

BBD UNIVERSITY



DISCIPLINE ANALYTICS

(BCADSN13201)

GROUP 16

PROJECT

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Class: BCADS25

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Practical: 1

Definition: A bar graph is a chart used to represent data using rectangular bars. The length of each bar is proportional to the value it represents.

Outcomes/Learning: Learned how to create and visualize product values using a bar graph.

Required Tool: MS Excel (or any data visualization tool such as Power BI or Python Matplotlib).

Working: We entered product names and their corresponding values into a spreadsheet and used the “Insert → Bar Chart” option to create a graphical representation.

Step 1:

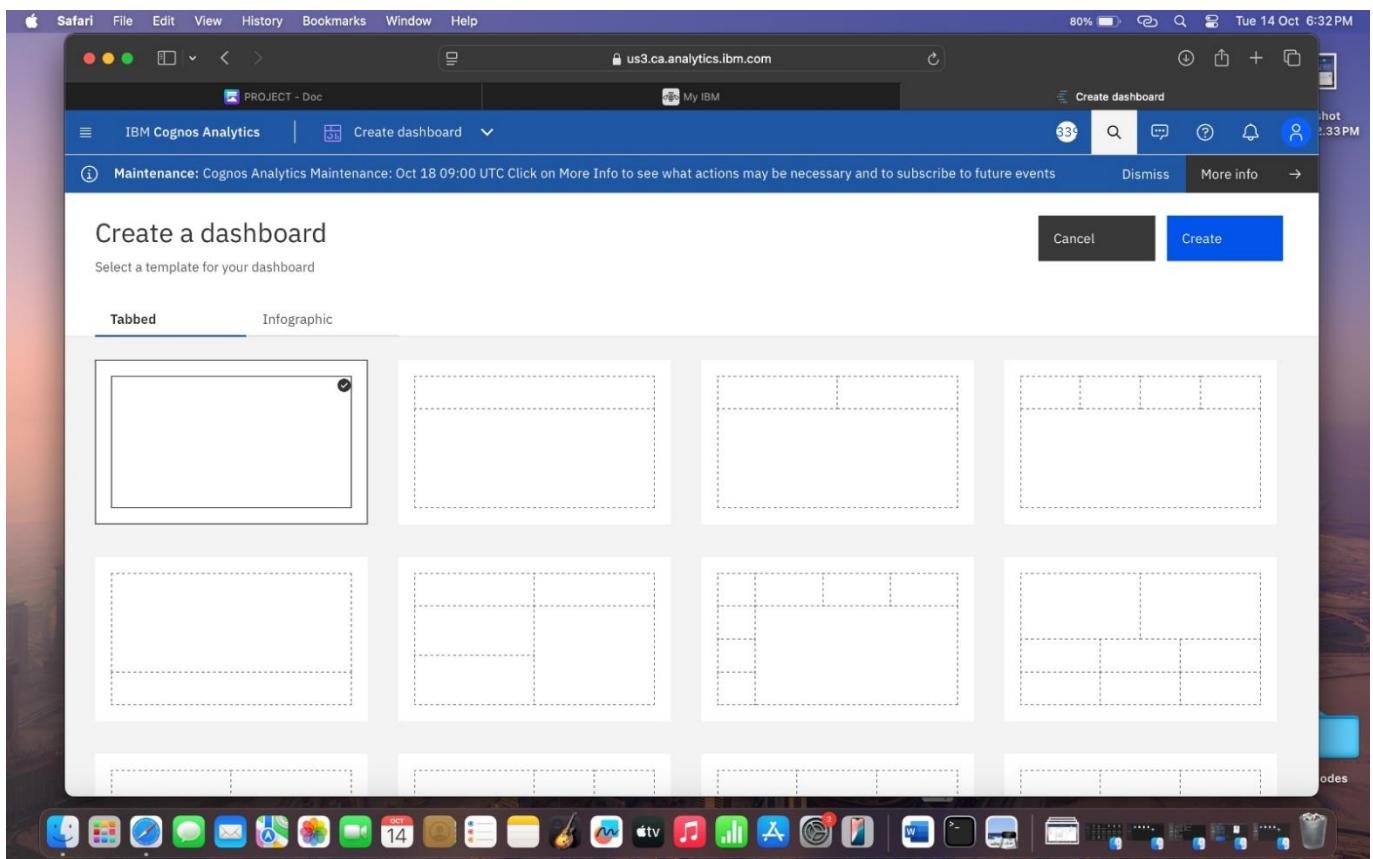
Screenshot 1:

The screenshot shows the IBM Cognos Analytics interface. The top navigation bar includes links for File, Edit, View, History, Bookmarks, Window, and Help. The URL in the address bar is us3.ca.analytics.ibm.com. The main content area has a blue header with the text "PROJECT - Doc". Below the header, there are three main sections: "Create" (Select or upload data and create content), "Assistant" (Ask the Assistant a question in your own words to uncover insights about your data), and "Learn" (Watch videos or take a tour to learn about Cognos Analytics). On the left, a sidebar menu lists categories: Data sources (Data server, Data module, Data set, Upload data), Data presentation and assets (Dashboard, Report, Assistant chat), Other (Exploration, Story), Content (Recent, Manage), and a bottom section for Recent files (June-2025-quarter.zip, SV). The bottom of the screen shows a Mac OS X-style dock with various application icons.

Description: The dataset of products and their values was entered into Excel.

Step 2:

Screenshot 2:



Description: The product names and their values were selected for chart creation.

Step 3:

Screenshot 3:

Select a source

My content Team content

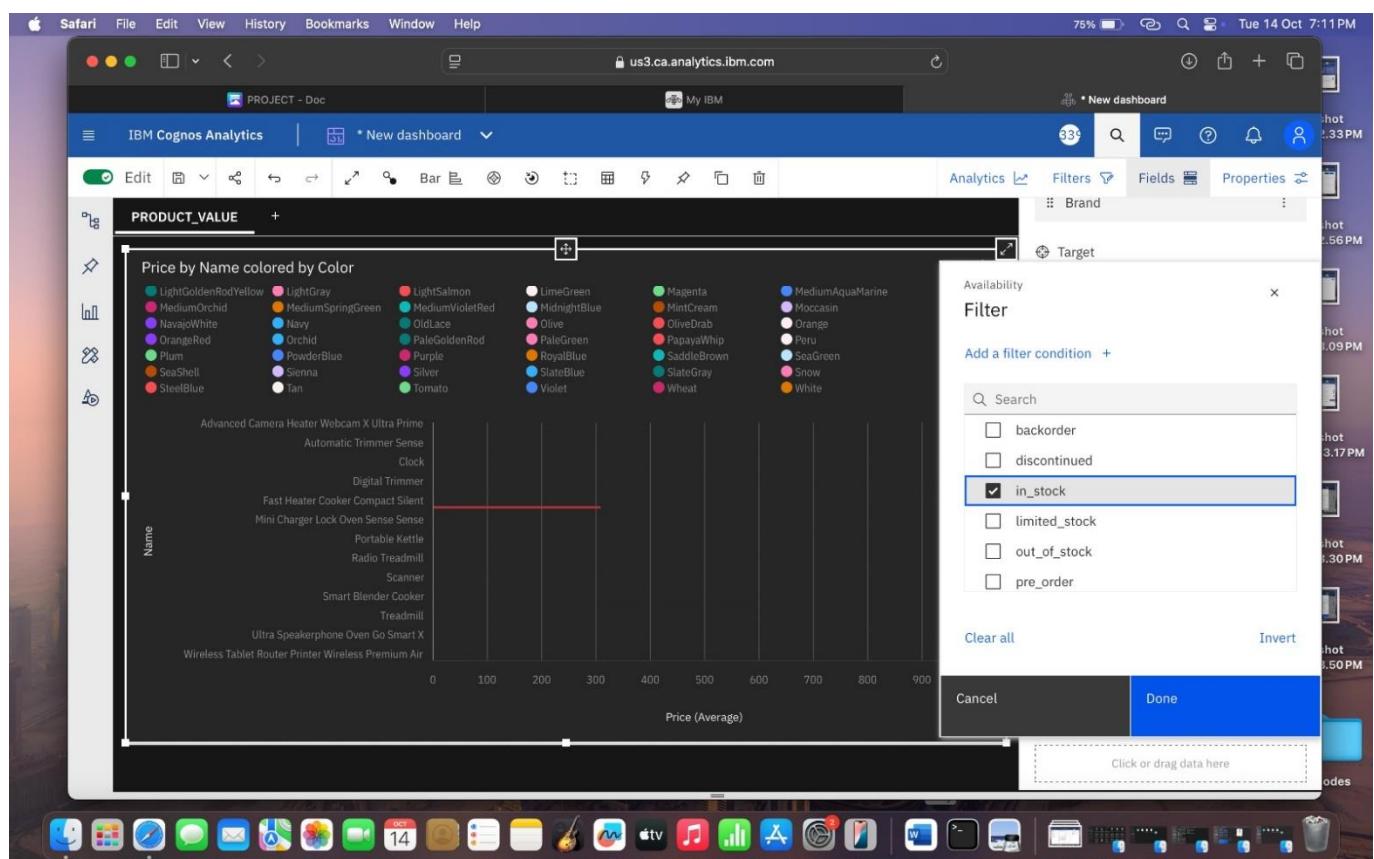
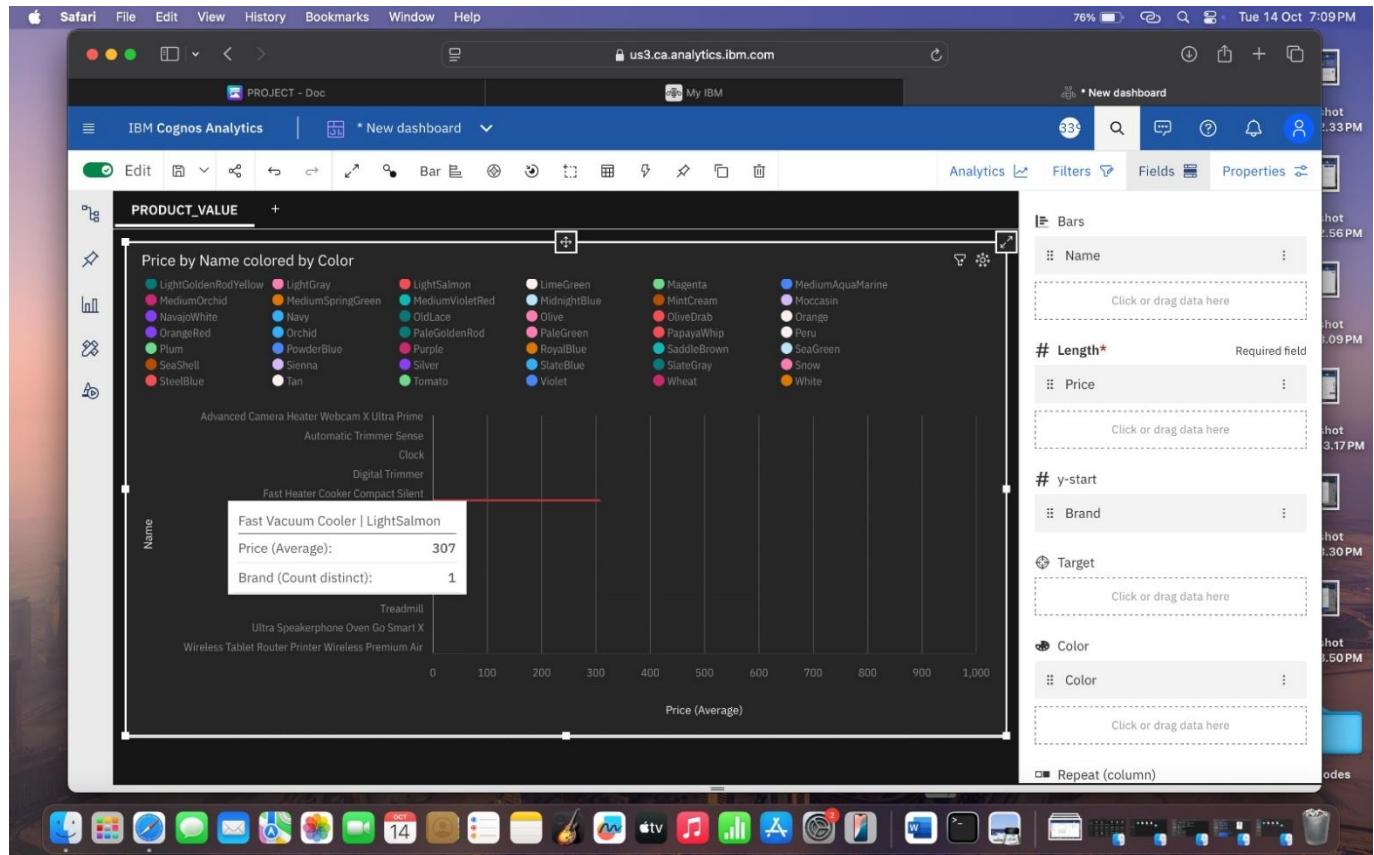
Name	Type	Last Modified
weather_data.csv CSV	Uploaded file	14/10/2025, 4:28 AM
business-employment-data-june-2025-quarter.zip	Uploaded file	14/10/2025, 5:05 AM
products-100.zip	Data module	13/10/2025, 12:46 PM
datasheet.csv CSV	Uploaded file	14/10/2025, 5:09 AM
MissionML.csv CSV	Uploaded file	13/10/2025, 5:54 AM
sales_summary.csv CSV	Data module	13/10/2025, 12:45 PM
student_performance.csv CSV	Uploaded file	14/10/2025, 4:15 AM
	Uploaded file	14/10/2025, 4:46 AM

Cancel Add

Description: The bar chart option was selected from the “Insert” tab.

Step 4:

Screenshot 4:



Practical: 2

Definition: Data visualization is the process of representing data in graphical or visual formats such as charts, graphs, and dashboards to make information easier to understand.

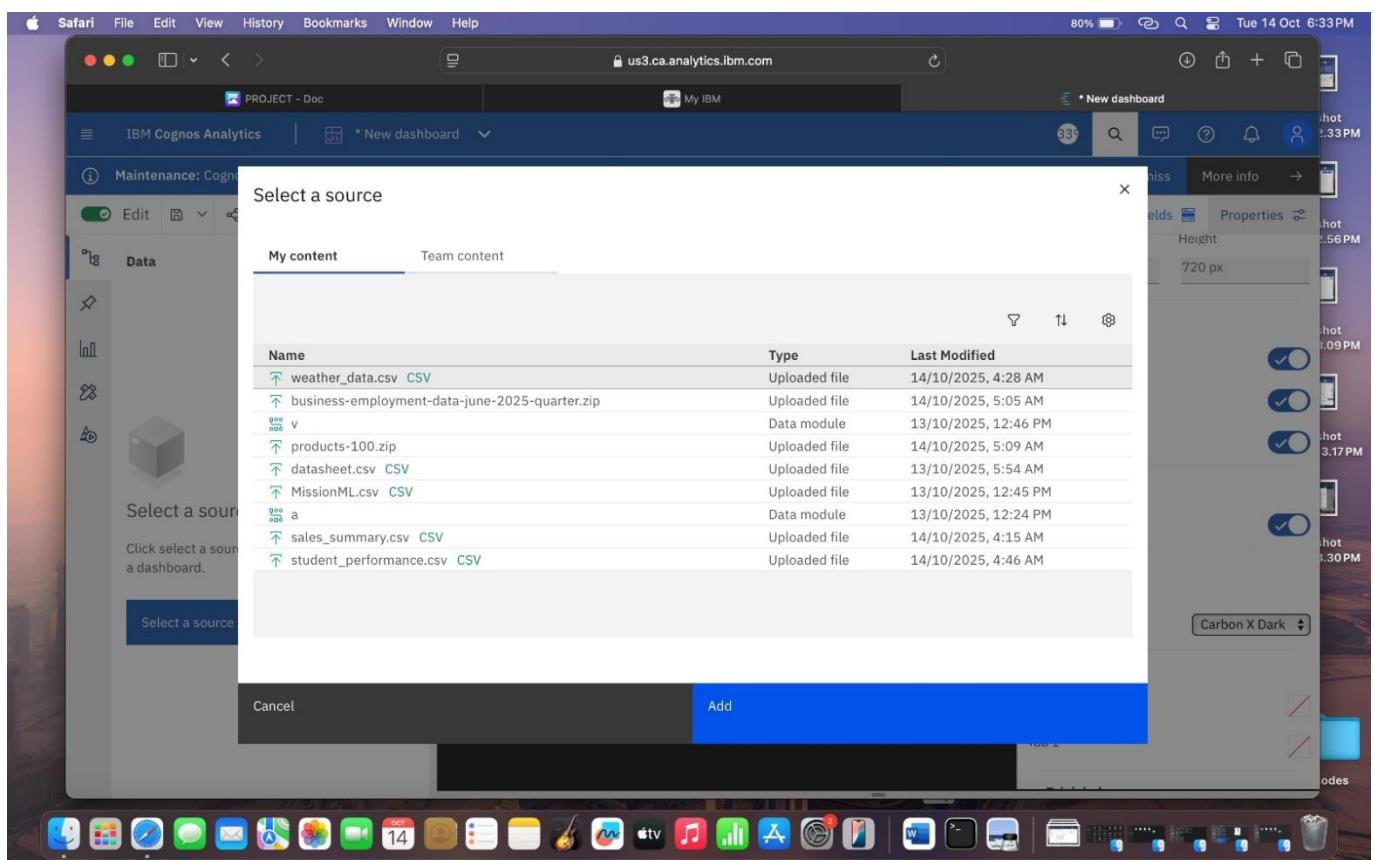
Outcomes / Learning: Learned how to create and represent data using visualization tools for better analysis and decision-making.

Required Tool: Power BI / MS Excel / Tableau (any suitable visualization tool).

Working: We created a dataset, imported it into the visualization tool, and used built-in features to create charts and graphs for better insight into the data.

