

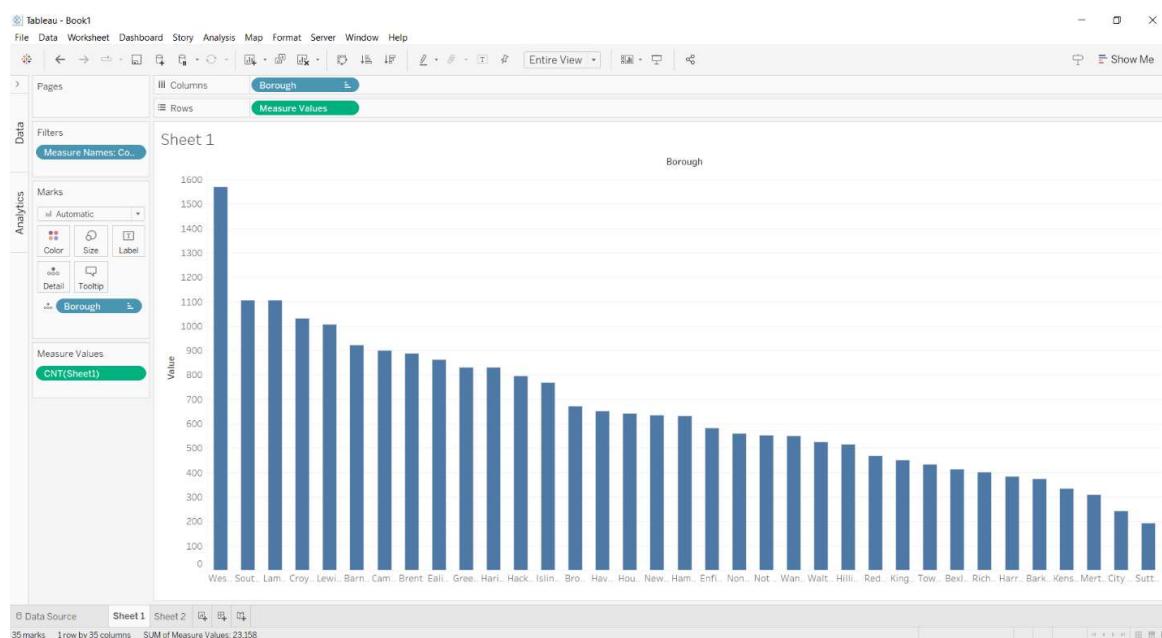
Problem – 1

TFL Bus Safety

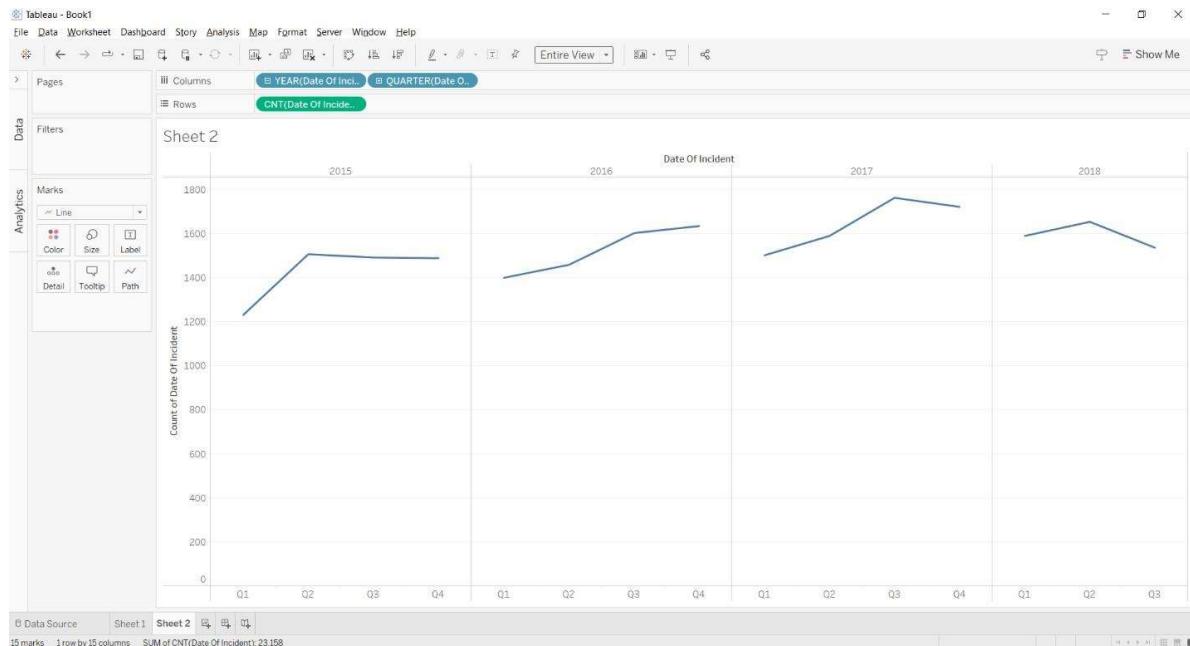
1. For the given Dataset (TFL Bus Safety):
 - i) Create a bar chart on boroughs field to visualize the trend in the count.
 - ii) Create a line chart for date of incidence for each month in a quarter, comment on possibilities and suitability of different charts for this timeline.
 - iii) In above question, apply formatting to display the first letter of the month on X-axis.
 - iv) Create tree maps of all the data fields except date & year and comment on significance of tree map.
 - v) Create an interactive dashboard for the above data.

