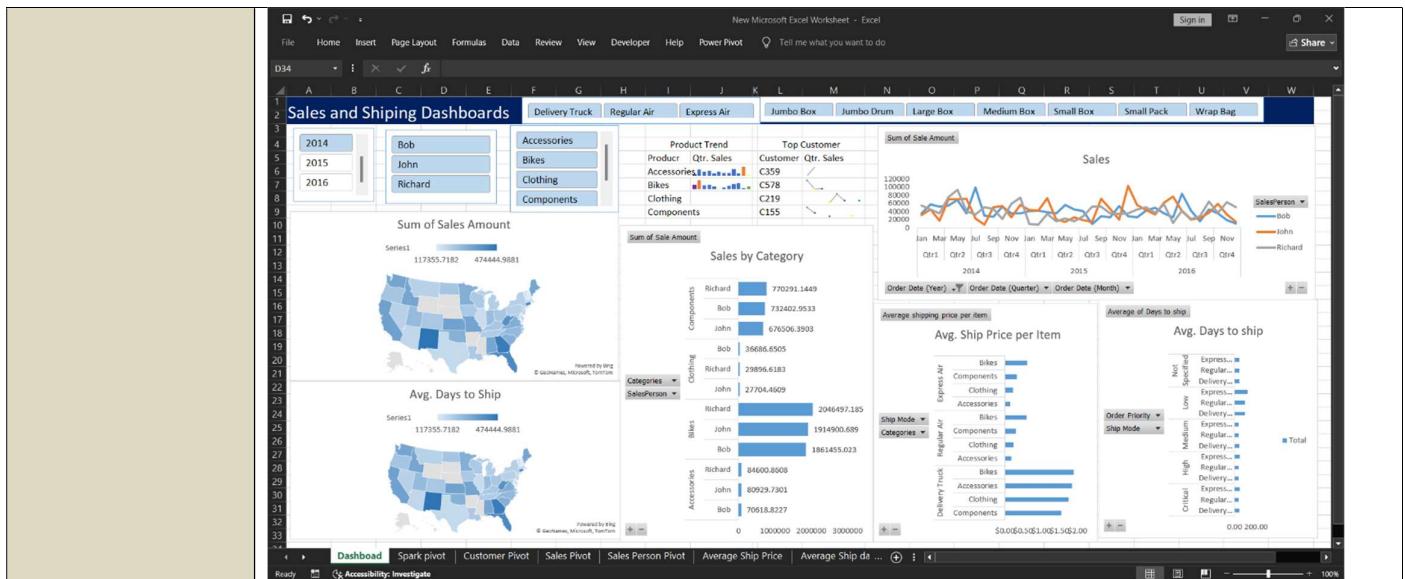


This screenshot shows a Microsoft Excel worksheet titled "New Microsoft Excel Worksheet - Excel". A PivotTable is displayed with data for "Sum of Sale Amount" across "Customer" categories. A "Sort (Customer)" dialog box is open, showing the sorting options: "Descending (Z to A) by: Sum of Sale Amount". The PivotTable Fields pane on the right shows the fields used in the report.

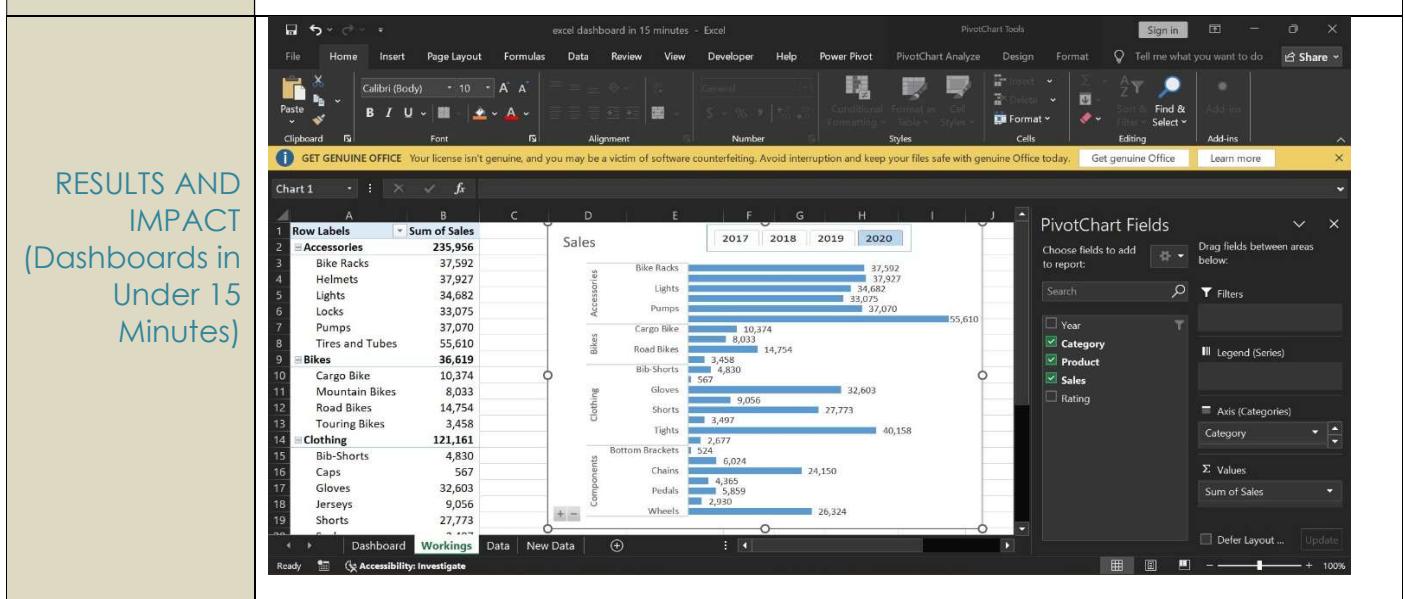
This screenshot shows the same Microsoft Excel worksheet and PivotTable setup as the first one. A "Top 10 Filter (Customer)" dialog box is now open, set to show the top 4 items by "Sum of Sale Amount". The PivotTable Fields pane remains visible on the right side of the screen.