Step 1:

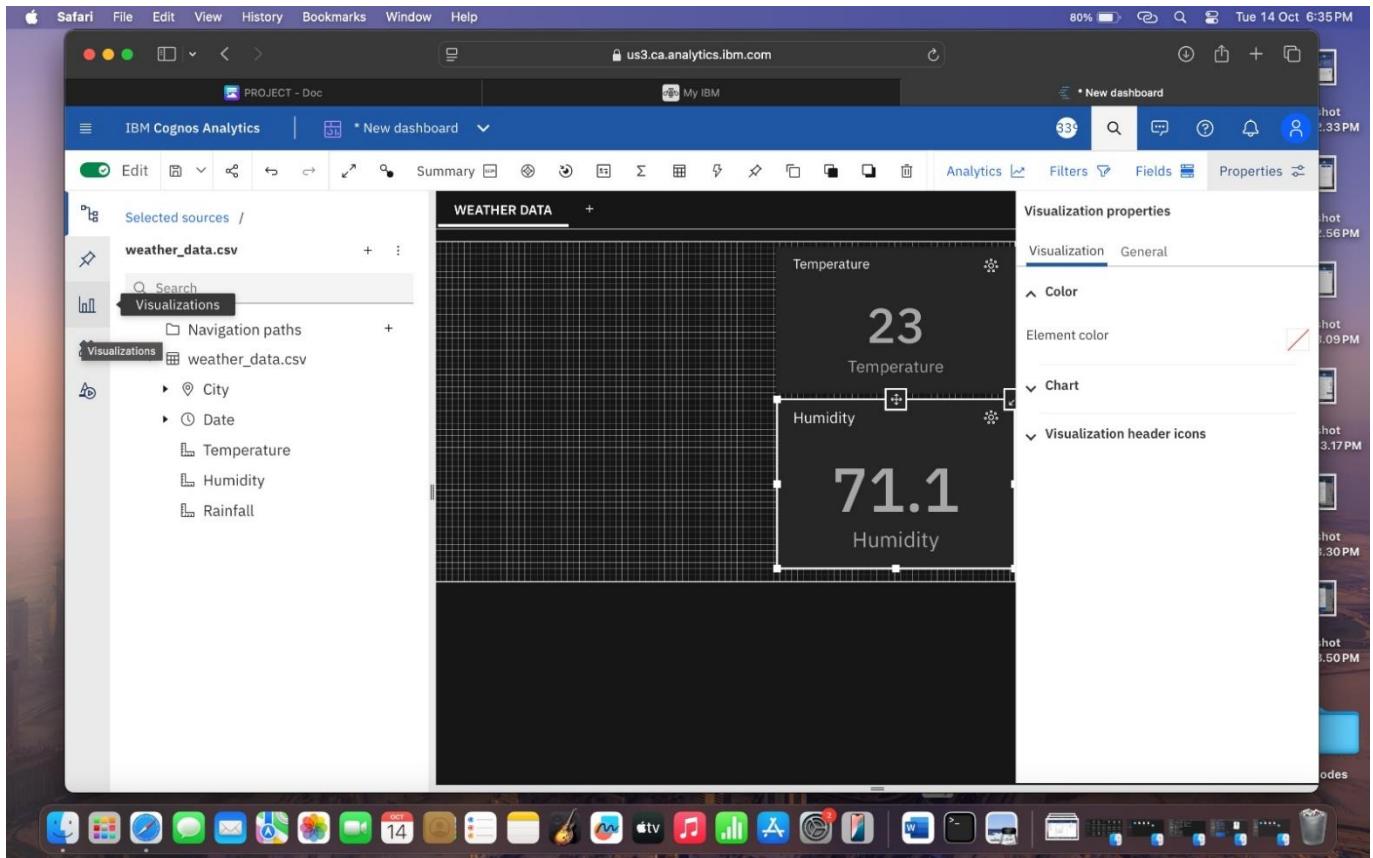
Screenshot 1:



Description: The dataset was created and entered into the tool for visualization.

Step 2:

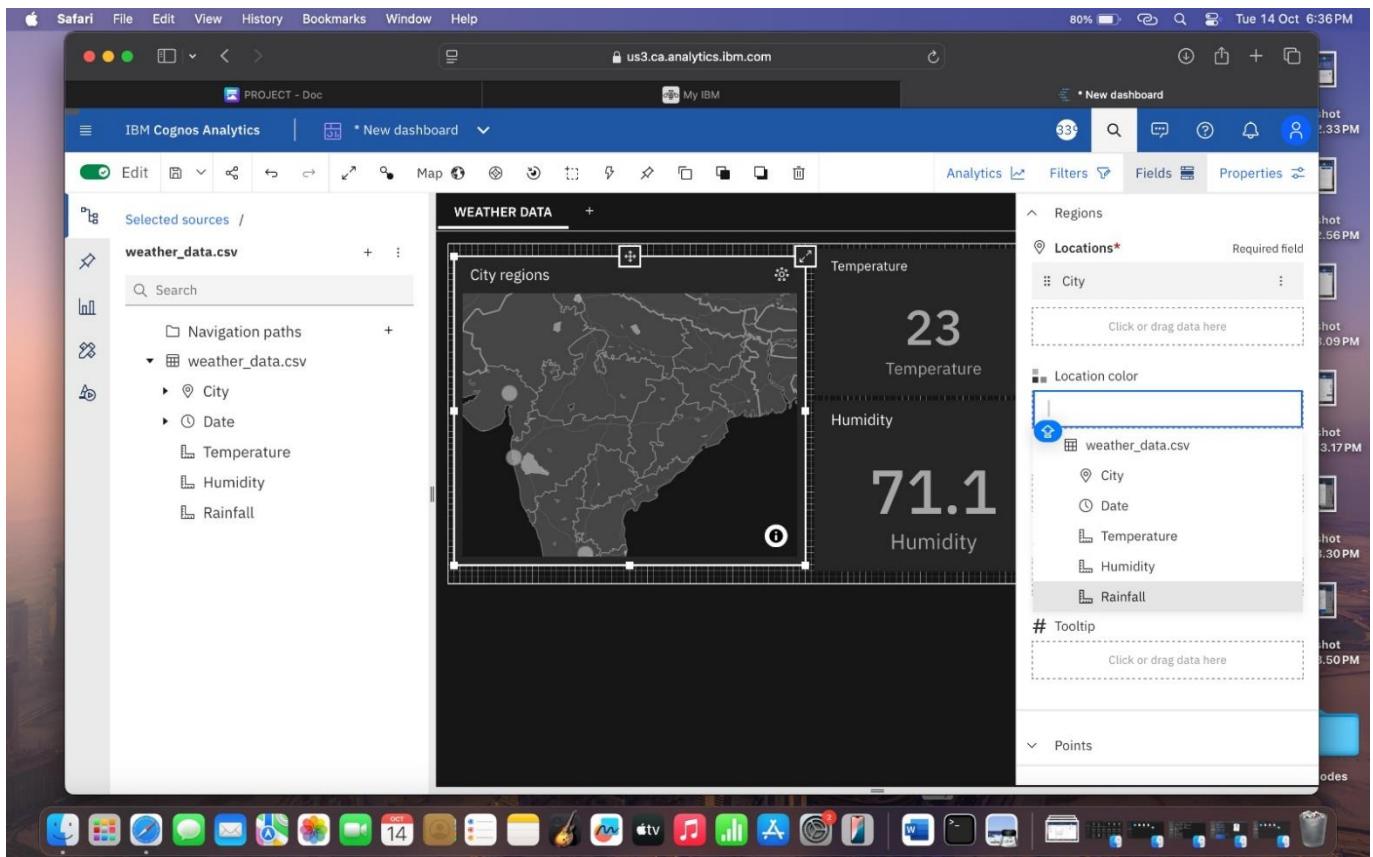
Screenshot 2:



Description: The data was uploaded/imported into Power BI (or Excel/Tableau).

Step 3:

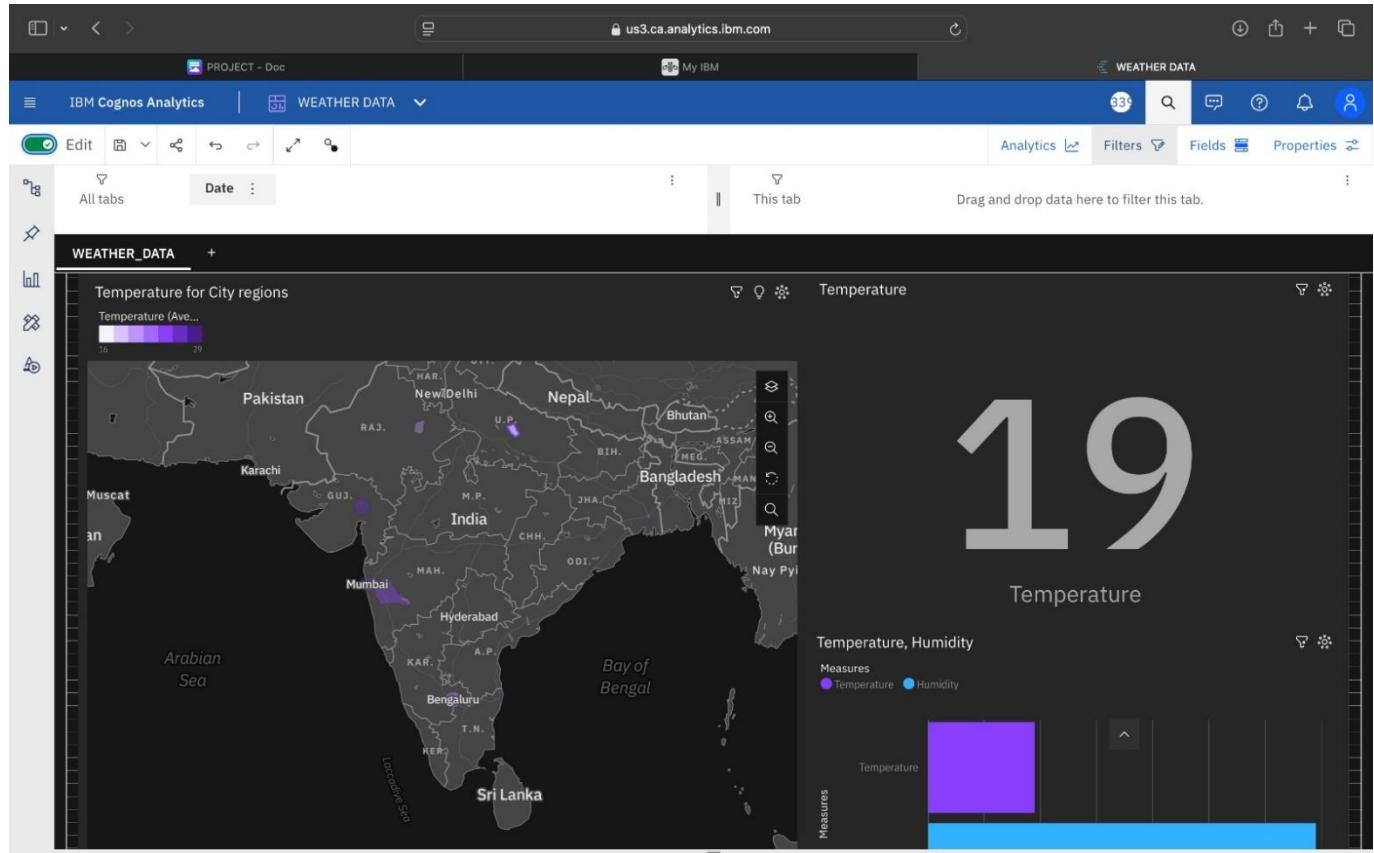
Screenshot 3:



Description: The desired visualization type (bar, pie, or line chart) was selected.

Step 4:

Screenshot 4:



Description: The final visualization displayed the data in an easy-to-understand graphical form.

Practical: 3

Definition: A stacked bar chart displays multiple data series stacked vertically or horizontally in one bar, showing part-to-whole relationships.

A heat map represents data values using color intensity, making it easier to identify patterns and trends.

Outcomes / Learning: Learned how to visualize multiple data categories together using stacked bar charts and color-based heat maps.

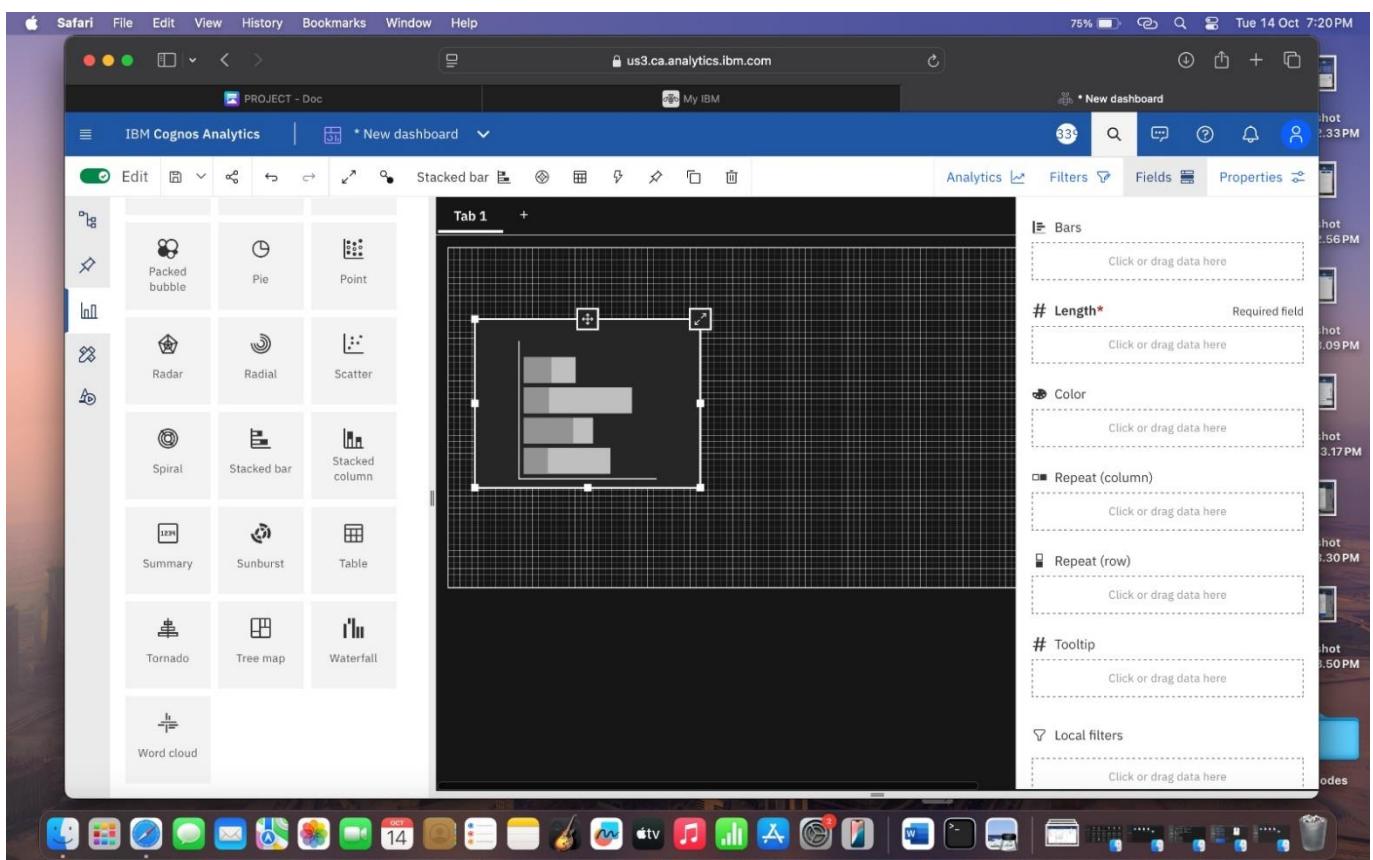
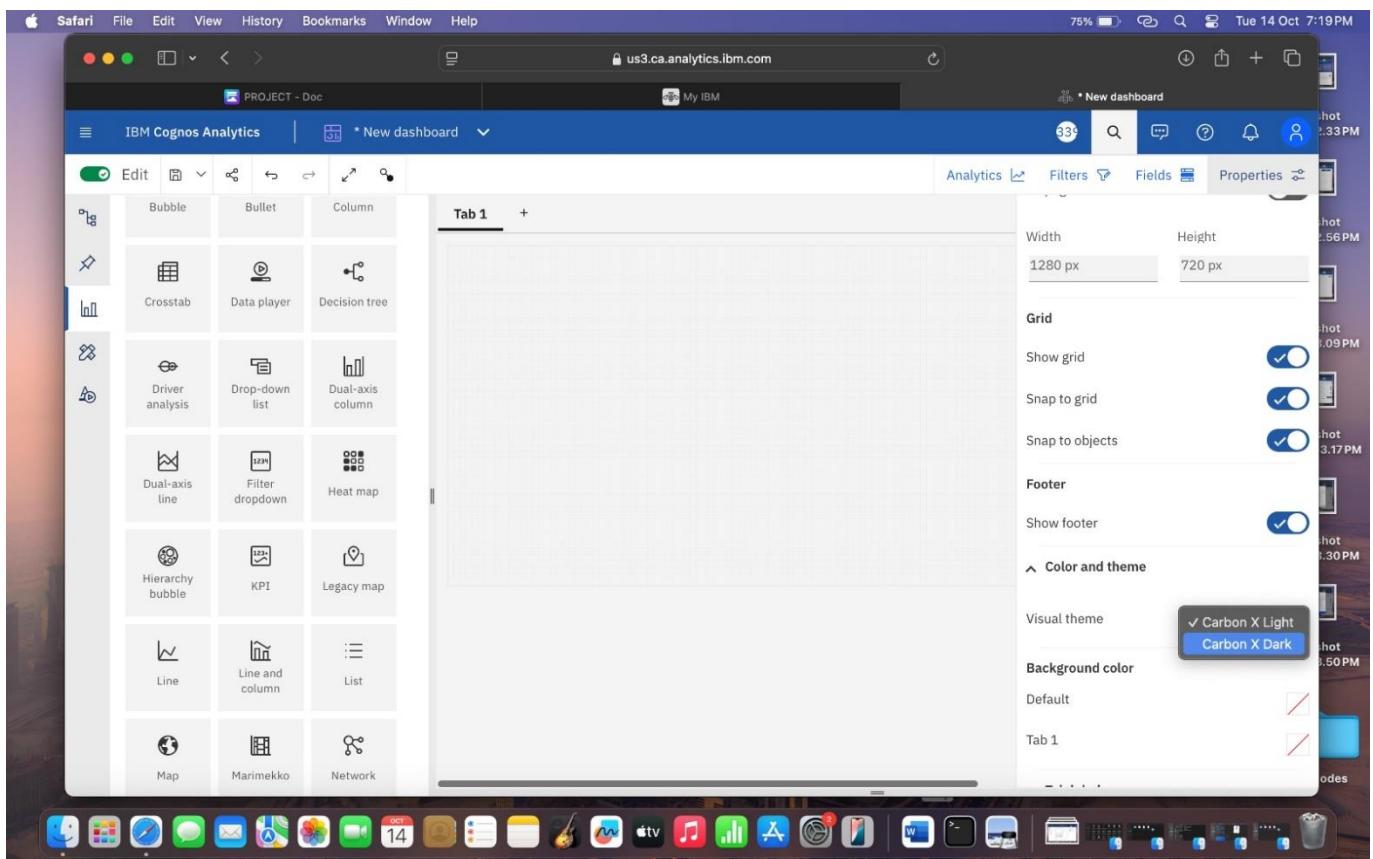
Required Tool: Power BI / MS Excel / Tableau.