Solutions:

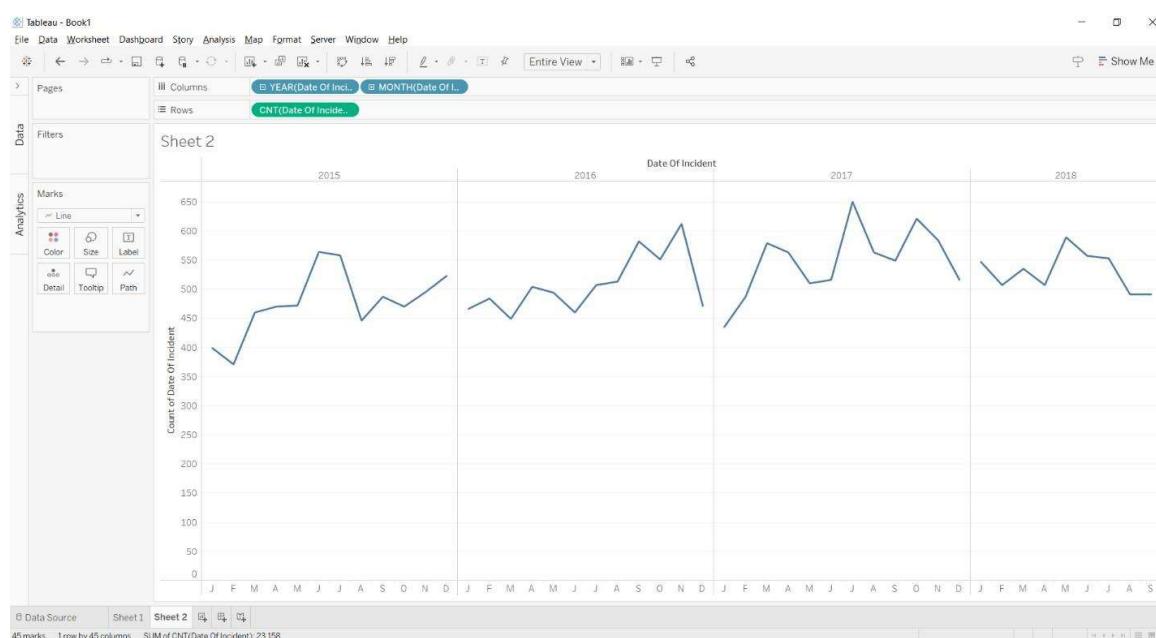
- i) a. Drag the ‘Borough’ field to the columns shelf.
- b. Drag ‘Measure fields’ to the rows.
- c. Select ‘Bar Chart’ under ‘Show me’ section.
- d. Sort the Bar Chart in descending order.



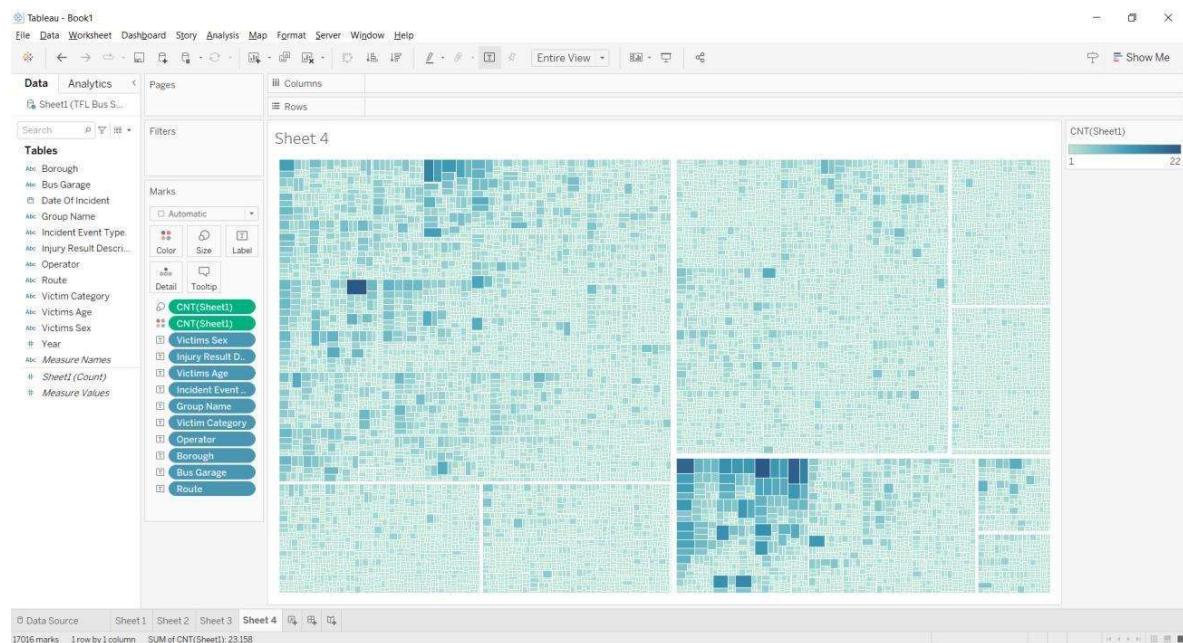
- ii) a. Drag the ‘Date of incident’ field to the column field.
- b. Right click on ‘Date of incident’ and select continuous.
- c. Drag ‘Number of records’ field to the rows.
- d. Right click on ‘Date of incident’ field in column & select ‘Exact date’.
- e. Right click on ‘Date of incident’ field in column & select ‘Quarter’.
- f. Drag ‘Quarter’ field to the columns shelf before the ‘Date of incident’ field.