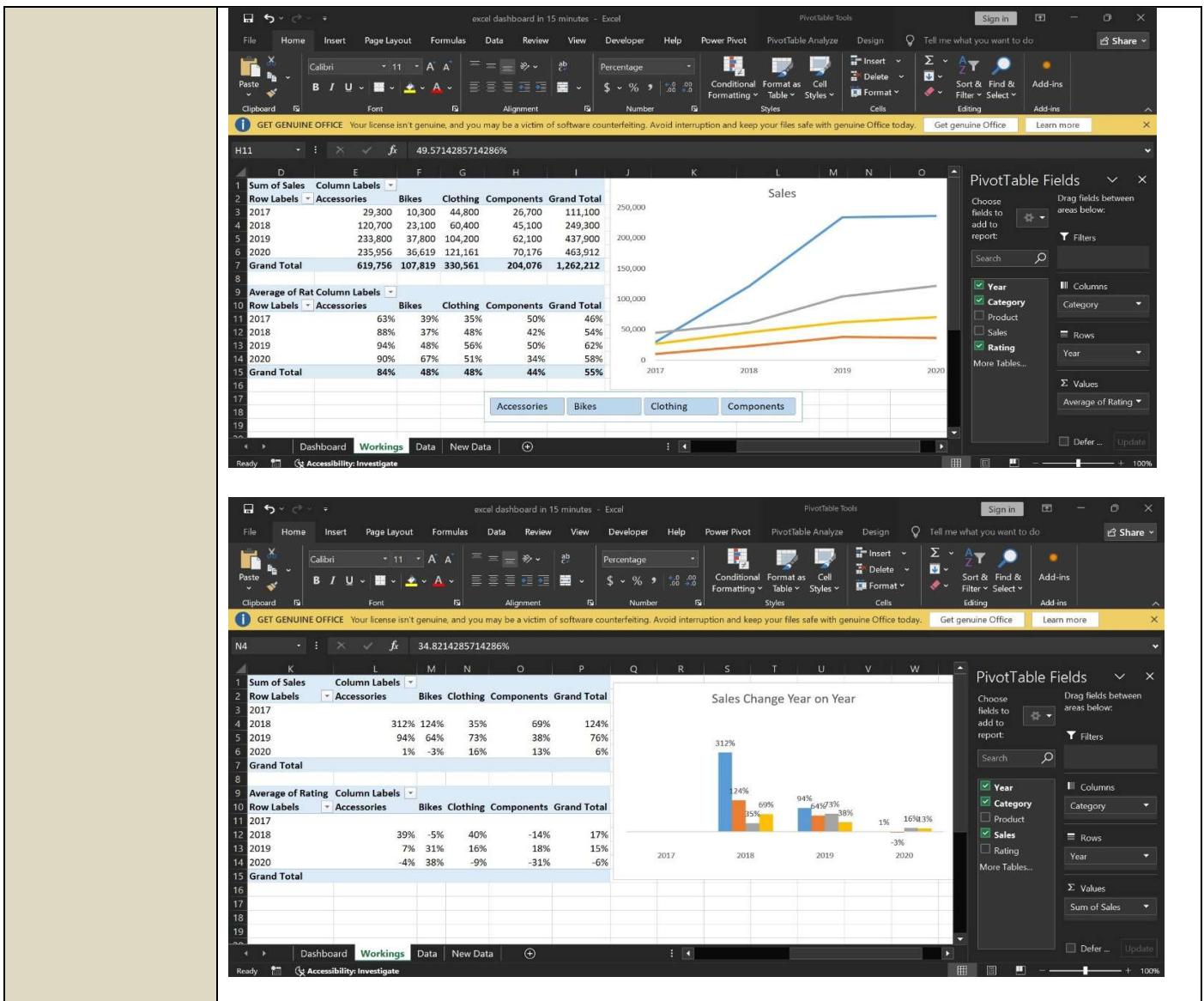


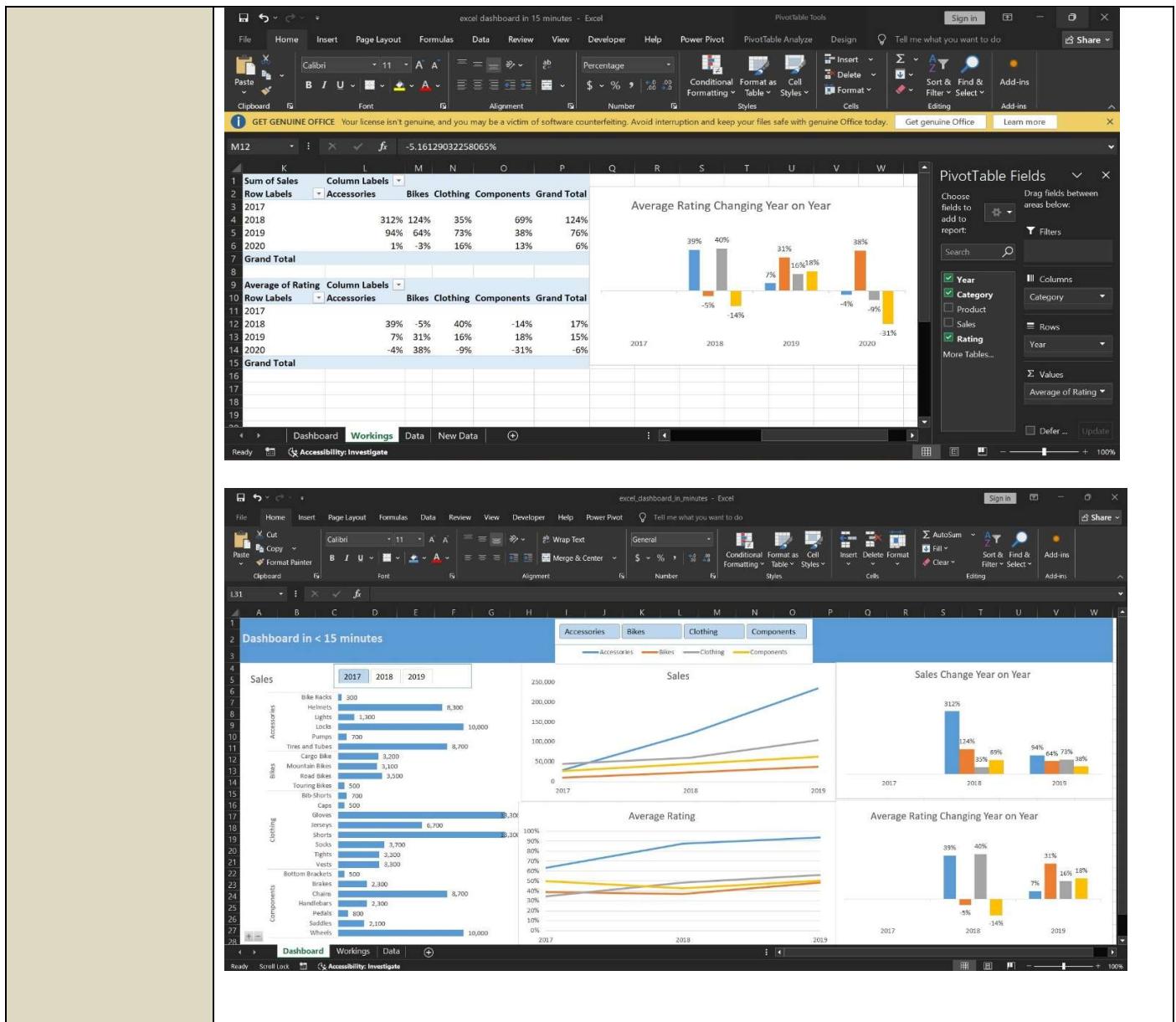


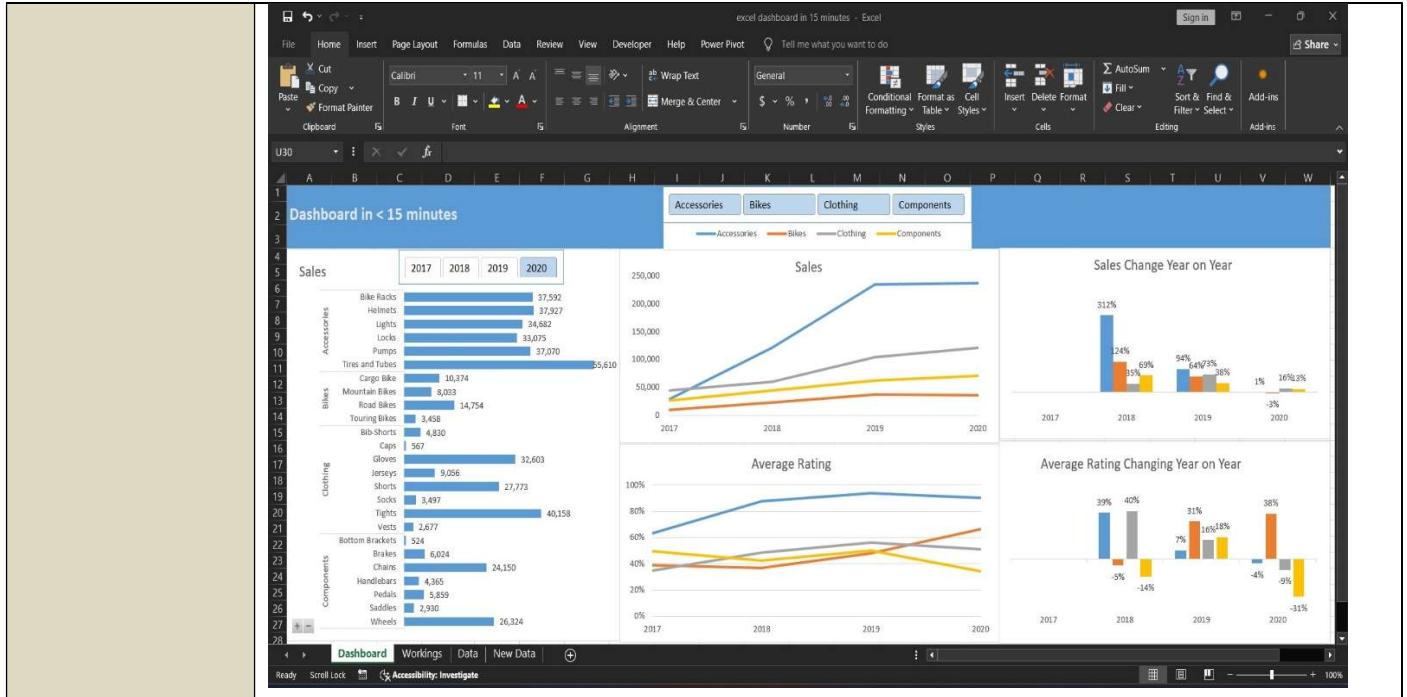
This Excel dashboard shows sales and shipping performance from 2014 to 2016. Users can filter the data by year, salesperson, product, and shipping mode using slicers. The dashboard includes maps and charts to track regional sales, product trends, and seasonal patterns. It also shows shipping efficiency, such as average delivery time and shipping cost per item, giving a quick view of both sales results and logistics performance.



RESULTS AND IMPACT (Dashboards in Under 15 Minutes)







The Excel Sales and Performance Dashboard, titled “Dashboard in < 15 minutes,” shows how a dashboard updates automatically when new data is added. It starts with sales data from 2017 to 2019, where sales grow quickly and some categories reach up to 312% growth. When