Working:

We used the dataset and selected the “Stacked Bar Chart” and “Heat Map” options to display values and variations effectively.

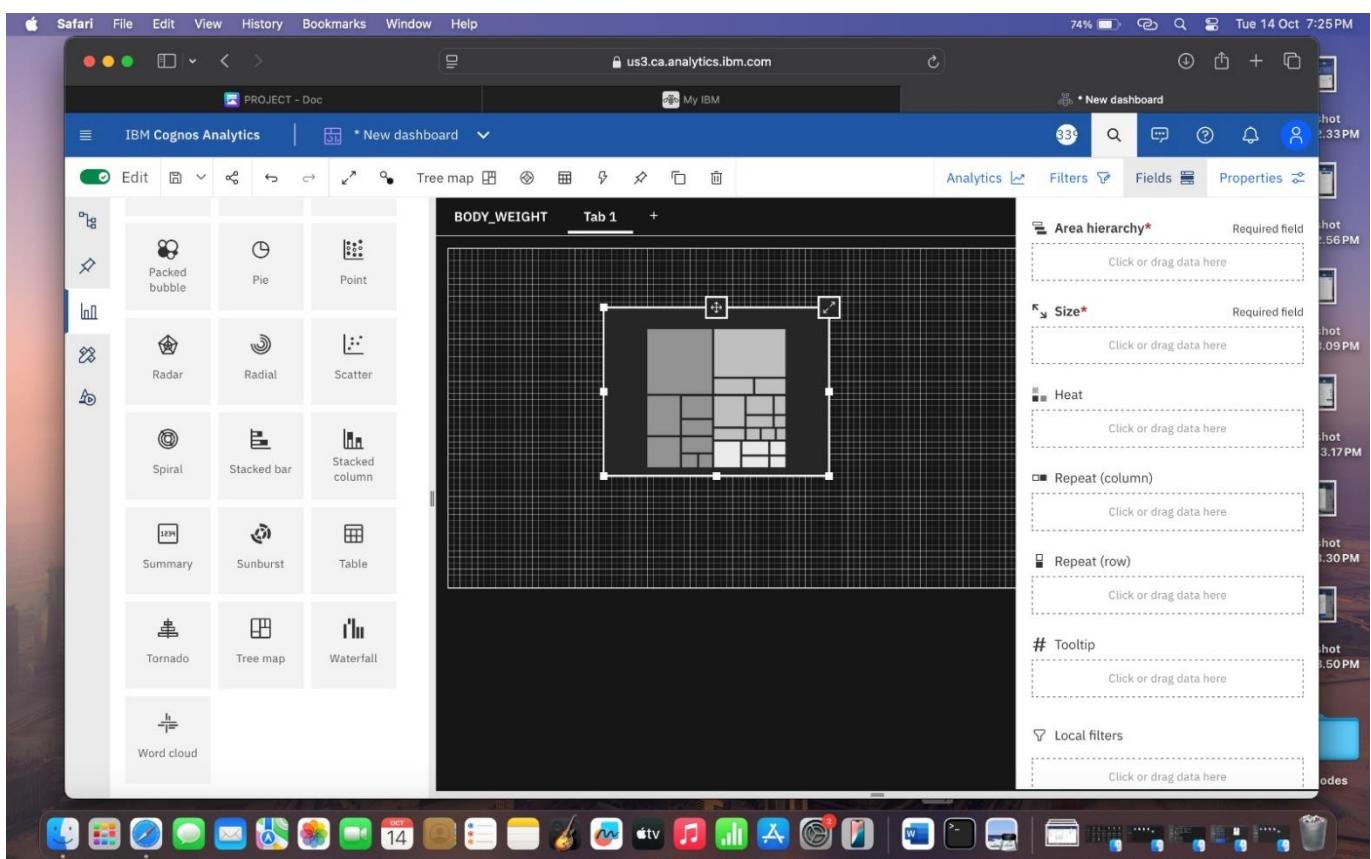
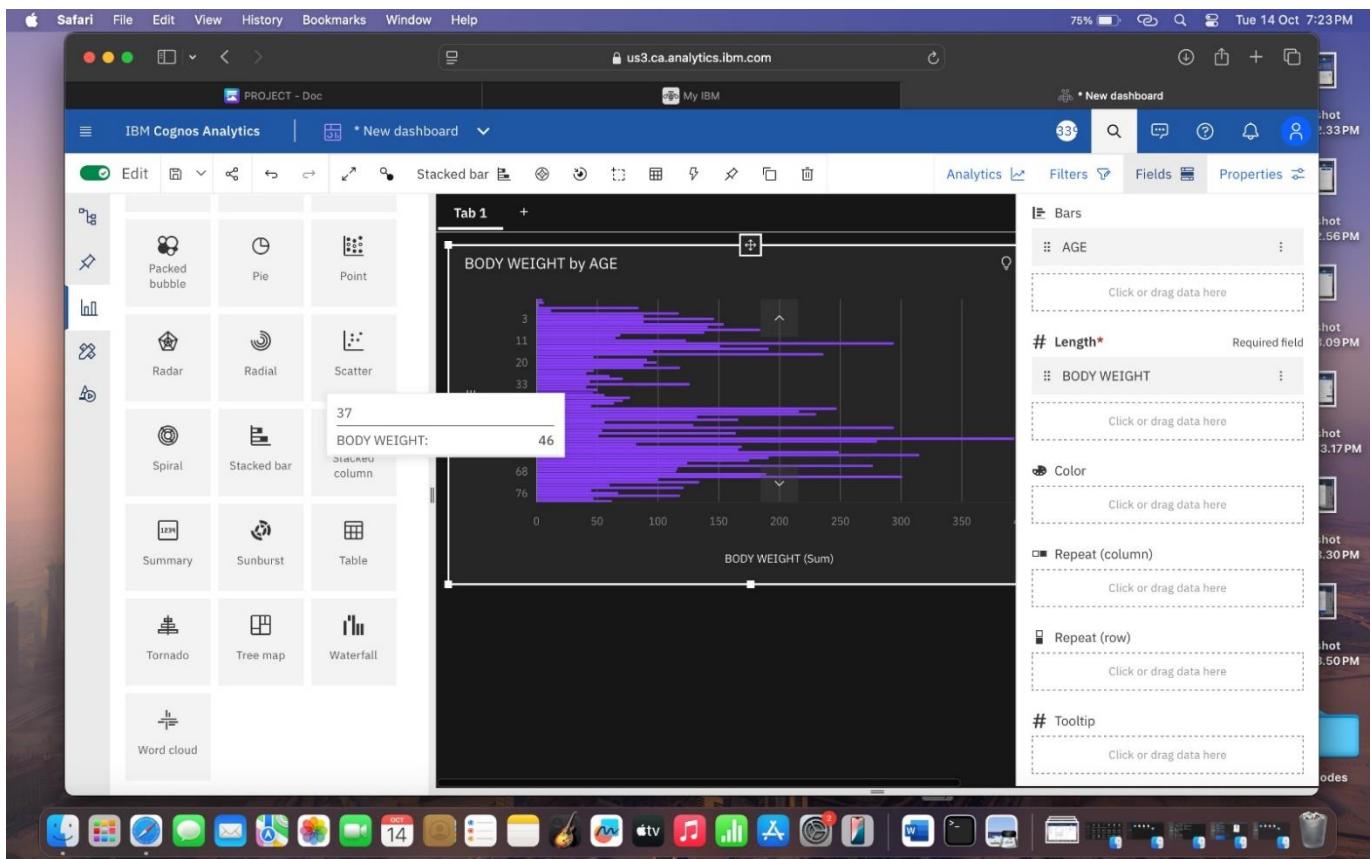
Step 1:

Screenshot 1:



Description: The dataset was prepared and imported for visualization.

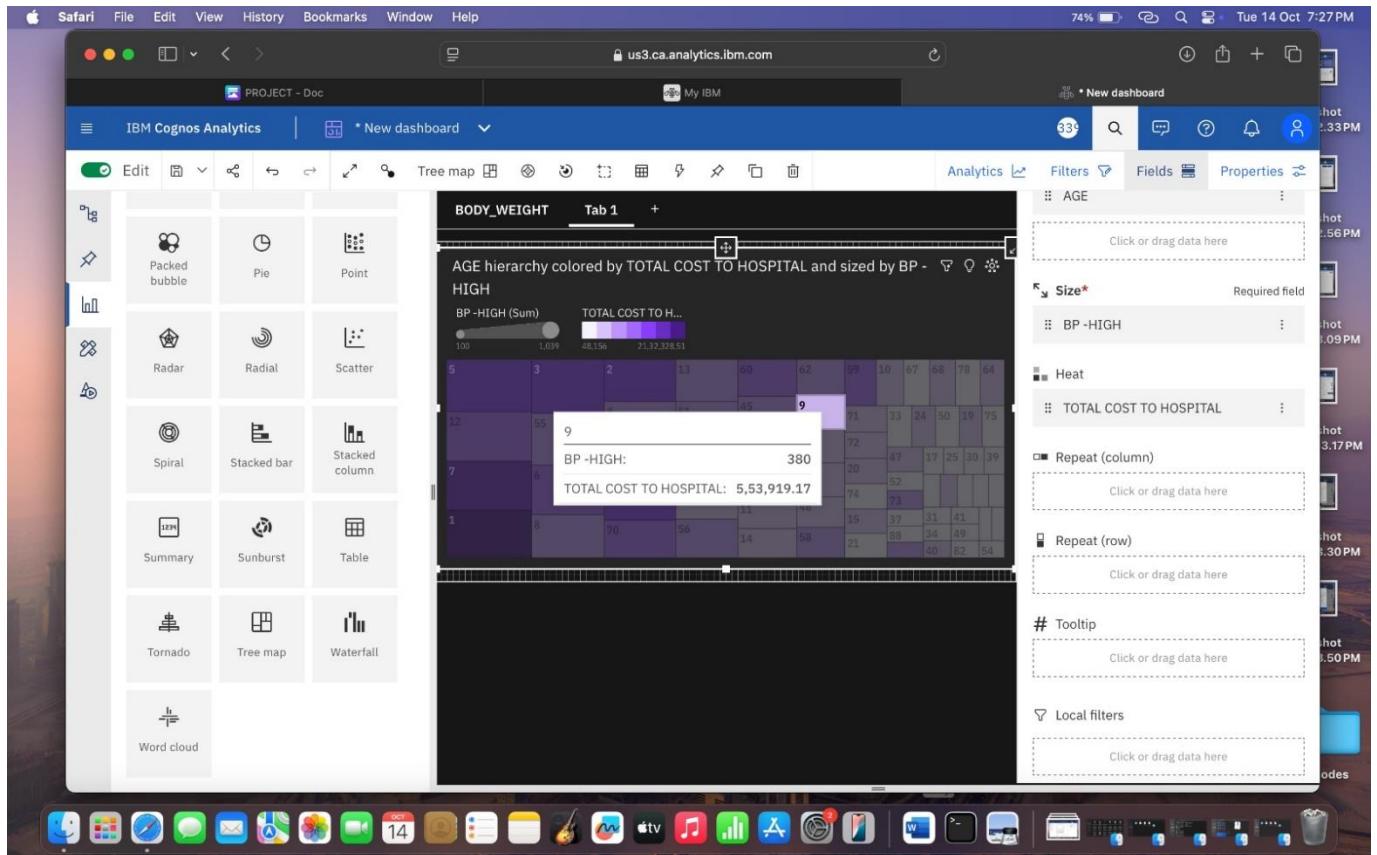
Step 2: Screenshot 2:



Description: The stacked bar chart option was chosen to compare product categories and values.

Step 3:

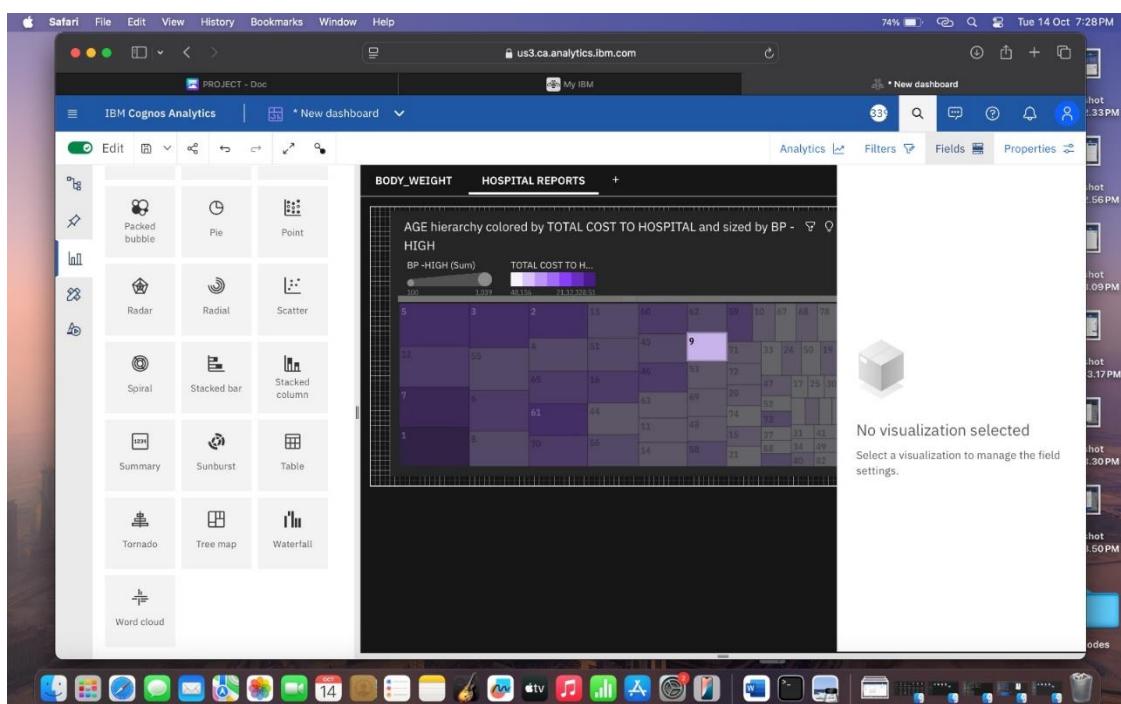
Screenshot 3:



Description: The stacked bar chart displays category-wise contributions in a single bar.

Step 4:

Screenshot 4:



Description: The heat map was created to represent data intensity through color variation.

Practical: 4

Definition: A pie chart is a circular graph divided into slices to illustrate numerical proportions. Each slice represents a category's contribution to the whole dataset.

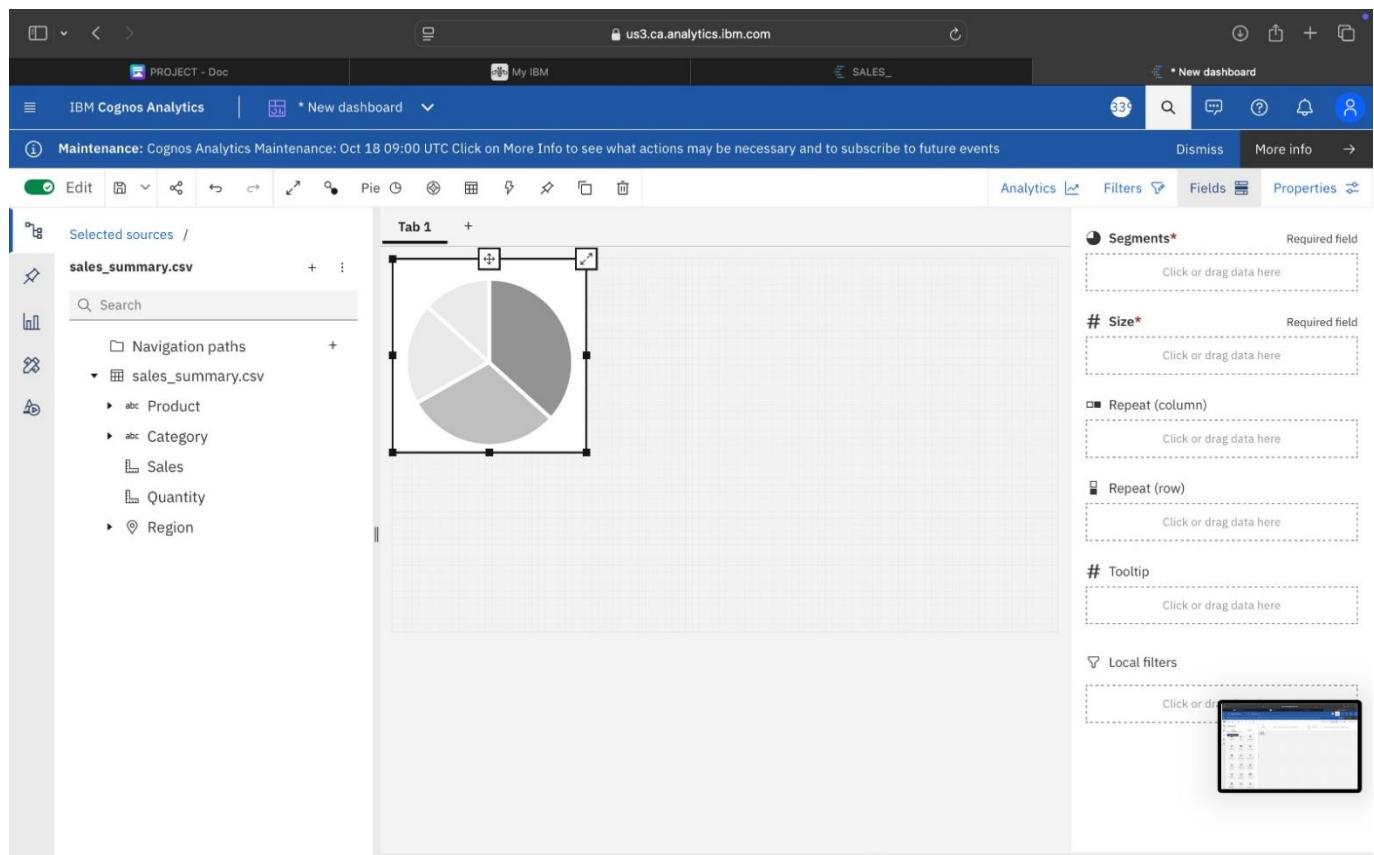
Outcomes / Learning: Learned how to create and interpret a pie chart for visualizing data distribution using a visualization tool.