- iii) a. Create a line chart by following the previous sub-question.



- b. Now, right click on any one label in X-axis, then go to format.
 - c. Under header, go to default, then select dates.
 - d. Select first letter under dates.
- iv) a. Drag Date to rows & Year to columns.
- b. Click on ‘Show Me’ and select the treemaps chart.
 - c. Customize the treemaps by adding labels, adjusting colors, and arranging the fields as desired.



- v) a. Click on ‘New Dashboard’ button in the bottom left corner of the Tableau window.
- b. Drag the sheets and drop in the dashboard, select floating windows under Objects, in Dashboard.
 - c. Rearrange all the sheets, once all the sheets are added.

Data Visualization Lab (BAIL504)

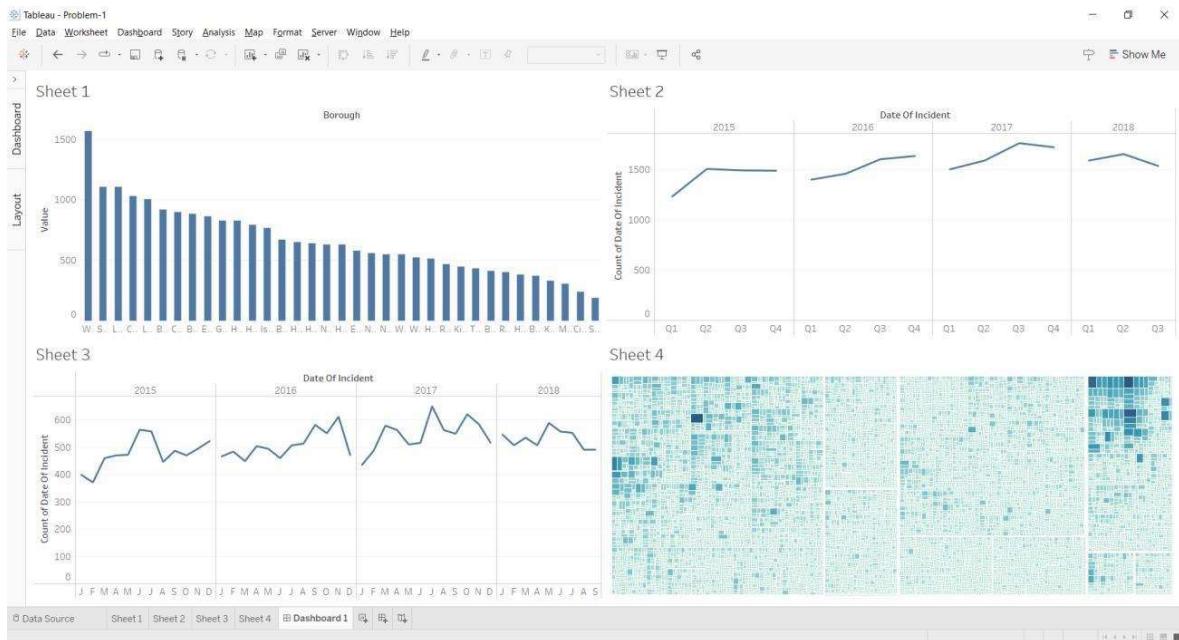


Tableau can be used to analyze the "TFL Bus Safety" dataset, which includes information about bus incidents. We can create a bar chart to visualize incident counts by borough and a line chart to observe trends in incidents over time. Formatting the x-axis to display the first letter of each month enhances readability. Additionally, treemaps can help explore data fields, excluding date and year, to understand proportions and relationships. An interactive dashboard combines these visualizations for a comprehensive view of the data. Using Tableau, we can gain insights into bus safety trends and develop data analysis skills.