a “New Data” tab is added for 2020, the dashboard expands on its own, updating the slicers and charts to include the new year. The 2020 results show sales becoming more stable with a small drop, but customer ratings stay strong, remaining between 60% and 90% across all categories.

Conclusions	<p>This curriculum provided a comprehensive overview of modern data processing, specifically focusing on the transition from standard Pivot Tables to automated workflows using Power Query and Power Pivot.</p> <ul style="list-style-type: none"> ❖ Efficiency Gains: Knowledge was gained in data cleaning, establishing relational data models, and writing DAX formulas to perform complex business calculations. ❖ Challenges Faced: Initial difficulties were encountered while understanding the logic of DAX filter context and moving away from traditional cell-based formulas to table-based logic. ❖ Technical Skills: Learning to automate repetitive tasks, data modeling, automated data cleaning, and creating interactive visual reports. ❖ Analytical Skills: The ability to translate raw numbers into actionable business insights through structured dashboards has been sharpened.
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	<ul style="list-style-type: none">❖ Workplace Application: In a professional setting, these skills would be applied to eliminate manual data entry, create "one-click" reports that update automatically, saving hours of work every week.❖ Future Goals: There is a strong motivation to keep exploring advanced data tools and potentially move into Power BI.❖ Continuous Learning: The focus remains on finding even faster ways to process data and stay updated on the latest Excel features.
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