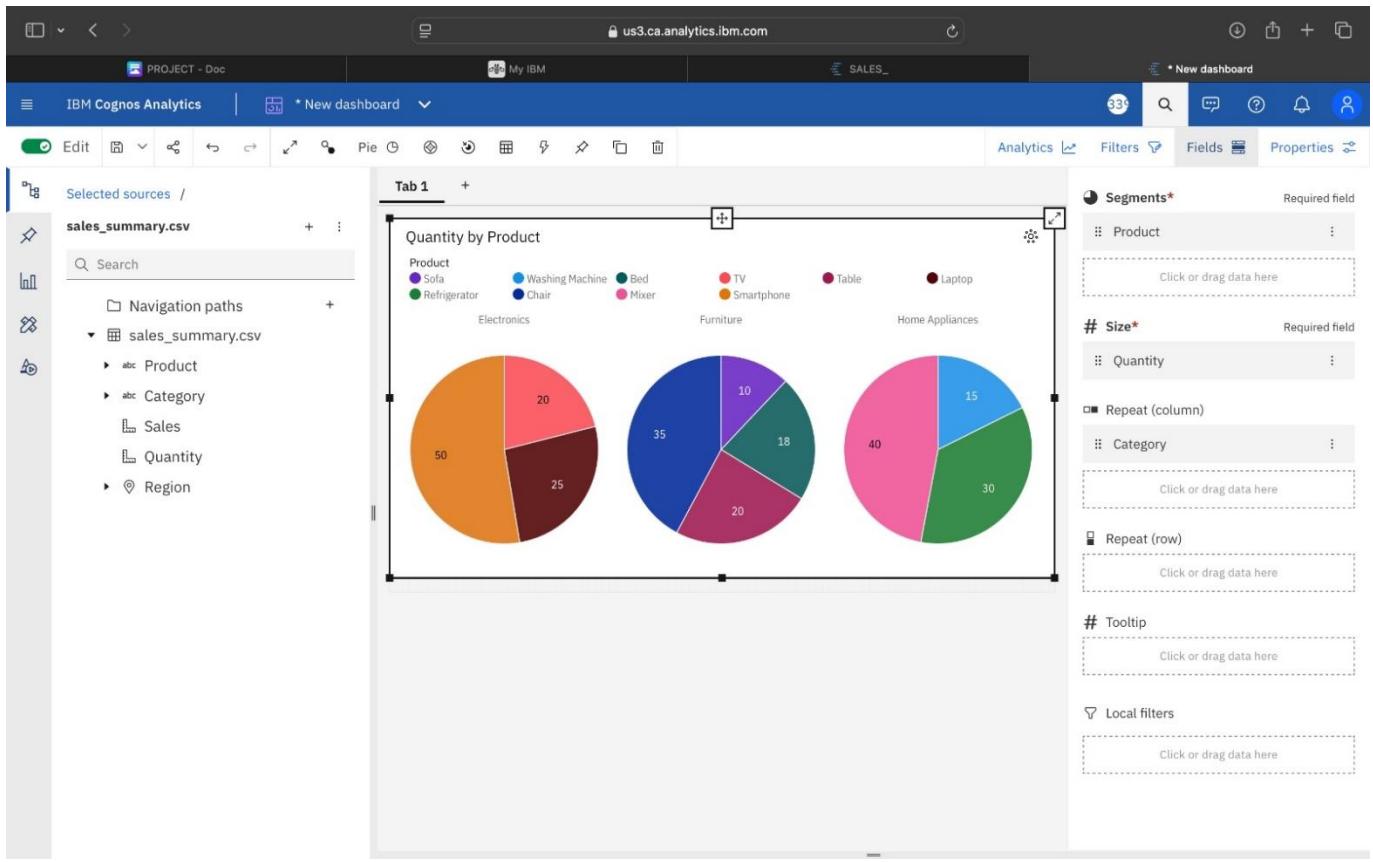
Required Tool: Power BI / MS Excel / Tableau.

Working: We used the dataset and selected the “Pie Chart” visualization type to display data in percentage form for easy comparison.

Step 1:

Screenshot 1:

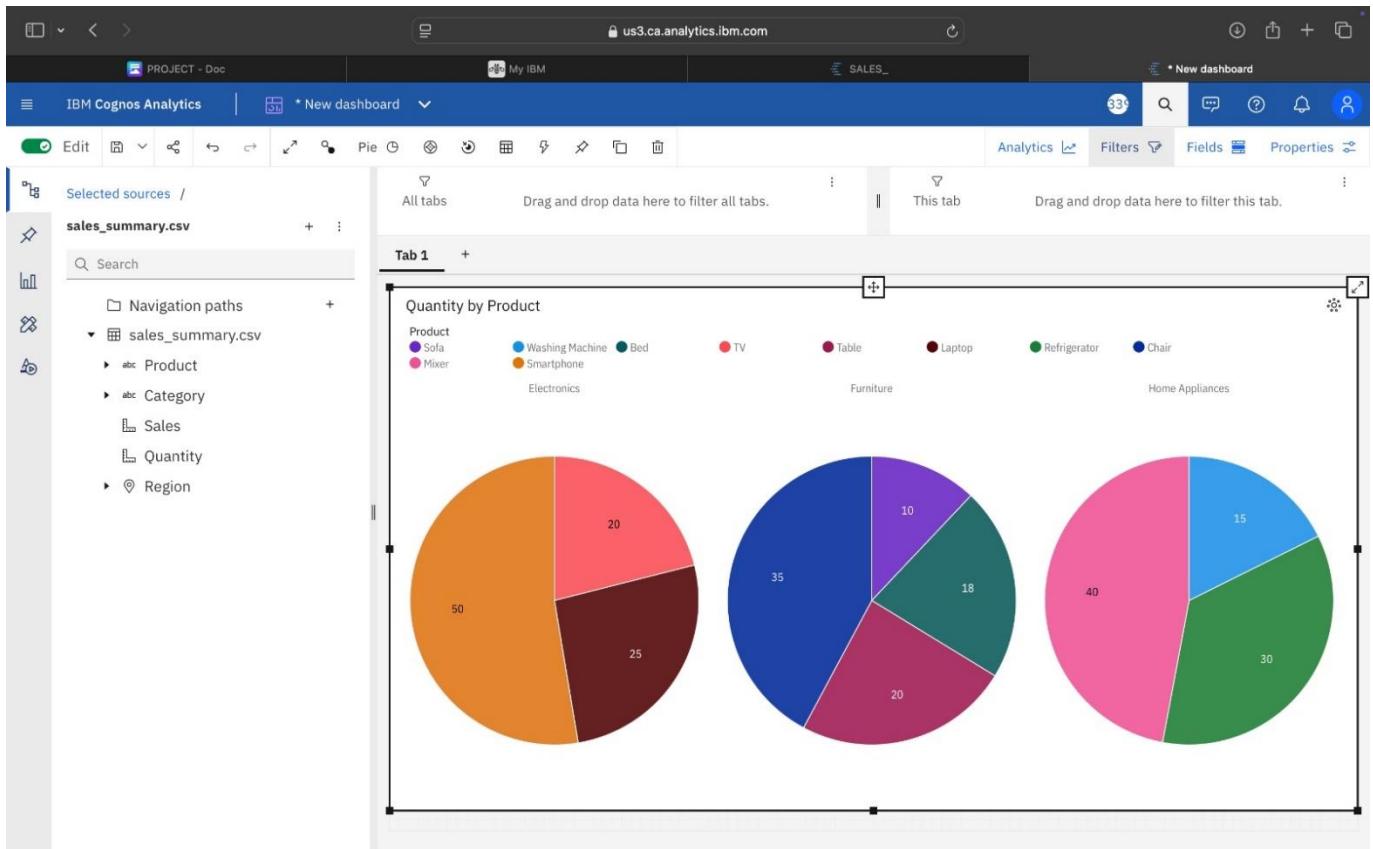




Description: The dataset was entered or imported into the visualization tool.

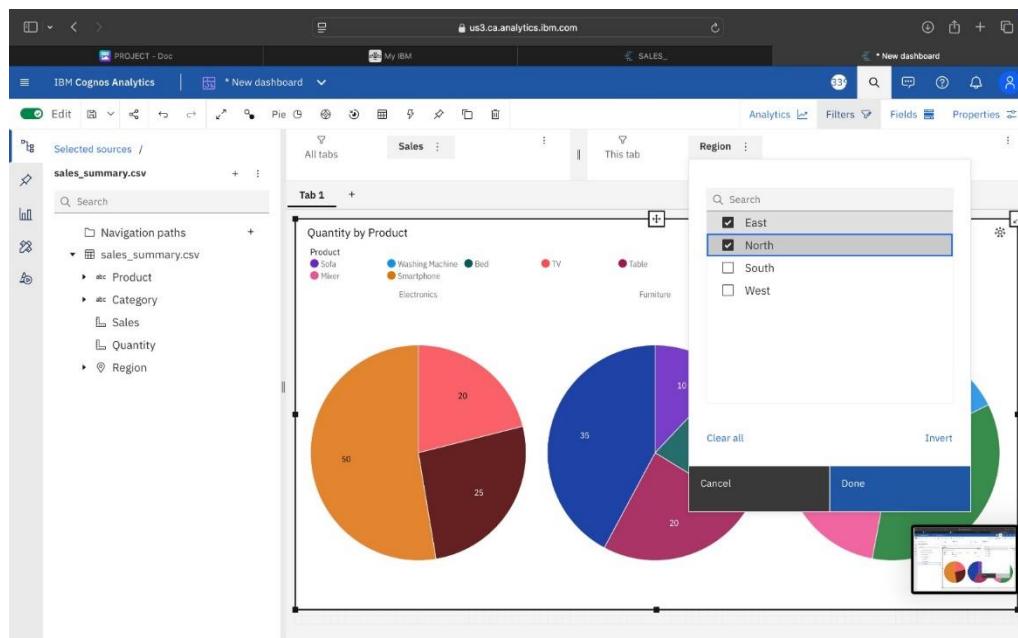
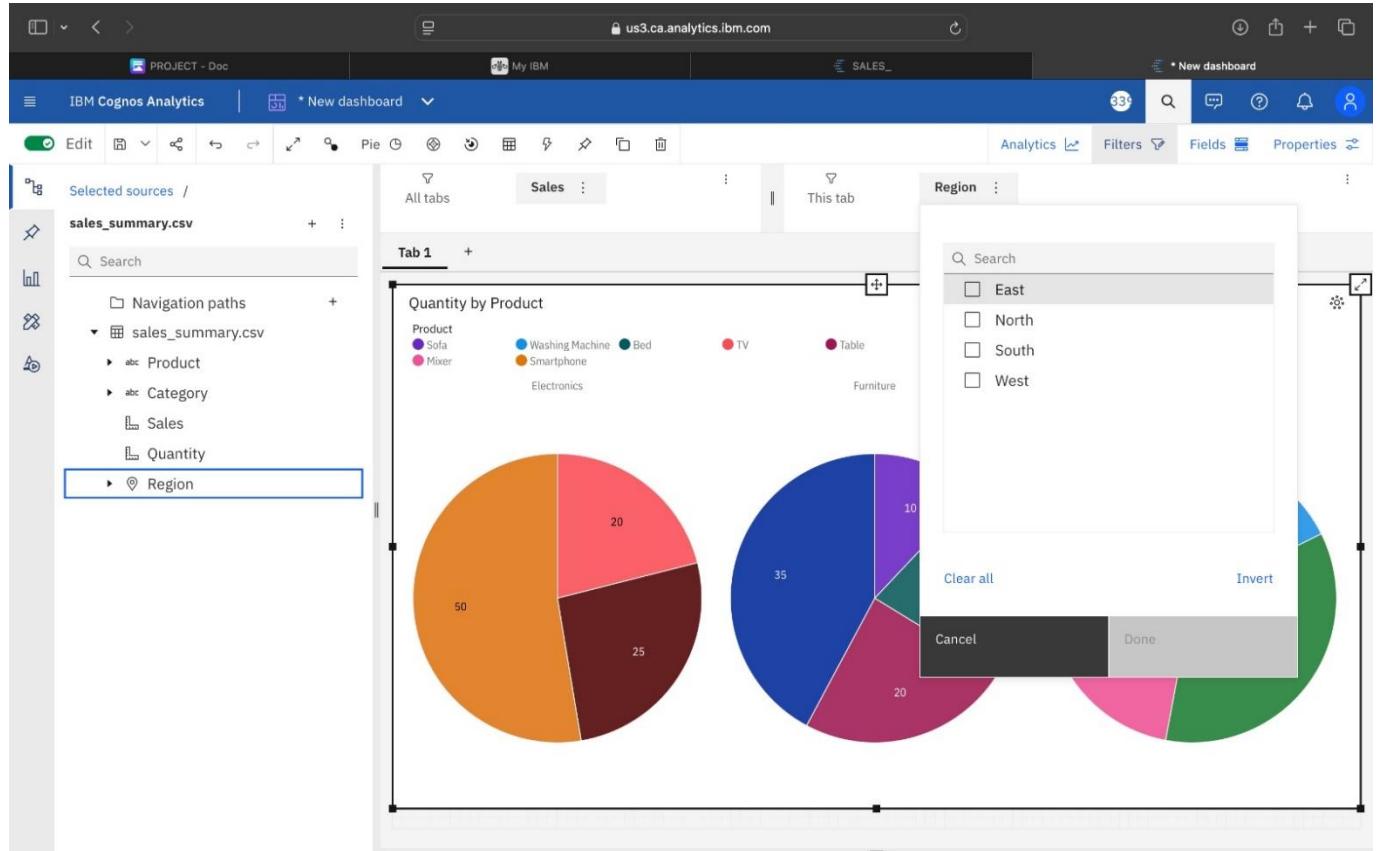
Step 2:

Screenshot 2:



Description: The pie chart option was selected from the available visualization options.

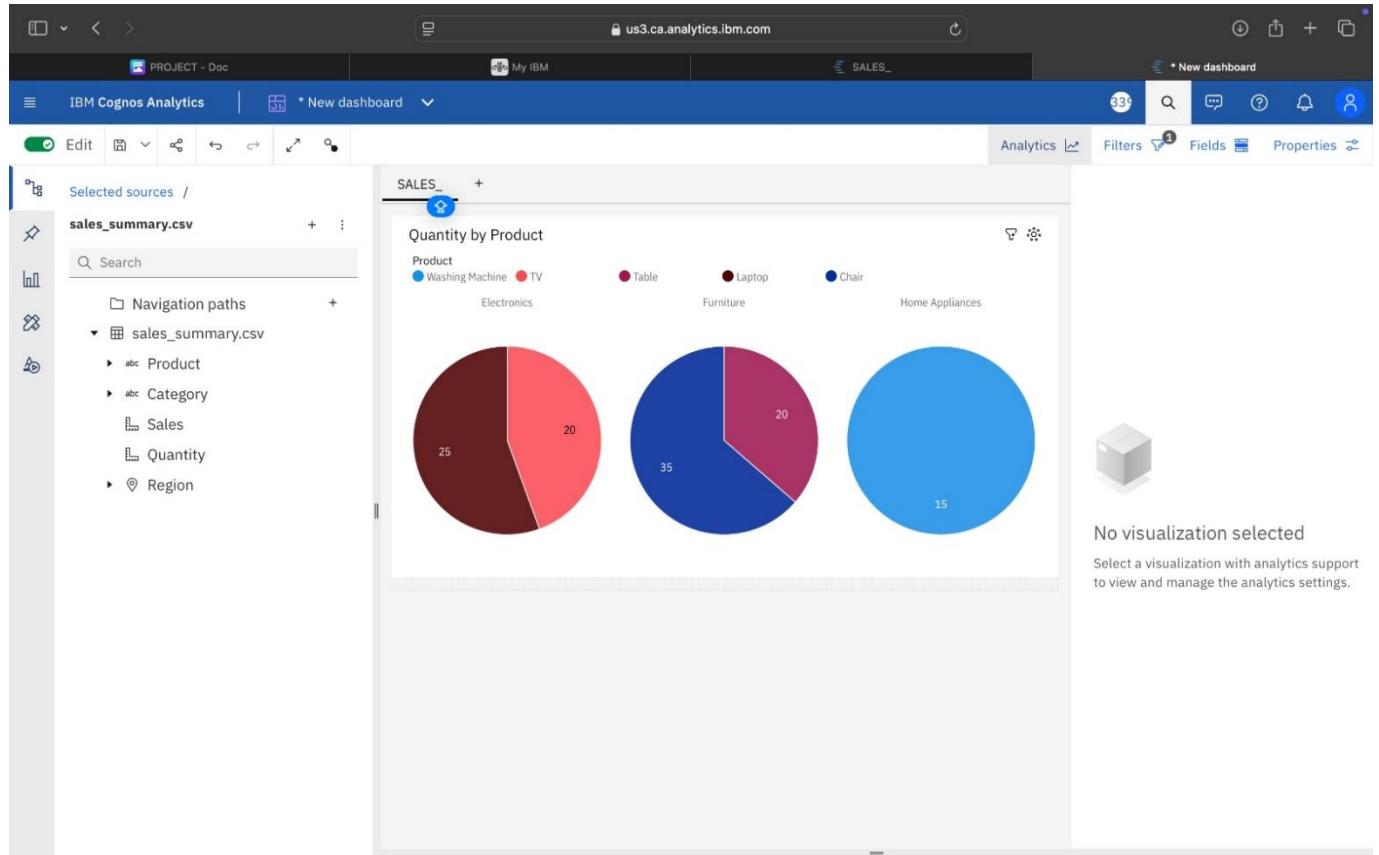
Step 3:
Screenshot 3:



Description: The pie chart shows category-wise percentage contributions to the total value.

Step 4:

Screenshot 4:



Description: Data labels and colors were customized for better readability.

Practical: 5

Definition: Data filtering is the process of displaying only the data that meets specific criteria. Columns are used to organize data attributes such as Name, Roll Number, Marks, and Grade.