Problem – 2

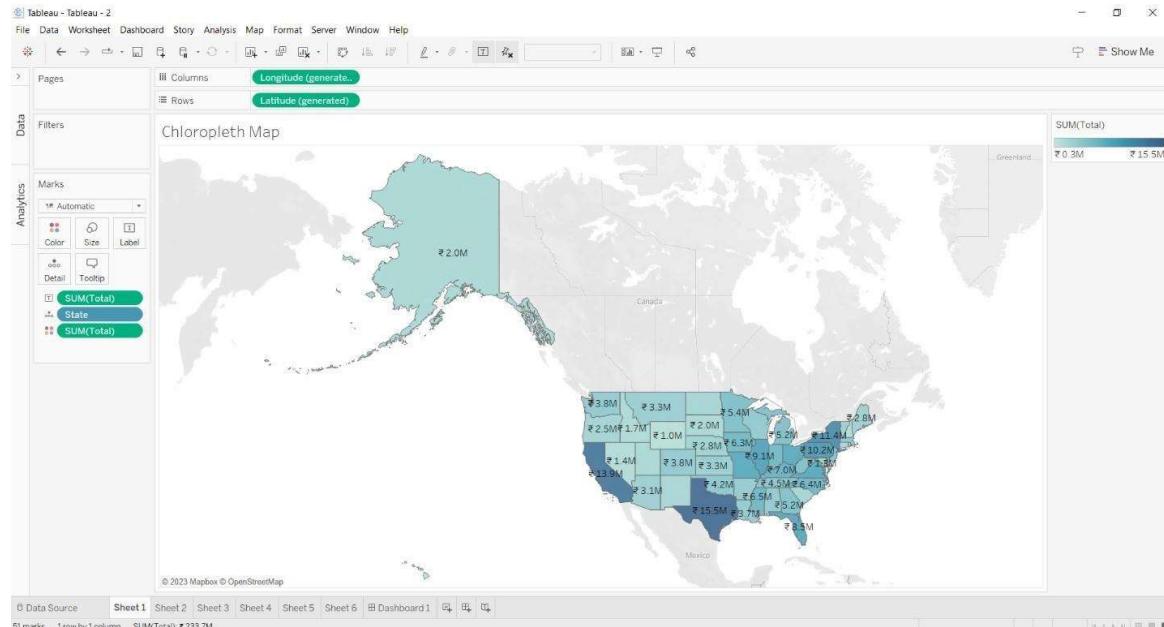
Sales Revenue Dataset

2. Analysis of revenue in sales dataset:

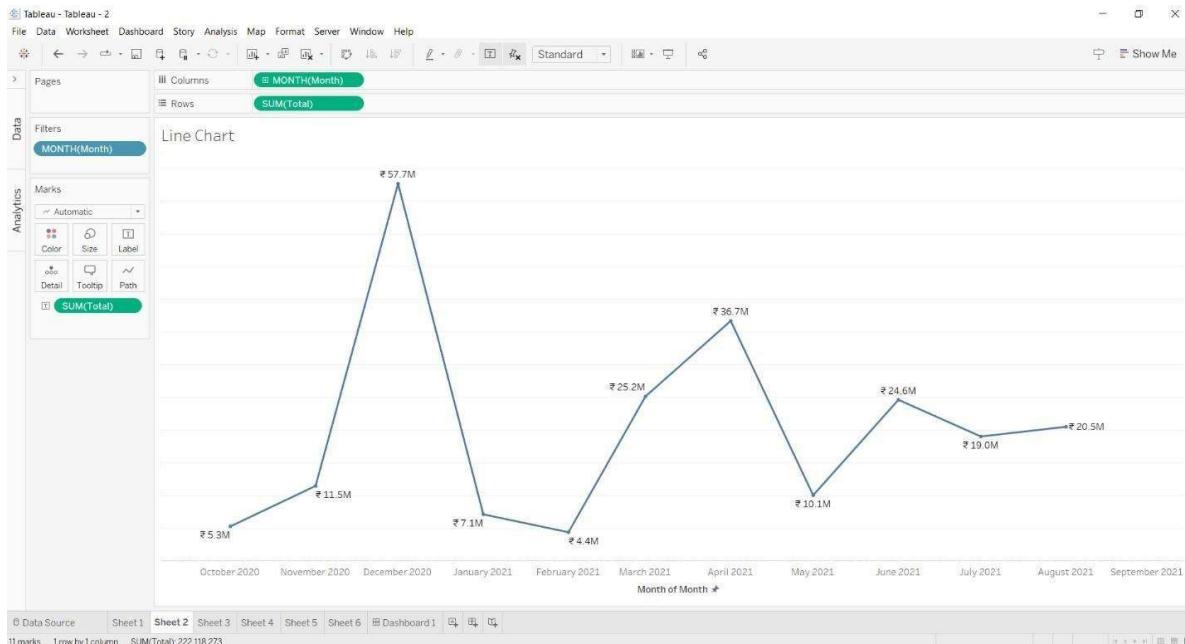
- i) Create a choropleth map (fill the map) to spot the special trends to show the state which has the highest revenue.
- ii) Create a line chart to show the revenue based on the month of the year.
- iii) Create a bin of size 10 for the age measure to create a new dimension to show the revenue.
- iv) Create a donut chart view to show the percentage of revenue per region by creating zero access in the calculated field.
- v) Create a butterfly chart by reversing the bar chart to compare female & male revenue based on product category.
- vi) Create a calculated field to show the average revenue per state & display profitable & non-profitable state.
- vii) Build a dashboard.

Solutions:

- i) a. Drag state to columns, select map, then in map tab, edit map location, change to US, then drag total to label.
- b. Drag total to label, then format to millions.

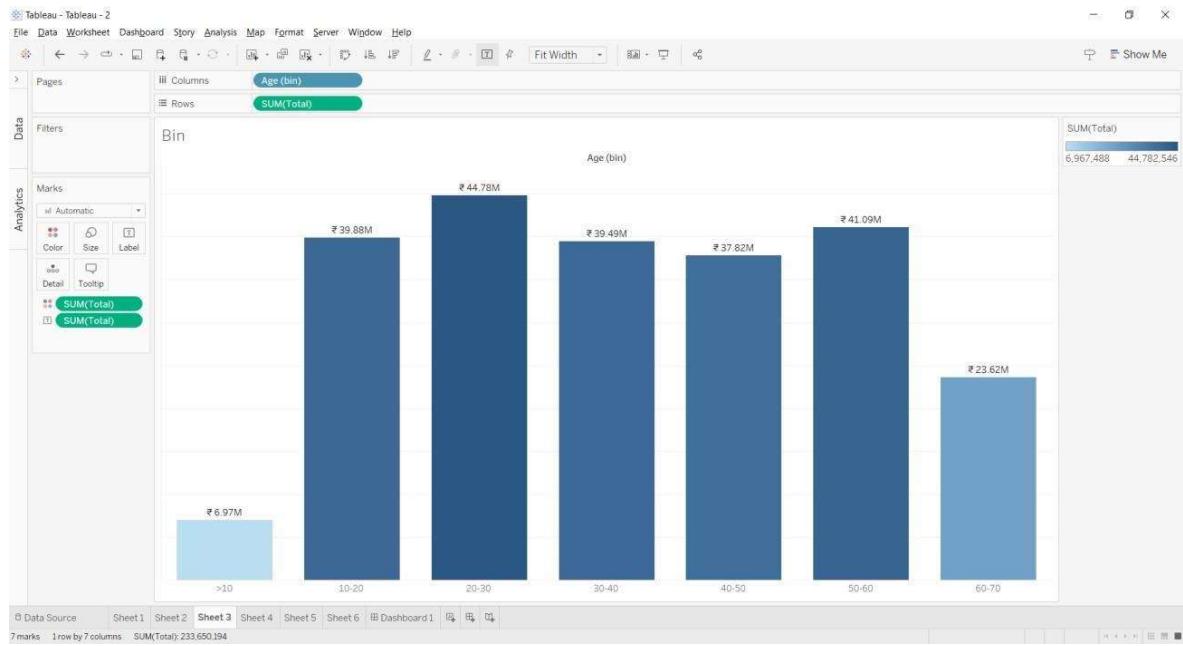


- ii) a. Create a line chart to show the revenue based on the month of the year.
- b. Drag total to rows.
- c. Convert month from string to date, by right click, and drag to column.
- d. Under marks, select sum(total), right click, format, then under pane, go to default, under numbers, go to currency(custom), decimal place to 1, display units in Millions.

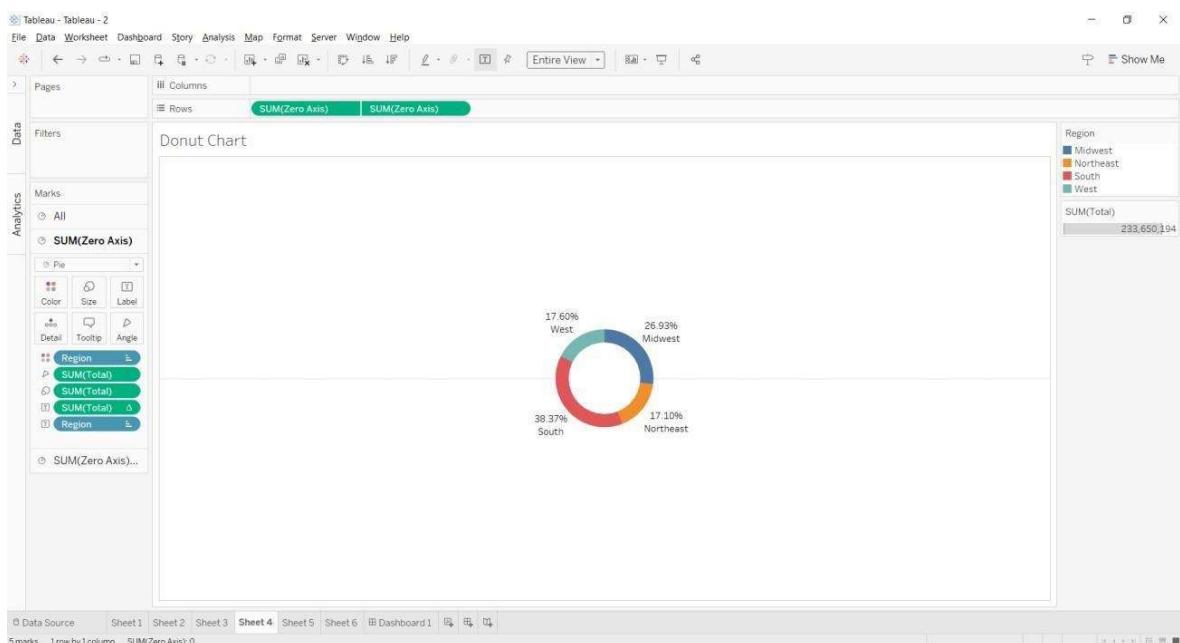


- iii) a. Create a bin of size 10 for the age measure to create a new dimension to show the revenue
- b. Drag age to columns, total to rows.
- c. Right click age in tables, create, bin, then size of bin to 10.
- d. Drag age bin to columns and remove age.
- e. Then under each bar, below the axis, right click, go to edit alias, then change each alias from >10, 10-20, 20-30, 30-40, 40-50, 50-60, 60-70 respectively.
- f. Right click graph, format, then remove grid lines.
- g. Drag total to label, format, then currency, then unit is millions.