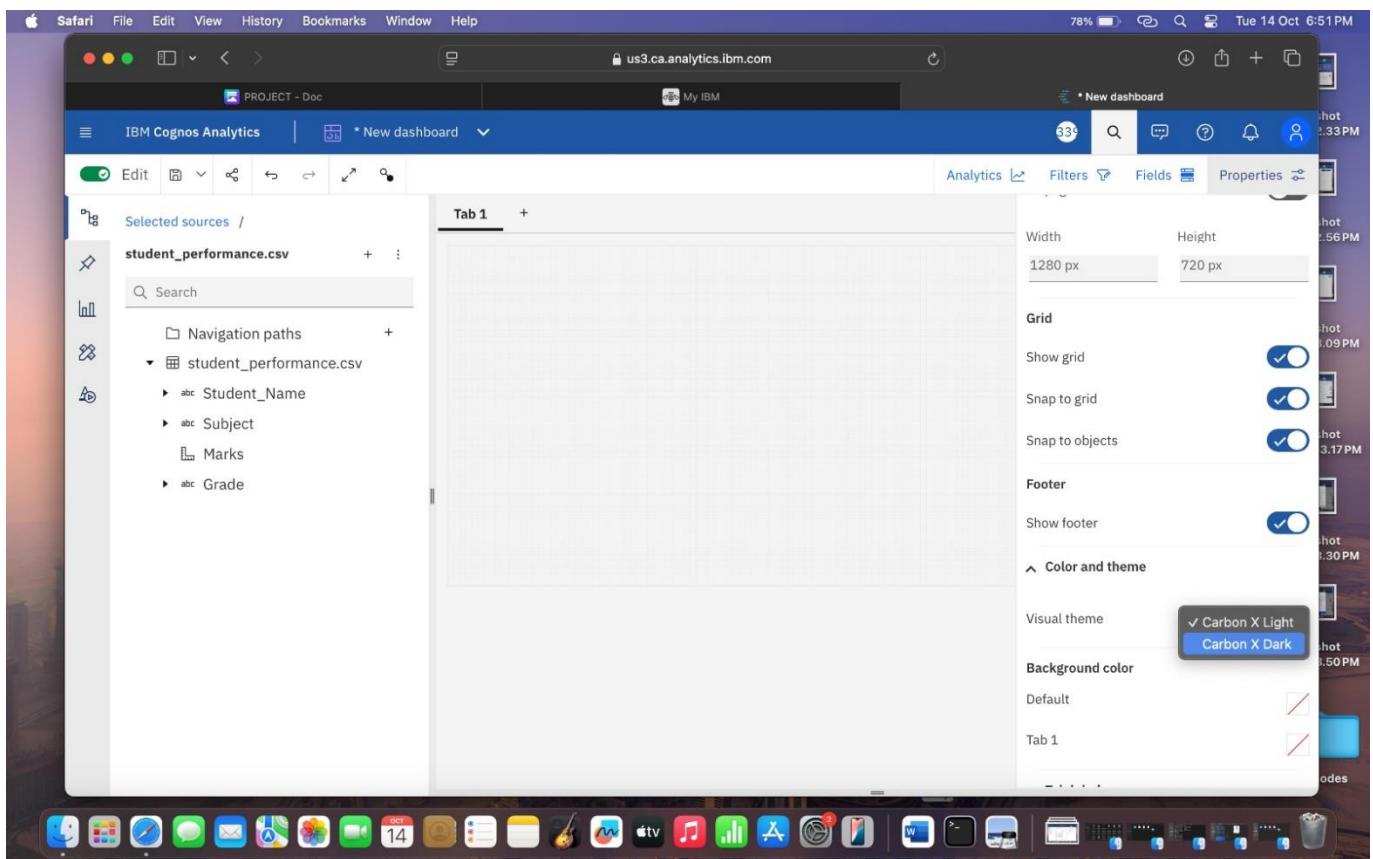
Outcomes / Learning: Learned how to create structured student data using columns and apply filters to extract specific information.

Required Tool: MS Excel / Power BI / Google Sheets.

Working: We created a student database using columns for various attributes and applied filters to view specific data such as top scorers or particular subjects.

Step 1:

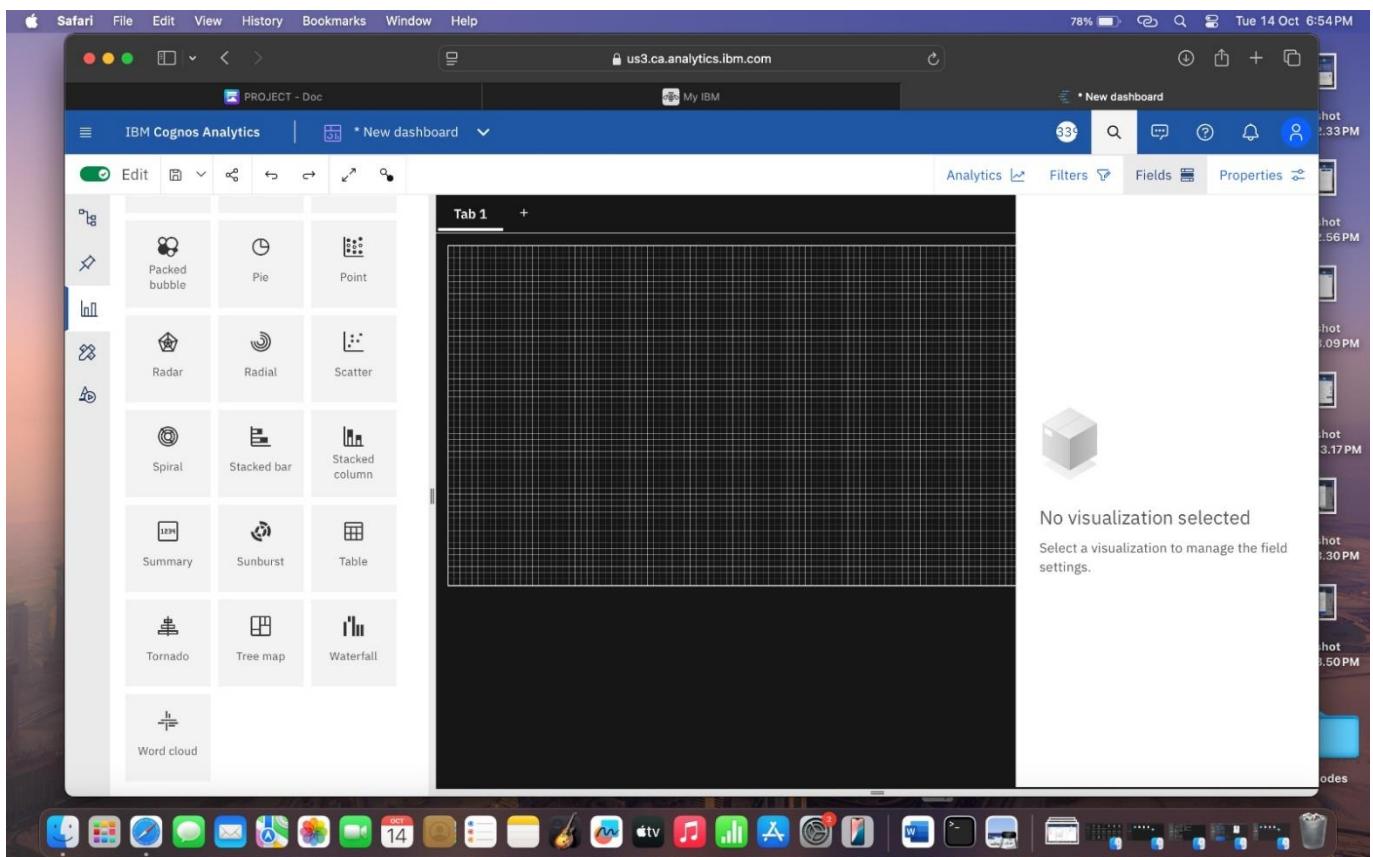
Screenshot 1:



Description: The student data was entered using columns like Name, Roll No, and Marks.

Step 2:

Screenshot 2:



Description: Filters were added to each column to enable sorting and filtering.

Step 3:

Screenshot 3:

The screenshot shows the IBM Cognos Analytics interface in a web browser. The top navigation bar includes 'Safari', 'File', 'Edit', 'View', 'History', 'Bookmarks', 'Window', and 'Help'. The address bar shows 'us3.ca.analytics.ibm.com'. The main workspace displays a 'Table' visualization titled 'Tab 1'. The table has one column labeled 'Student_Name' containing the following data: Aarav, Dev, Ishaan, Karan, Meera, Neha, and Priya. To the right of the table, a 'Filters' panel is open, showing a dropdown menu under 'Columns*' with 'Student_Name' selected. Other options in the dropdown include 'Subject', 'Marks', and 'Grade'. The bottom of the screen shows a Mac OS X dock with various application icons.

Description: The data was filtered to show only students with marks above a certain threshold.

Step 4:

Screenshot 4:

The screenshot shows the IBM Cognos Analytics interface in a web browser. A table titled "Student_Name, Subject, Marks and Grade" is displayed. The table has four columns: Student_Name, Subject, Marks, and Grade. The data includes rows for Aarav, Dev, and Ishaan, each with a "Summary" row below it. The "Marks" column contains numerical values (85, 58, 64) and letter grades (A, D, C). The "Grade" column contains letter grades (A, D, C). The "Subject" column contains "Math". The "Student_Name" column contains "Aarav", "Dev", and "Ishaan".

Student_Name	Subject	Marks	Grade
Aarav	Math	85	A
	Summary	85	
Summary		85	
Dev	Math	58	D
	Summary	58	
Summary		58	
Ishaan	Math	64	C
	Summary	64	
Summary		64	

The screenshot shows the IBM Cognos Analytics interface in a web browser. A table titled "STUDENT DATA" is displayed. The table has four columns: Student_Name, Subject, Marks, and Grade. The data includes rows for Priya and Simran, each with a "Summary" row below it. The "Marks" column contains numerical values (90, 67) and letter grades (A, C). The "Grade" column contains letter grades (A, C). The "Subject" column contains "History". The "Student_Name" column contains "Priya" and "Simran".

Student_Name	Subject	Marks	Grade
Priya	History	90	A
	Summary	90	
Summary		90	
Simran	History	67	C
	Summary	67	
Summary		67	

Description: The final filtered data displays only the selected records as per the filter condition.

Practical: 6

Definition: A box plot (also known as a box-and-whisker plot) is a graphical representation that shows the distribution of data based on minimum, first quartile, median, third quartile, and maximum values. It helps identify outliers and variation in data.

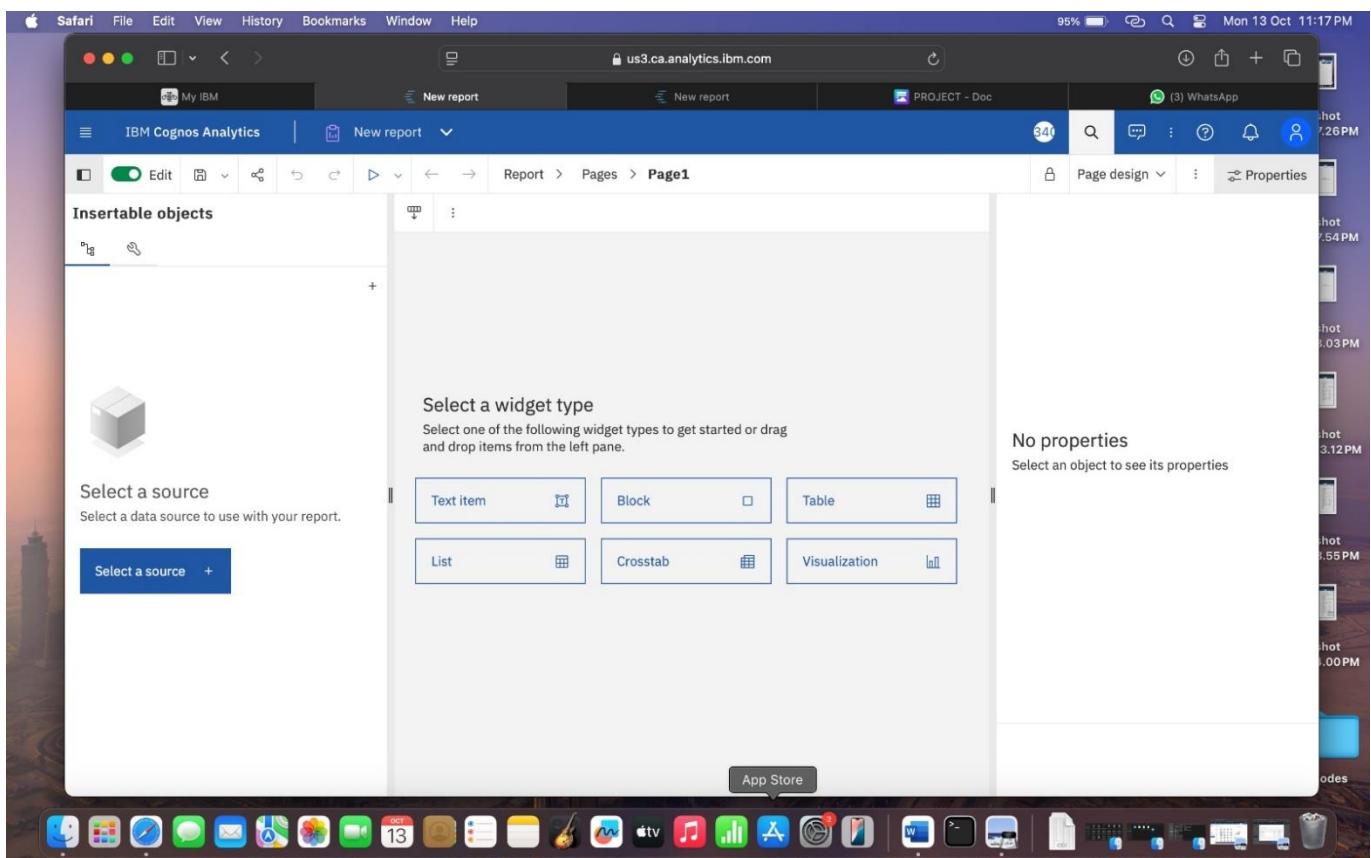
Outcomes / Learning: Learned how to visualize hospital data using a box plot to understand data distribution, trends, and outliers.

Required Tool: Power BI / MS Excel / Tableau / Python (Matplotlib or Seaborn).

Working: We collected hospital data such as patient count, treatment cost, or recovery days, and used visualization tools to create a box plot that summarizes data spread and detects anomalies.

Step 1:

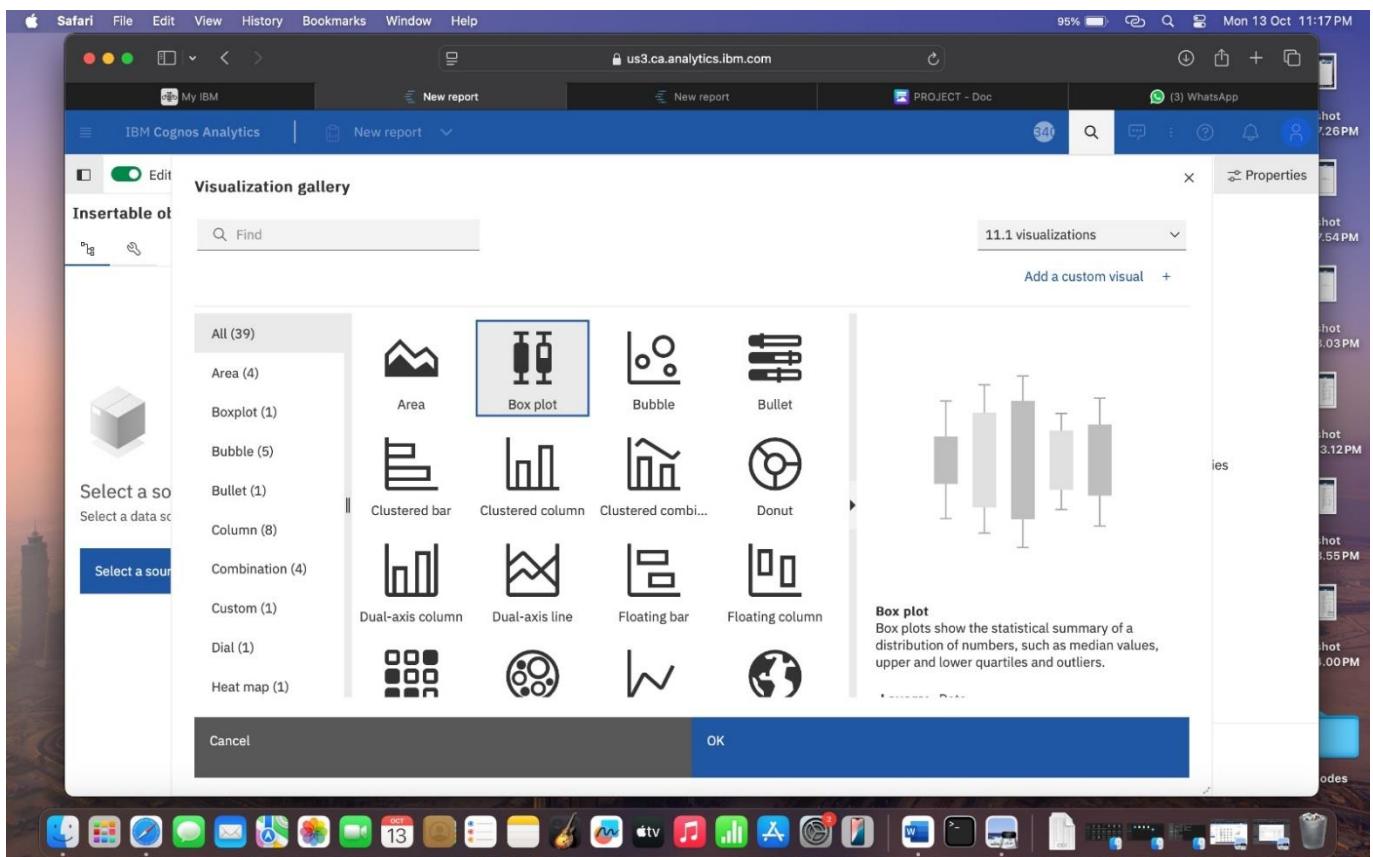
Screenshot 1:



Description: The hospital dataset was created or imported for analysis.