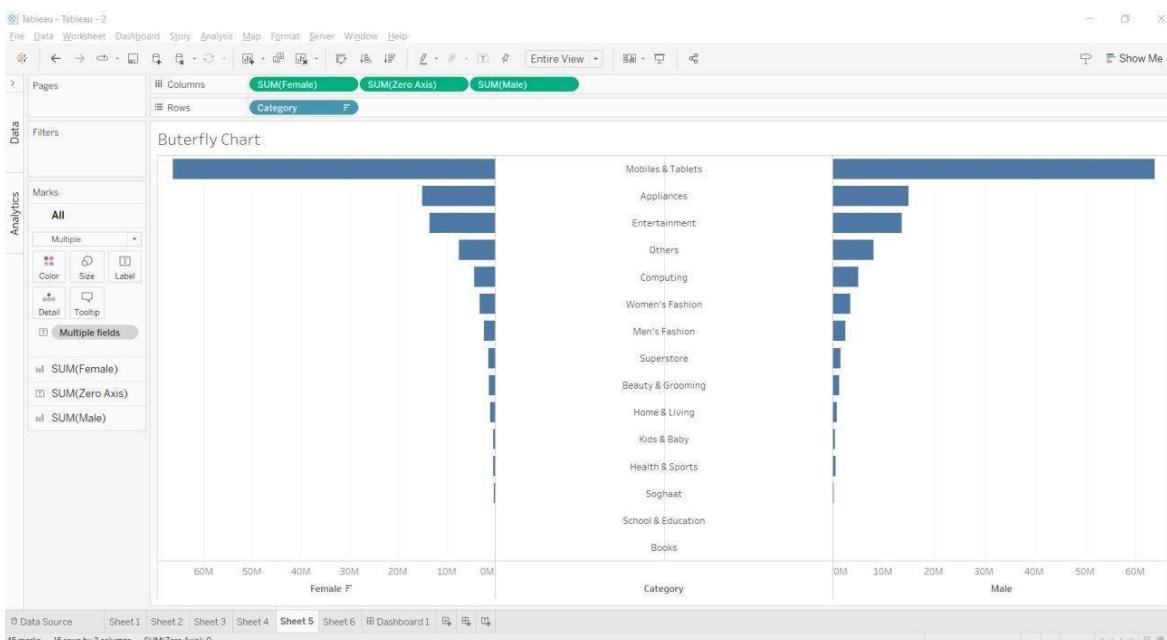
Data Visualization Lab (BAIL504)



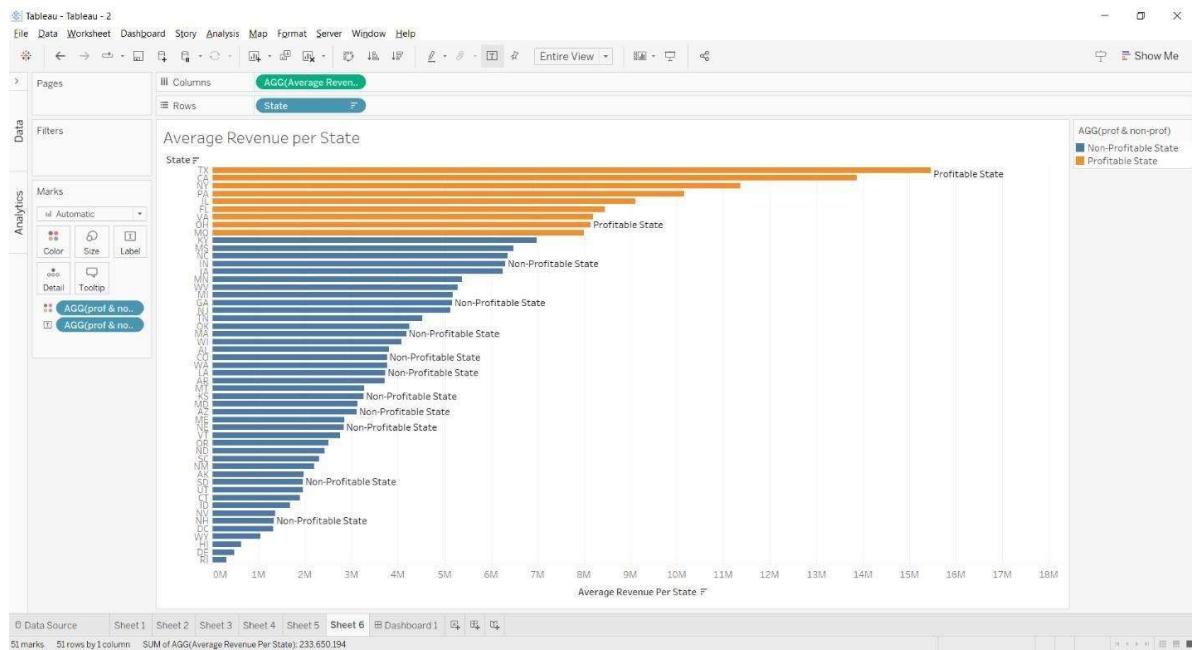
- iv) a. Create a donut chart view to show the percentage of revenue per region by creating zero access in the calculated field.
- b. Drag Region to column, total to row.
- c. Make a pie chart, selecting under ‘Show Me’.
- d. Drag region & total to label.
- e. In label, sum(total) right click, quick table calculation, percent of total.



- f. Create calculated field, rename to Zero Axis, write code as 0, then ok.
 - g. Drag Zero Axis twice to rows.
 - h. Then under marks, two fields of Zero Axis will be there, go to second, remove all fields, then in graph, increase size in 1st, decrease in 2nd, then right click on Zero Axis in pie chart, then dual axis, Change color to White.
 - i. To remove the lines of zero axis, format-> edit -> none in zero lines.
- v) a. Create a butterfly chart by reversing the bar chart to compare female & male revenue based on product category.
- b. Drag Gender, Total to rows, Category to columns.
 - c. Make a pie chart, selecting under ‘Show Me’.
 - d. Create 2 calculated fields.
 - e. For female revenue, Code is – if [Gender] = ‘F’ then [Total]end - Create same for male revenue.
 - f. Drag female and male to columns, remove total and gender.
 - g. Drag zero axis between female and male revenue in columns.
 - h. Rename the Zero Axis as Category by editing, and remove 0 in (tick tab) edit, select none.



- vi) a. Create a calculated field to show the average revenue per state & display profitable & non-profitable state.
- b. Create calculated field to calculate average revenue per state, code –
 $\text{avg}(\{\text{include[State]} : \text{sum}([\text{Total}])\})$
- c. Create a calculated field for profitable & non profitable states, code -
 $\text{if}([\text{Average Revenue Per State}] \geq 8000000 \text{ then "Profitable State" else "Non-Profitable State"} \text{ end .}$
- d. Drag Avg prof and average revenue per state to columns, State to rows.
- e. Color the difference for profitable & non-profitable.



- vii) a. Create a dashboard, increase the width, and click on “Floating”. - Drag all sheets and arrange properly.

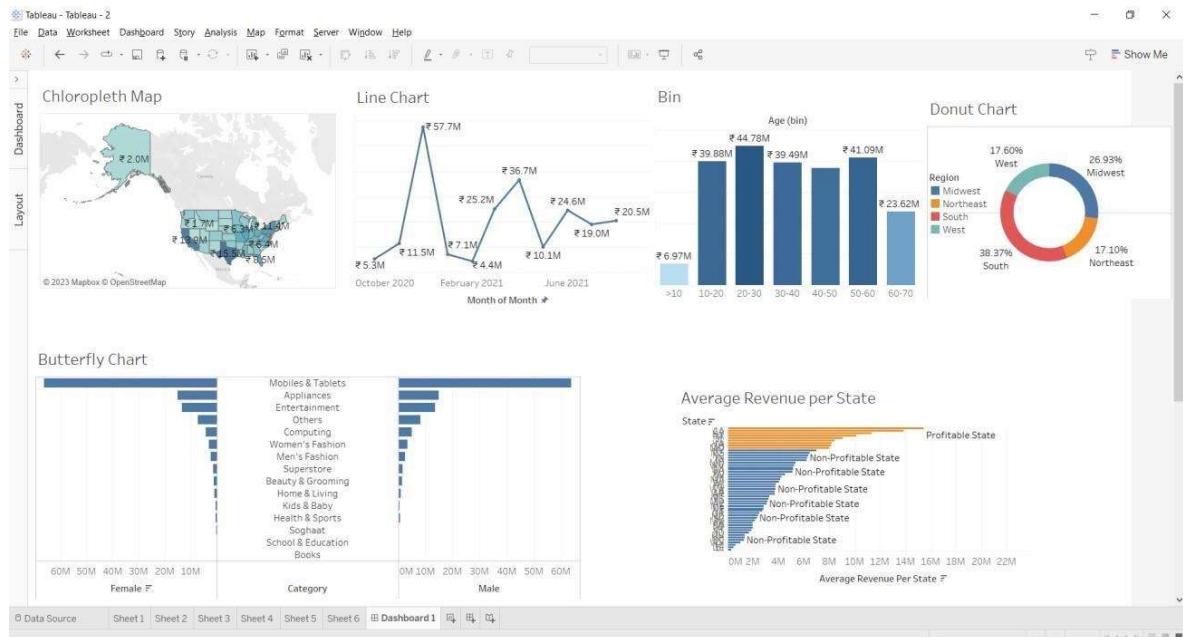


Tableau is a powerful data visualization tool that can be used to analyze large datasets. It can help you to visualize the data in a way that is easy to understand and interpret. Tableau can be used to create a variety of visualizations, including choropleth maps, line charts, bar charts, and donut charts. These visualizations can help you to identify trends and patterns in the data, which can then be used to make informed decisions about your business.

Tableau can be used to answer many questions about your sales data. For example, it can help you to identify which state has the highest revenue, how revenue changes over time, how revenue differs by age group, and what the percentage of revenue is by region. It is a powerful tool that can help you to gain insights into your sales data and make informed decisions about your business.