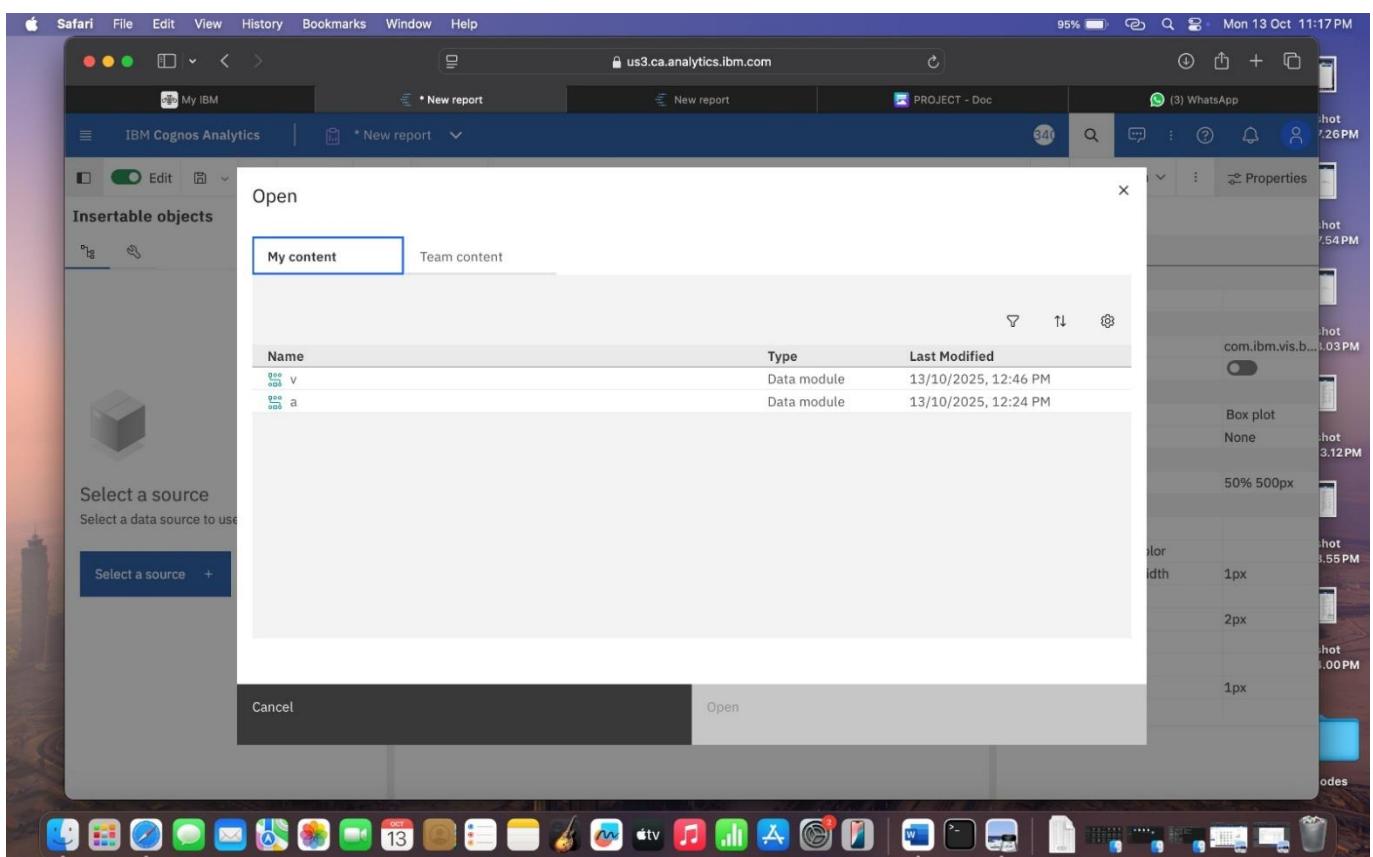
Step 2:

Screenshot 2:



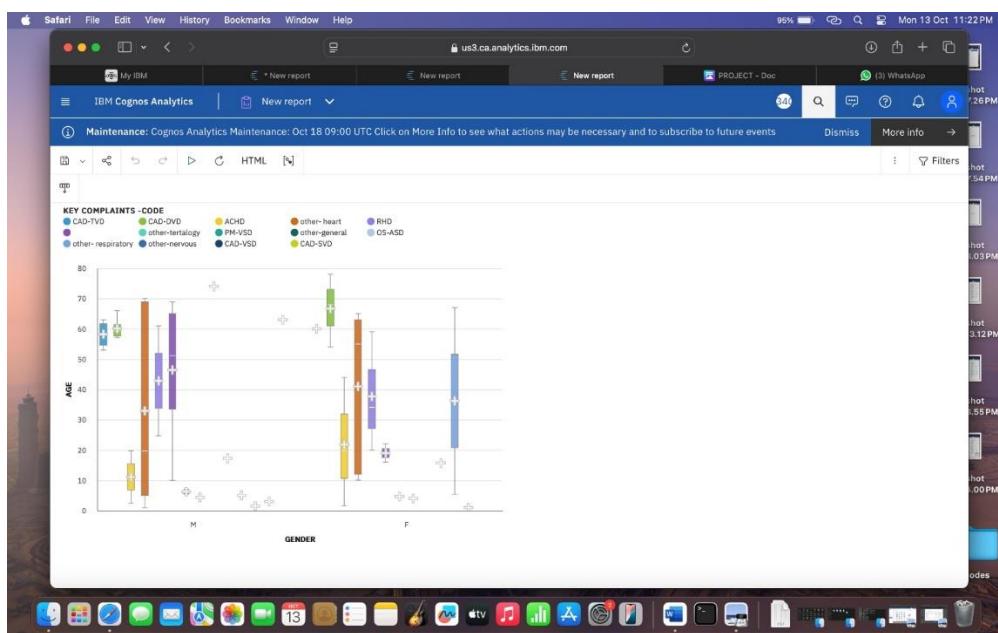
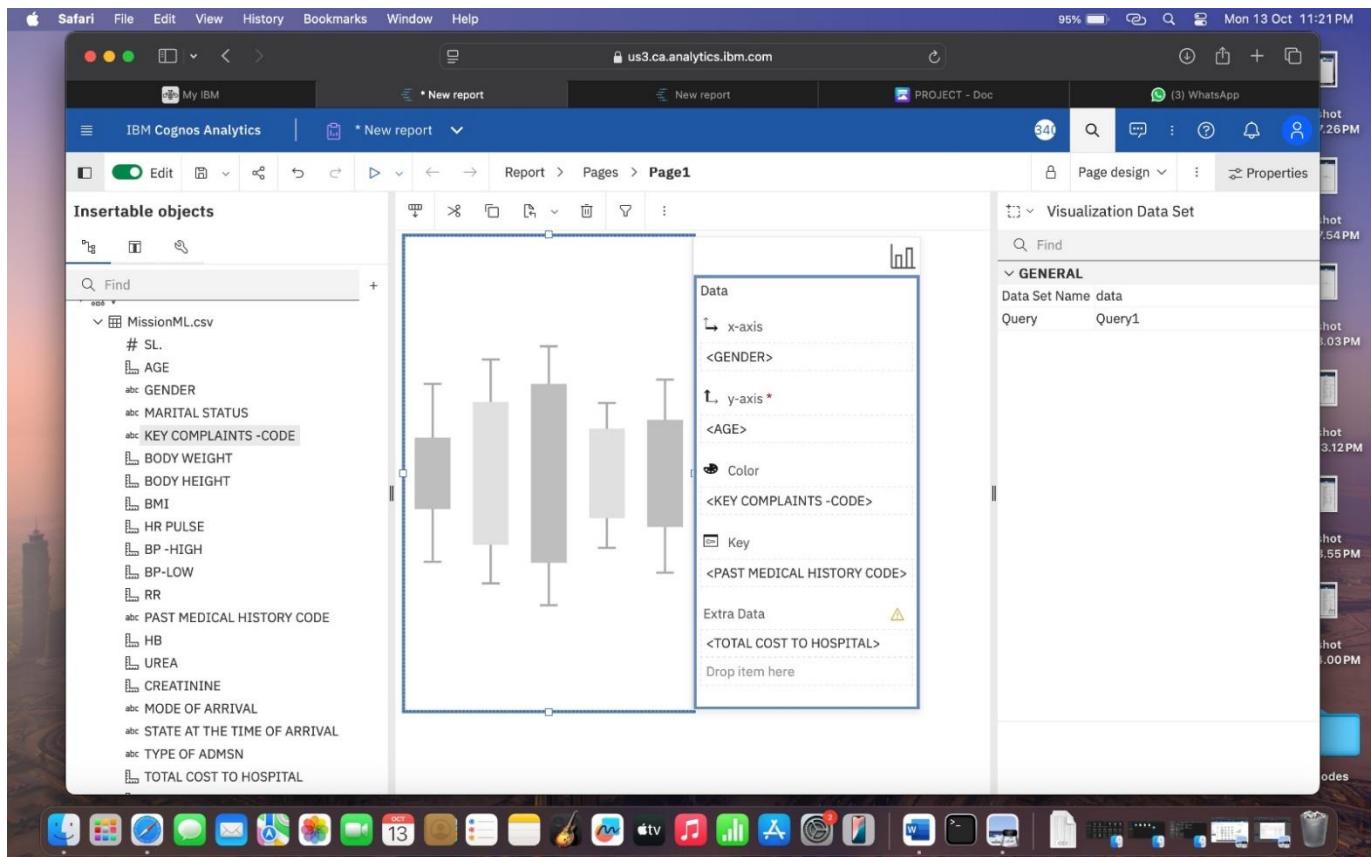
Description: The box plot visualization type was selected from the tool's chart options.

Step 3: Screenshot 3:



Description: The box plot shows the distribution of hospital data, including median and quartile values.

Step 4:
Screenshot 4:



Description: The final report presents hospital data insights through the box plot visualization.

Practical: 7

Definition: A pie chart is a circular statistical graphic divided into slices to illustrate numerical proportions. It helps in comparing categories based on their percentage contribution to a total.

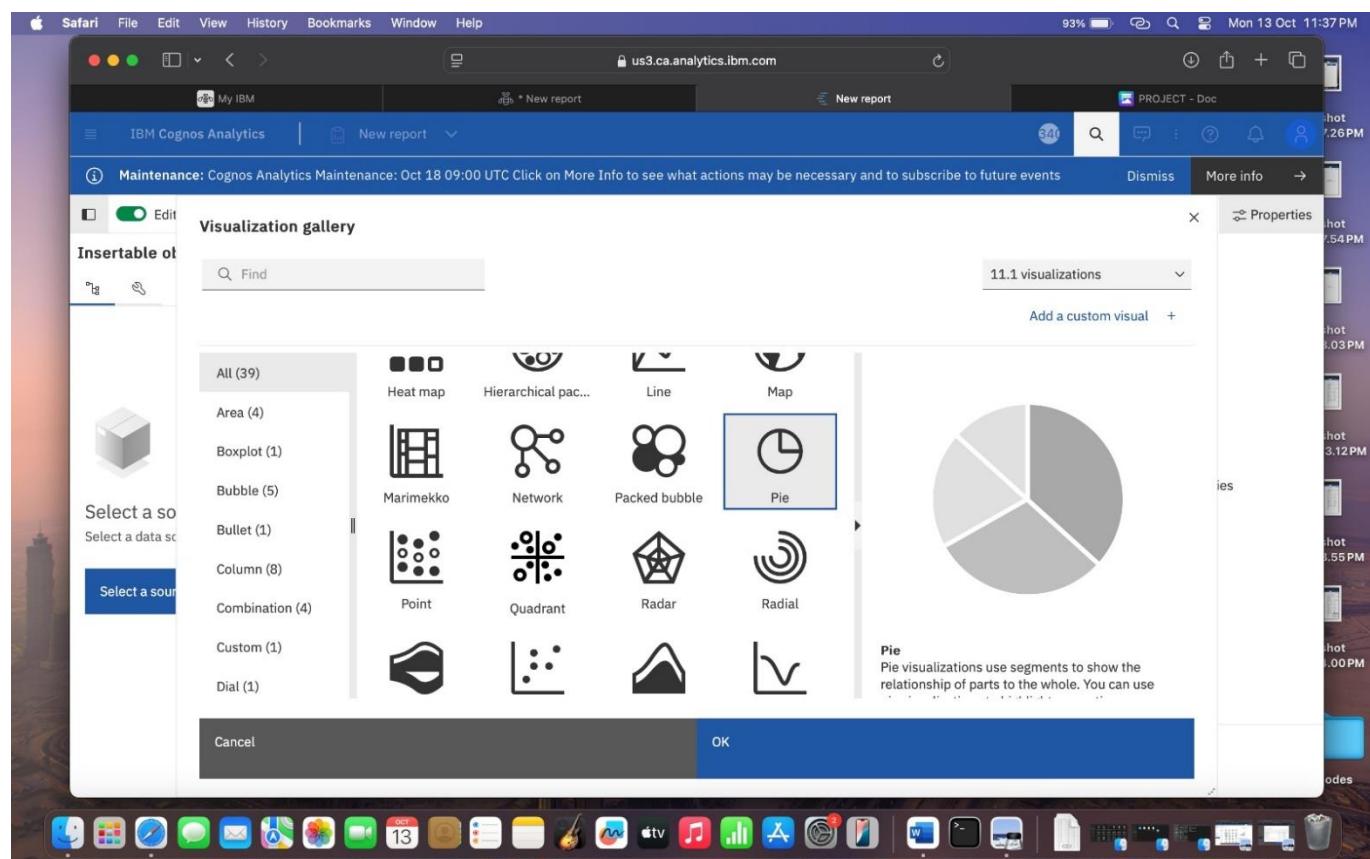
Outcomes / Learning: Learned how to create a report using a pie chart to represent the literacy rate and compare literate and illiterate populations visually.

Required Tool: Power BI / MS Excel / Tableau.

Working: We collected literacy data (literate vs. illiterate population) and represented it using a pie chart to show the percentage distribution of literacy in the population.

Step 1:

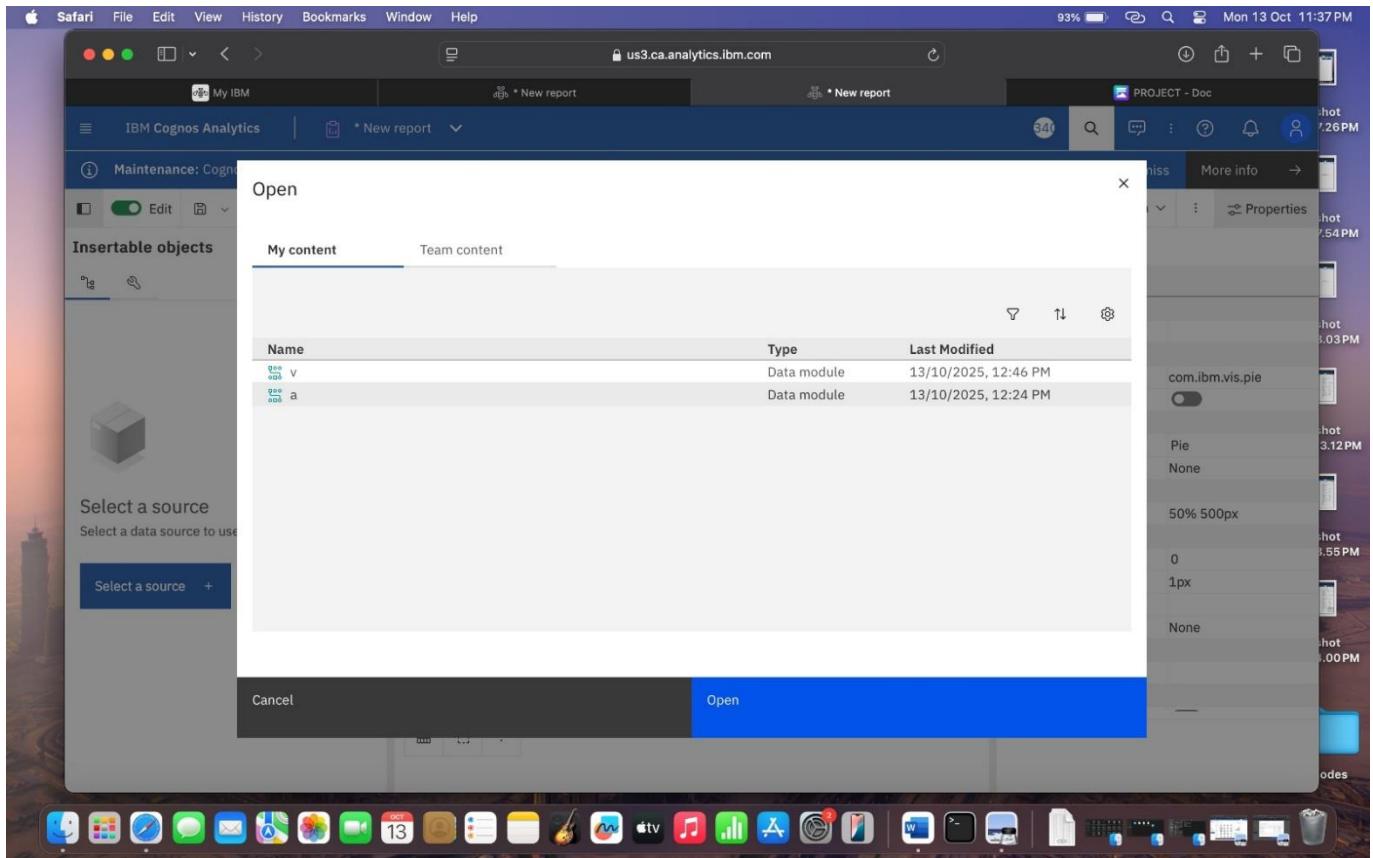
Screenshot 1:



Description: The literacy dataset was entered, including literate and illiterate categories.

Step 2:

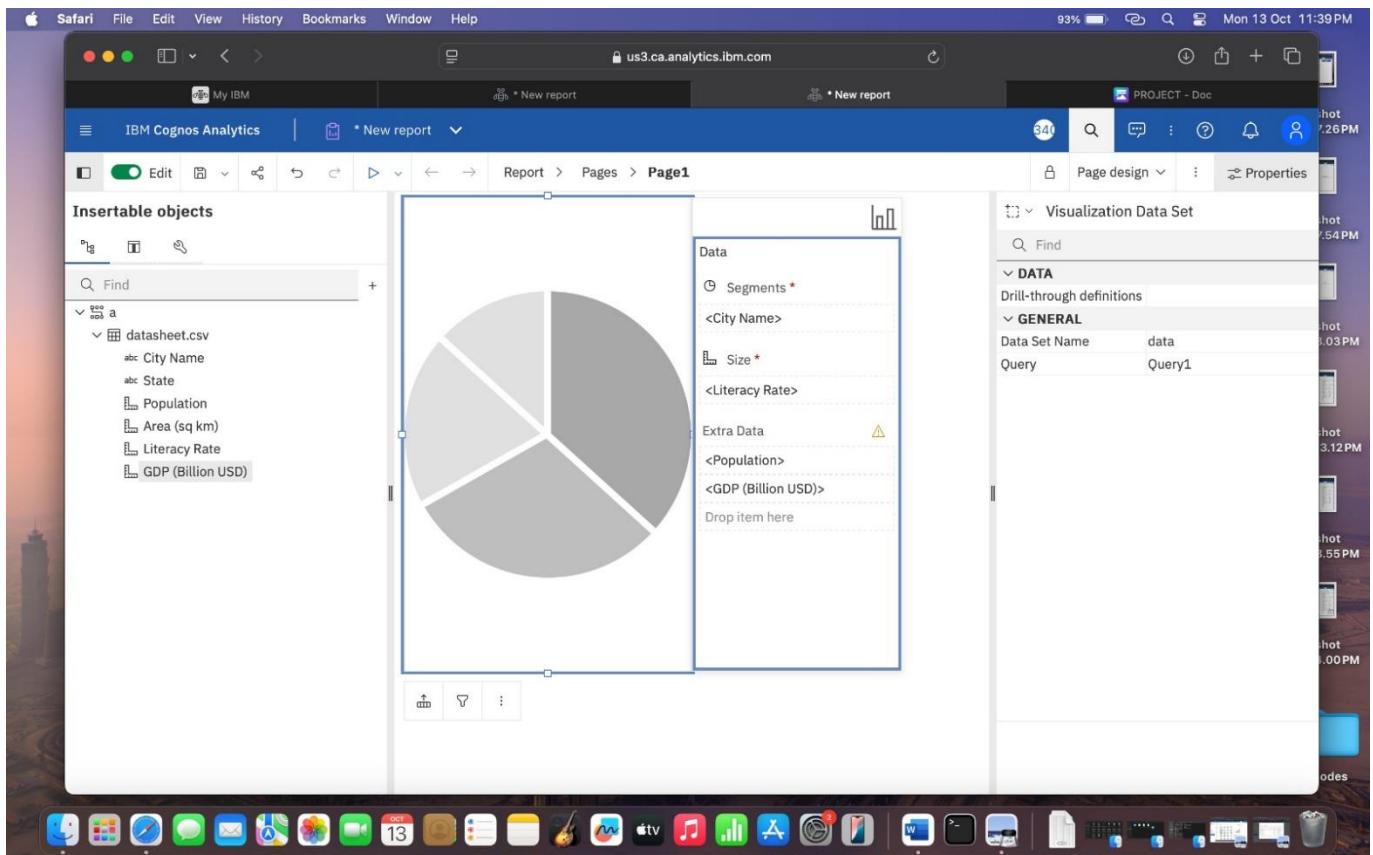
Screenshot 2:



Description: The pie chart option was selected to visualize literacy rate percentages.

Step 3:

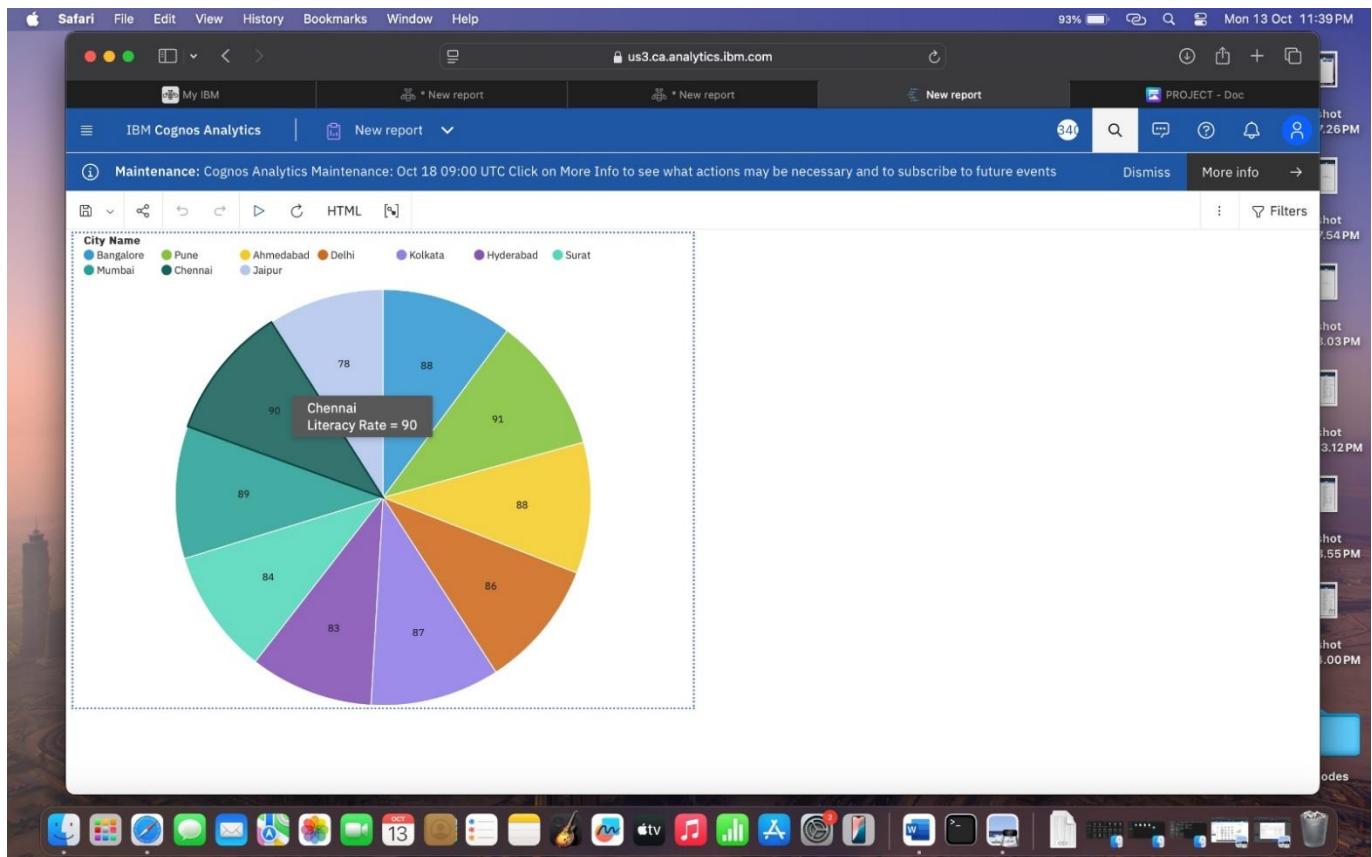
Screenshot 3:



Description: The pie chart displays the proportion of literate and illiterate populations.

Step 4:

Screenshot 4:



Description: The final report presents the literacy rate clearly through a labeled and colored pie chart.

Practical: 8

Definition: A list report is a simple and structured way to present information in tabular or sequential form. It displays data in rows and columns, making it easy to read, compare, and analyze.

Outcomes / Learning: Learned how to create a report in list format to organize and present data systematically.

Required Tool: MS Excel / Power BI / Google Sheets / Tableau.

Working: We prepared a dataset and displayed it as a list report showing important fields such as Name, ID, Category, and Value to summarize the information clearly.

Step 1:

Screenshot 1:

The screenshot shows the IBM Cognos Analytics report editor interface. A table is being designed with the following columns:

AGE	GENDER	MARITAL STATUS	TOTAL COST TO HOSPITAL	BP-LOW
<AGE>	<GENDER>	<MARITAL STATUS>	<TOTAL COST TO HOSPITAL>	<BP-LOW>
<AGE>	<GENDER>	<MARITAL STATUS>	<TOTAL COST TO HOSPITAL>	<BP-LOW>
<AGE>	<GENDER>	<MARITAL STATUS>	<TOTAL COST TO HOSPITAL>	<BP-LOW>

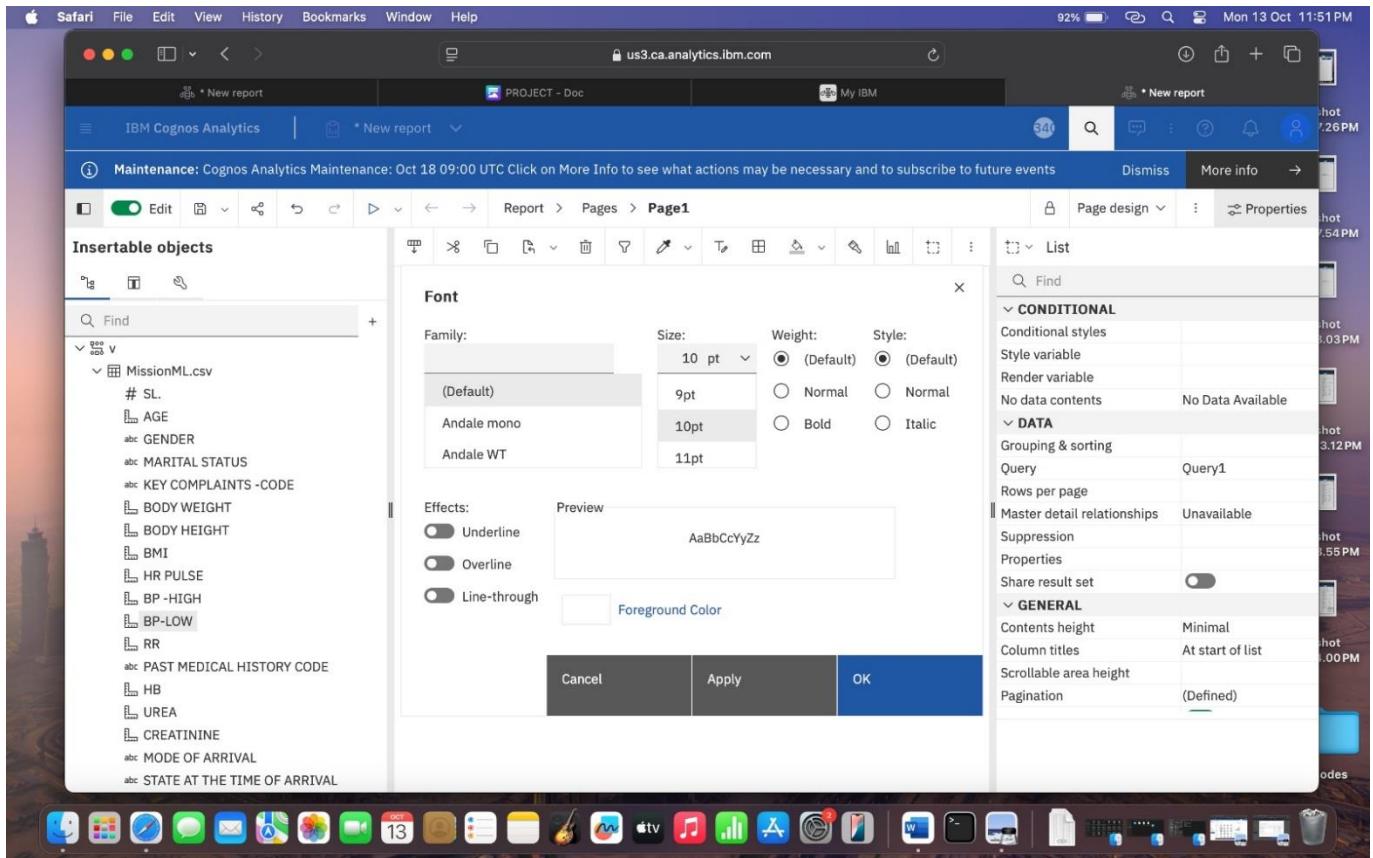
The left sidebar lists various data items from a dataset named "MissionML.csv". The right sidebar displays properties for the current table, including sections for Conditional styles, Data, and General settings.

The screenshot shows the same report editor interface as above, but with a color palette overlay on the right side. The palette includes a "Basic colors" section with swatches for Black, White, Red, Green, and more, along with a "Color swatch" and "Custom color" button.

Description: The dataset was created and organized into columns for report generation.

Step 2:

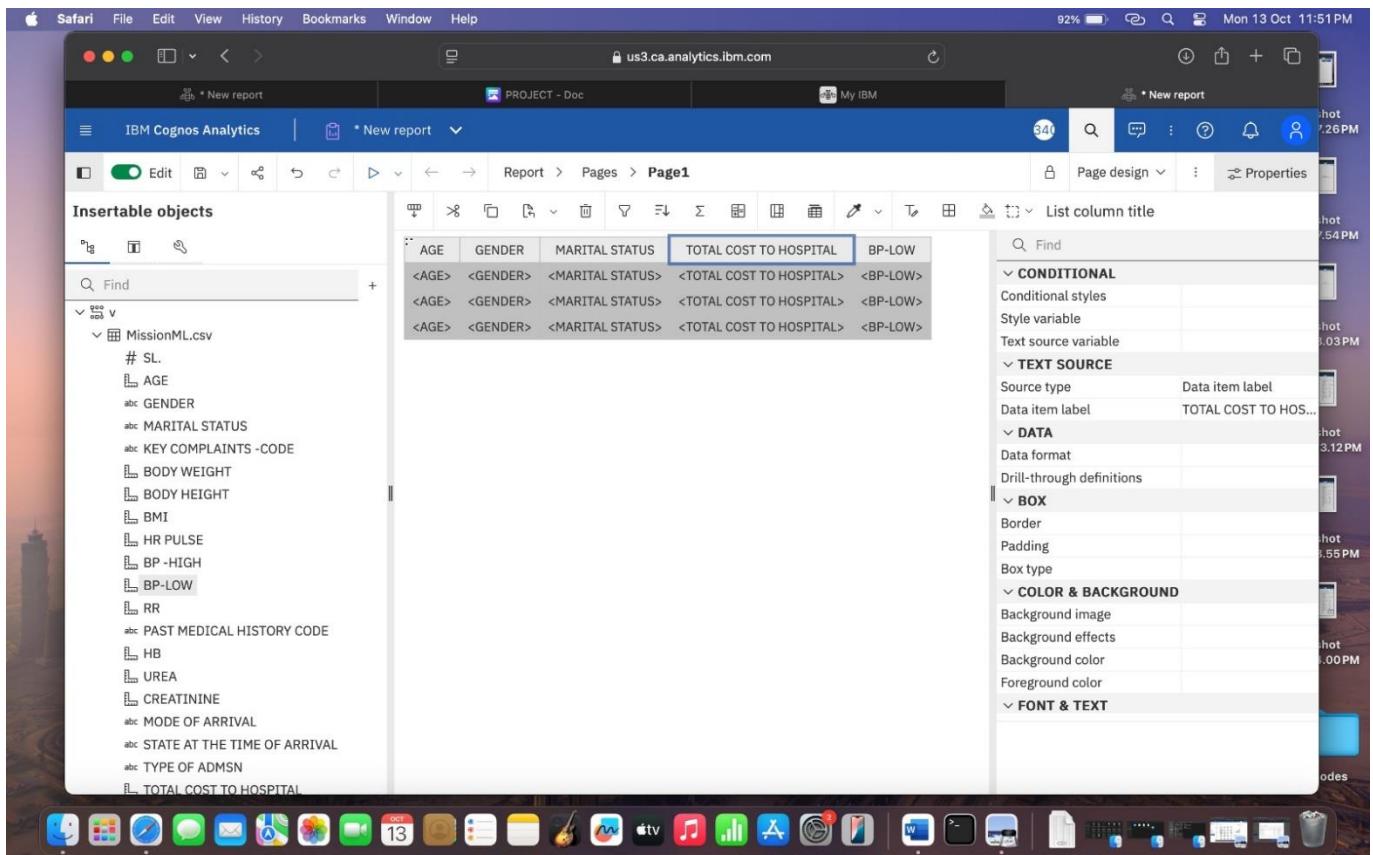
Screenshot 2:



Description: The data was displayed as a structured list for easy comparison and reference.

Step 3:

Screenshot 3:



The screenshot shows the IBM Cognos Analytics interface in a web browser. The top navigation bar includes 'File', 'Edit', 'View', 'History', 'Bookmarks', 'Window', and 'Help'. The address bar shows 'us3.ca.analytics.ibm.com'. The main area displays a report titled 'PROJECT - Doc' with a page labeled 'Page1'. On the left, there's an 'Insertable objects' panel containing a search bar and a tree view of data items from 'MissionML.csv', such as AGE, GENDER, MARITAL STATUS, and TOTAL COST TO HOSPITAL. A context menu is open over the 'TOTAL COST TO HOSPITAL' column, specifically the 'Sort in Layout' section, with options like 'Ascending', 'Descending', and 'Don't sort'. To the right of the report, a properties panel is open with sections for 'CONDITIONAL', 'TEXT SOURCE', 'DATA', 'BOX', 'COLOR & BACKGROUND', and 'FONT & TEXT'. The bottom of the screen shows the Mac OS X dock with various application icons.

Description: The list report was formatted to improve readability and presentation.

Step 4:

Screenshot 4:

This screenshot shows the same IBM Cognos Analytics interface as the previous one, but the report has been rendered. It displays a table with five columns: AGE, GENDER, MARITAL STATUS, TOTAL COST TO HOSPITAL, and BP-LOW. The data rows are as follows:

AGE	GENDER	MARITAL STATUS	TOTAL COST TO HOSPITAL	BP-LOW
57.38817073	M	MARRIED	2,15,00,253.87	6,530
7.96666667	M	UNMARRIED	1,36,69,954.28	4,673
9.25303571	F	UNMARRIED	85,08,104.92	2,991
48.80769231	F	MARRIED	56,05,072.84	1,978

Description: The final list report summarizes the dataset in an organized tabular format.

Practical: 9

Definition: A table is a structured arrangement of data in rows and columns that helps in organizing and displaying information clearly for easy understanding and analysis.

Outcomes / Learning: Learned how to create and format a table to organize and present data systematically.

Required Tool: MS Excel / Power BI / Google Sheets / MS Word.

Working: We created a table by defining columns and rows for different data fields, then formatted it to enhance clarity and readability.

Step 1:

Screenshot 1:

The screenshot shows the IBM Cognos Analytics interface on a Mac OS X desktop. The window title is 'PROJECT - Doc' and the URL is 'us3.ca.analytics.ibm.com'. The interface includes a top navigation bar with File, Edit, View, History, Bookmarks, Window, Help, and a search bar. On the left, there's a sidebar with 'Selected sources / products-100.zip' and a search bar. The main area shows 'Tab 1' with a table structure. The table has one column labeled 'Name' containing data like 'Advanced Camera Heater Webcam X Ultra ...', 'Advanced Freezer Advanced Advanced', etc. To the right of the table is a 'Columns*' panel with 'Name' selected. Below the table is a list of fields from the source: '# Index', 'Name', 'Description', 'Brand', 'Category', 'Price', 'Currency', 'Stock', 'EAN', 'Color', 'Size', 'Availability', and '# Internal ID'. The status bar at the bottom shows the date and time: 'Tue 14 Oct 10:15 PM'.

Description: A new worksheet/document was opened to create a data table.

Step 2:

Screenshot 2:

The screenshot shows the IBM Cognos Analytics interface. On the left, there's a sidebar with a tree view of selected sources, including 'products-100.zip'. The main area displays a table titled 'Name, Brand, Price and Availability'. The table has four columns: Name, Brand, Price, and Availability. The data includes rows for 'Advanced Camera He...', 'Advanced Freezer Advan...', 'Advanced Microphone ...', and 'Bicycle'. The 'Availability' column contains values like 'discontinued', 'pre_order', 'limited_stock', and 'backorder'. To the right of the table, there are sections for 'Columns*', 'Local filters', and 'Click or drag data here'.

Name	Brand	Price	Availability
Advanced Camera He...	Cervantes Ltd	224	discontinued
	Summary	224	
Summary		224	
Advanced Freezer Advan...	Gill LLC	489	pre_order
	Summary	489	
Summary		489	
Advanced Microphone ...	Morales, Weaver and F...	904	limited_stock
	Summary	904	
Summary		904	

Description: Column headers such as Name, ID, and Marks were added to define the structure of the table.

Step 3: Screenshot 3:

This screenshot shows the same IBM Cognos Analytics interface as the previous one, but with two filters applied: 'Internal ID' and 'Stock'. The 'Internal ID' filter is set to 'All tabs', and the 'Stock' filter is set to 'This tab'. The table data remains the same, showing various products and their availability status. A tooltip for the 'Bicycle' row indicates it belongs to the 'Hays-Cunningham' category.

Name	Brand	Price	Availability
Advanced Freezer Advanced Advan...	Gill LLC	489	pre_order
Advanced Microphone Cooler Eco	Morales, Weaver and Fernandez	904	limited_stock
Advanced Router Rechargeable	Gallagher and Sons	121	discontinued
Automatic Blender	Mahoney-Bryan	630	backorder
Automatic Brush Fast Eco	Newman Ltd	407	out_of_stock
Automatic Cooler Edge	Odonnell, Boyle and OConnor	124	pre_order
Automatic Speaker Router Lamp Pr...	Sexton, Dickerson and Blair	621	in_stock
Automatic Trimmer Sense	Harrington-Valentine	405	in_stock
Automatic Watch Lite Sense	Reid, Chase and Ballard	316	limited_stock
Bicycle	Hays-Cunningham	234	backorder
Brush	Bicycle Hays-Cunningham	273	in_stock
Clean Blender Scale Lite	Bell, Gamble and Barrett	241	limited_stock
Clean Iron Premium Air Wireless	Shepherd, Greene and House	293	out_of_stock

Description: Data values were entered under each column to complete the table.

Step 4:

Screenshot 4:

The screenshot shows the IBM Cognos Analytics interface on a Mac OS X desktop. The main window displays a table titled "Tab 1" with the heading "Name, Brand, Price and Availability". The table has four columns: Name, Brand, Price, and Availability. The data includes various products like Advanced Freezer, Advanced Microphone, Advanced Router, Automatic Blender, etc., with their respective brands, prices, and availability status (e.g., pre_order, limited_stock, discontinued, backorder, out_of_stock). The left sidebar shows the "Selected sources / products-100.zip" section, listing navigation paths, index, name, description, brand, category, price, currency, stock, EAN, color, size, availability, and internal ID. The top navigation bar shows tabs for "PROJECT - Doc", "My IBM", "New dashboard", and "WhatsApp". The system tray on the right shows battery level (56%), date (Tue 14 Oct 10:17 PM), and other system icons.

Name	Brand	Price	Availability
Advanced Freezer Advanced Advan...	Gill LLC	489	pre_order
Advanced Microphone Cooler Eco	Morales, Weaver and Fernandez	904	limited_stock
Advanced Router Rechargeable	Gallagher and Sons	121	discontinued
Automatic Blender	Mahoney-Bryan	630	backorder
Automatic Brush Fast Eco	Newman Ltd	407	out_of_stock
Automatic Cooler Edge	Odonnell, Boyle and Oconnor	124	pre_order
Automatic Speaker Router Lamp Pr...	Sexton, Dickerson and Blair	621	in_stock
Automatic Trimmer Sense	Harrington-Valentine	405	in_stock
Automatic Watch Lite Sense	Reid, Chase and Ballard	316	limited_stock
Bicycle	Hays-Cunningham	234	backorder
Brush	Bicycle Hays-Cunningham	273	in_stock
Clean Blender Scale Lite	Bell, Gamble and Barrett	241	limited_stock
Clean Iron Premium Air Wireless	Shepherd, Greene and House	293	out_of_stock

Description: The table was formatted with borders, alignment, and headings for a professional look.

Practical: 10

Definition: A column chart represents data using vertical bars, where the height of each bar indicates the value of the category it represents. It helps in comparing values across different categories.

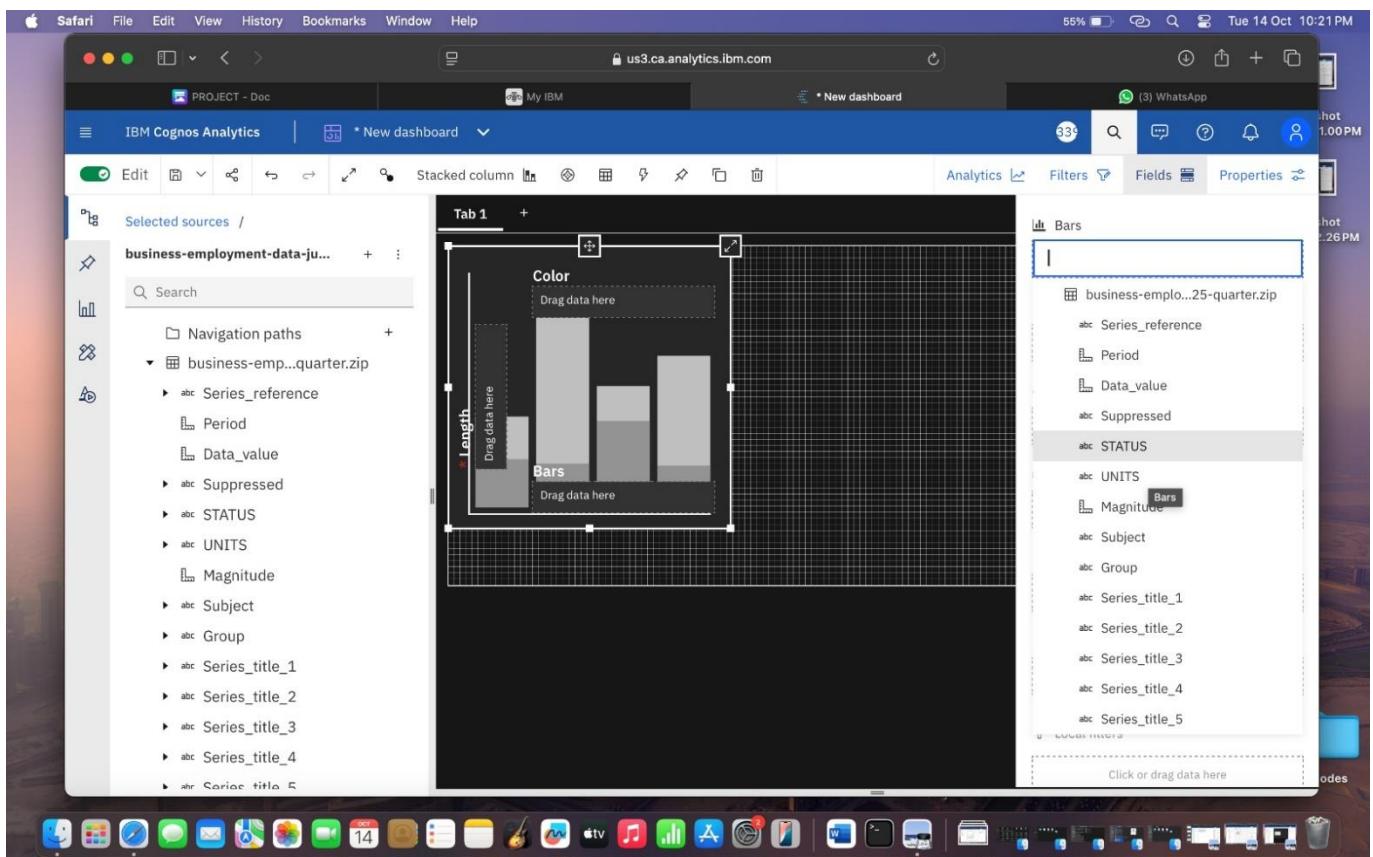
Outcomes / Learning: Learned how to create column data and visualize it through a column chart for easy comparison of values.

Required Tool: MS Excel / Power BI / Tableau.

Working: We entered data in columns (for example, Product and Sales Value) and used the column chart feature to visualize and compare the data effectively.

Step 1:

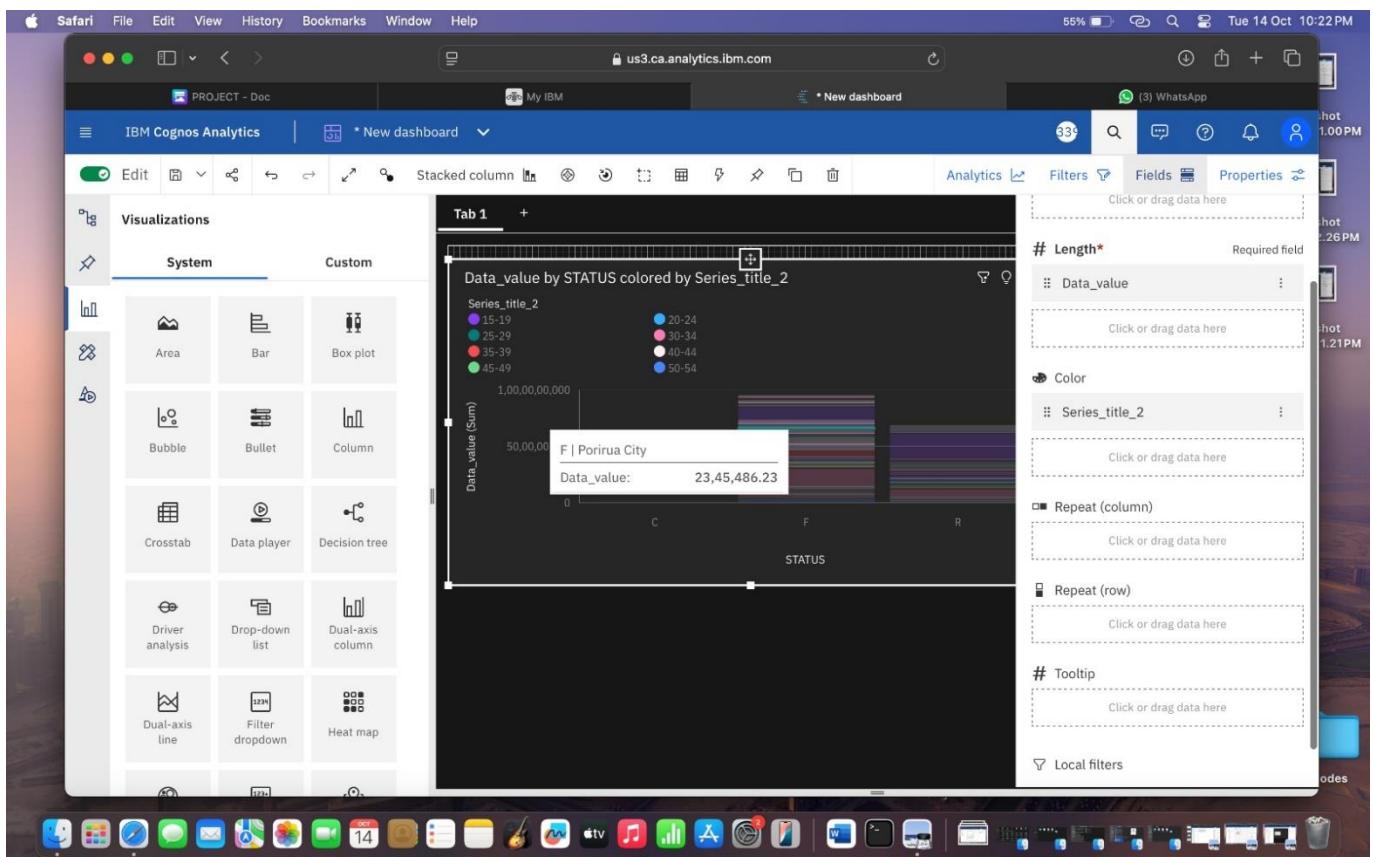
Screenshot 1:



Description: The dataset was entered with columns such as Product and Sales Value.

Step 2:

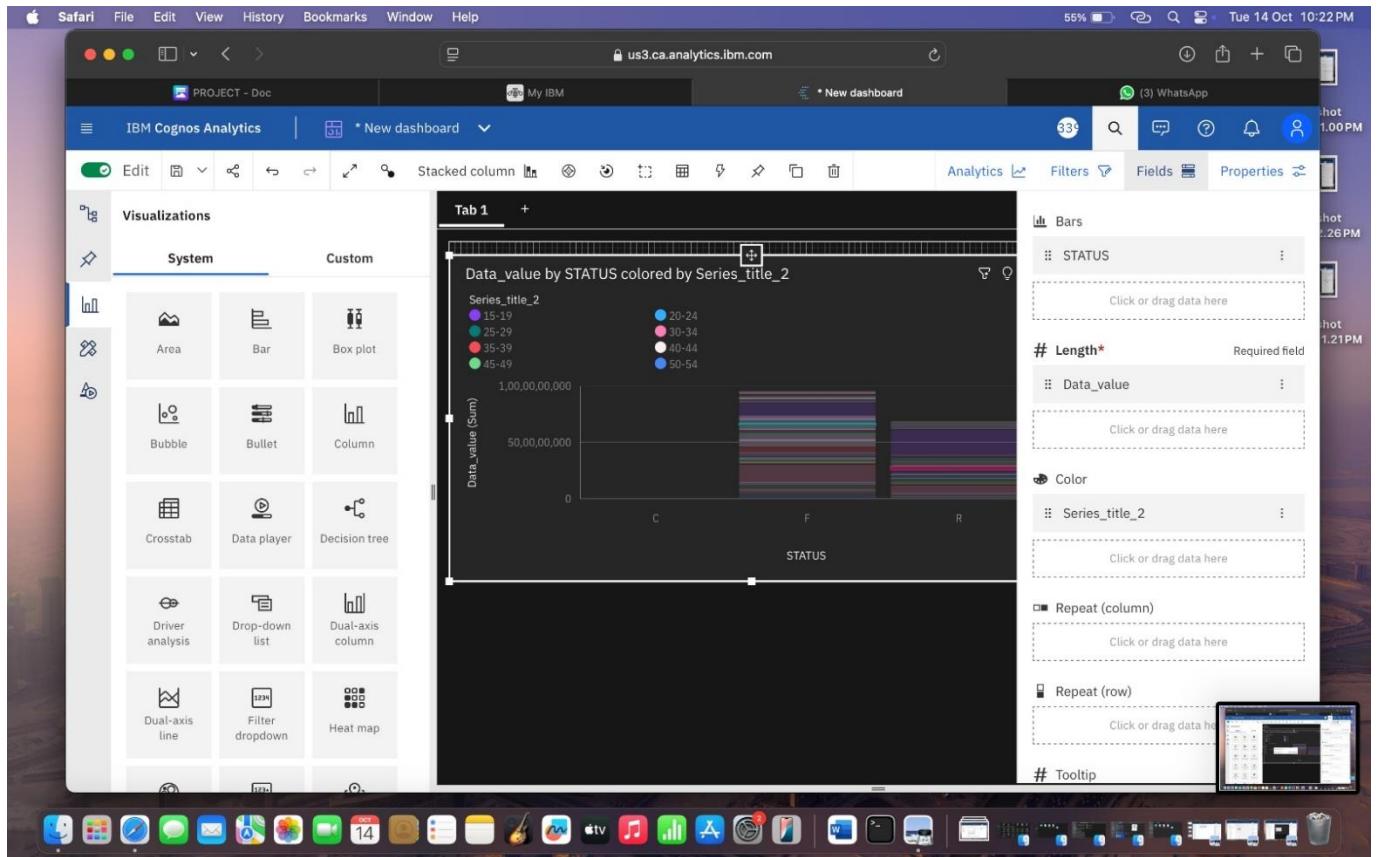
Screenshot 2:



Description: The column chart option was selected from the “Insert” or “Visualizations” menu.

Step 3:

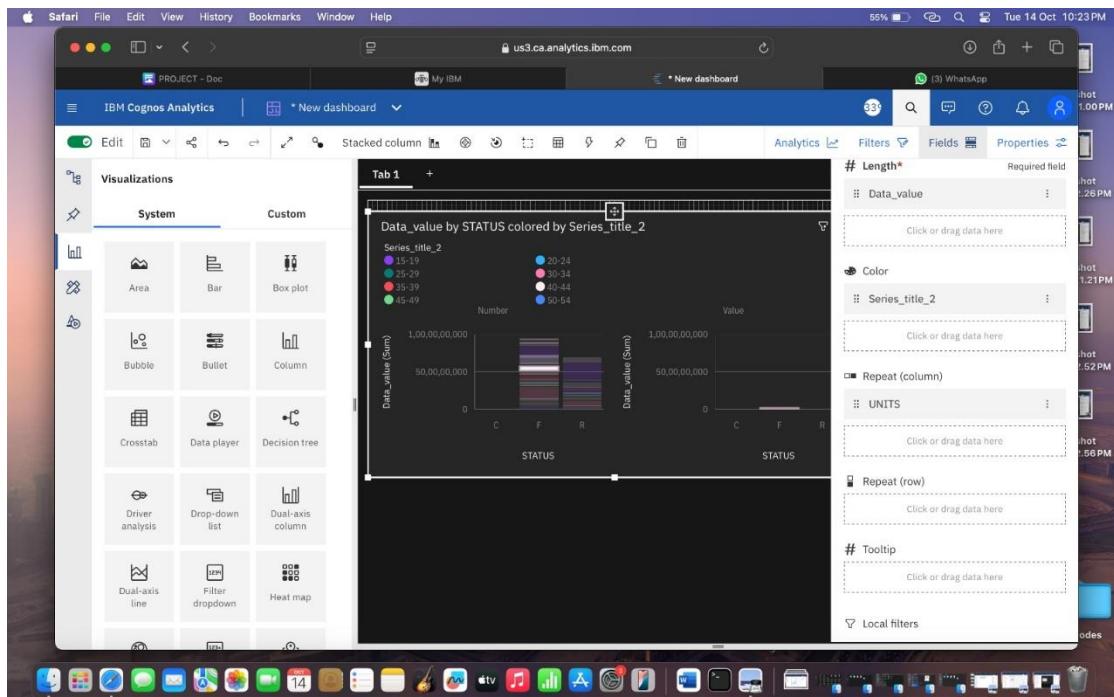
Screenshot 3:



Description: The column chart displays data values for each product category.

Step 4:

Screenshot 4:



Description: The column chart was formatted with titles, data labels, and colors for better presentation.