Problem – 3

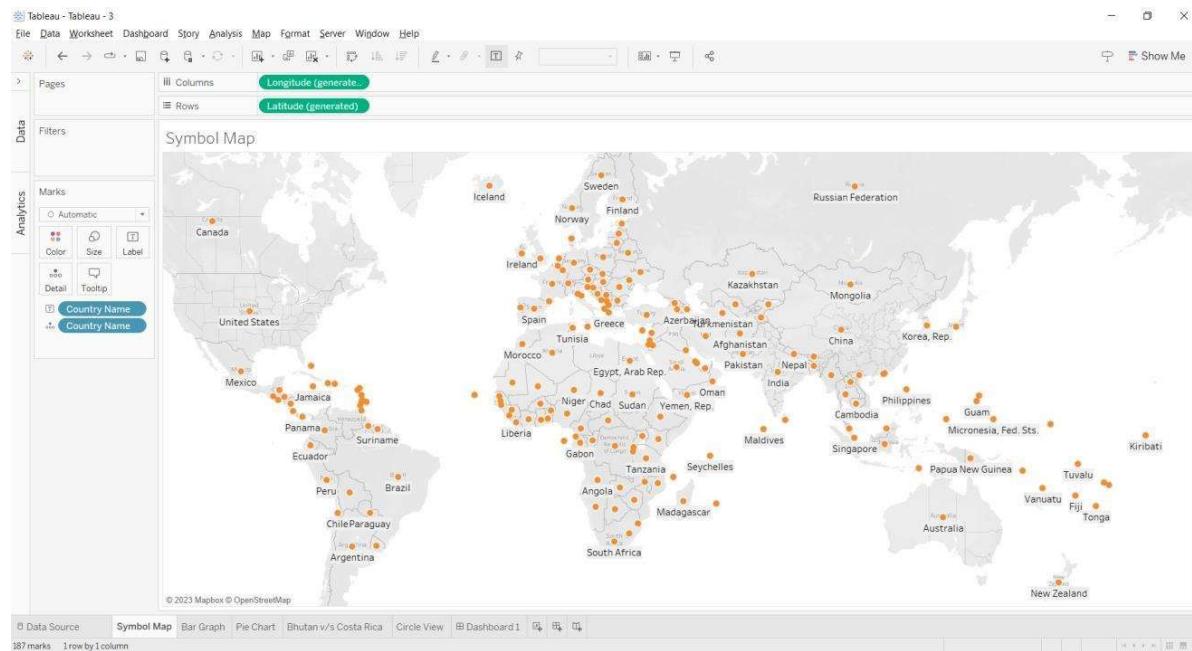
GDP Dataset

3. Analysis of GDP dataset:

- i) Visualize the countries data given in the dataset with respect to latitude and longitude along with country name using symbol maps.
- ii) Create a bar graph to compare GDP of Belgium between 2006 – 2026.
- iii) Using pie chart, visualize the GDP of India, Nepal, Romania, South Asia, Singapore by the year 2010.
- iv) Visualize the countries Bhutan & Costa Rica competing in terms of GDP.
- v) Create a scatter plot or circle views of GDP of Mexico, Algeria, Fiji, Estonia from 2004 to 2006.
- vi) Build an interactive dashboard.

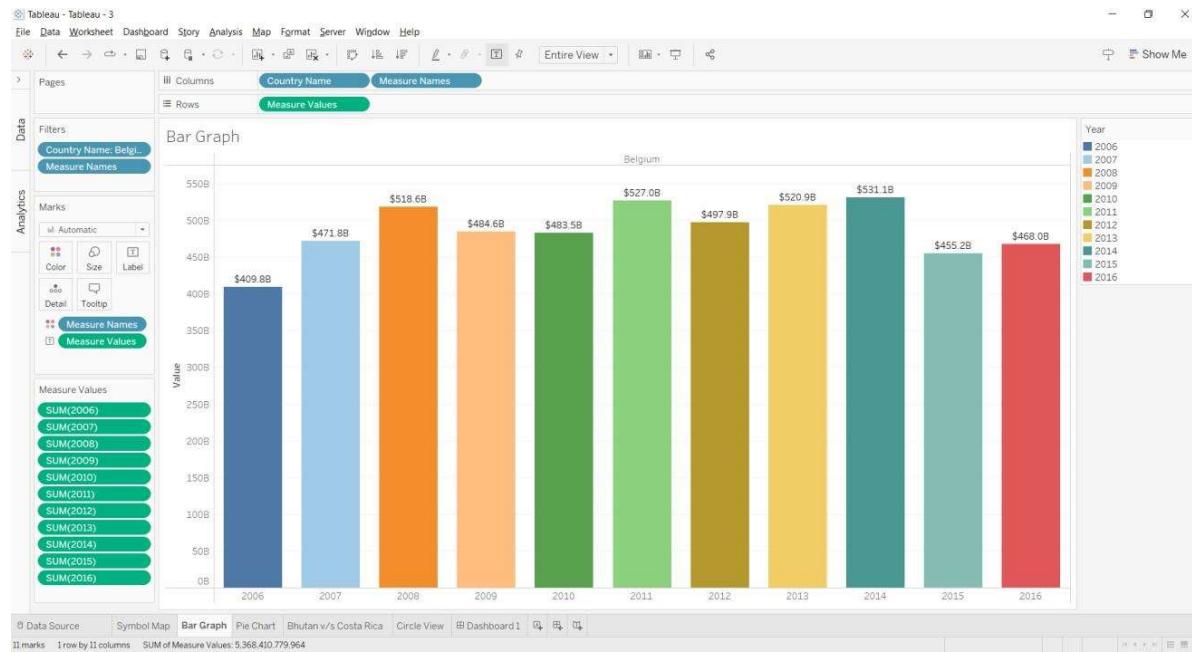
Solutions:

- i) a. Drag Country name to columns, latitude of longitude to the rows.
- b. Drag country name to label.
- c. Under ‘Show me’, select symbol maps.
- d. Drag Country name to color, from drop down, select attribute.

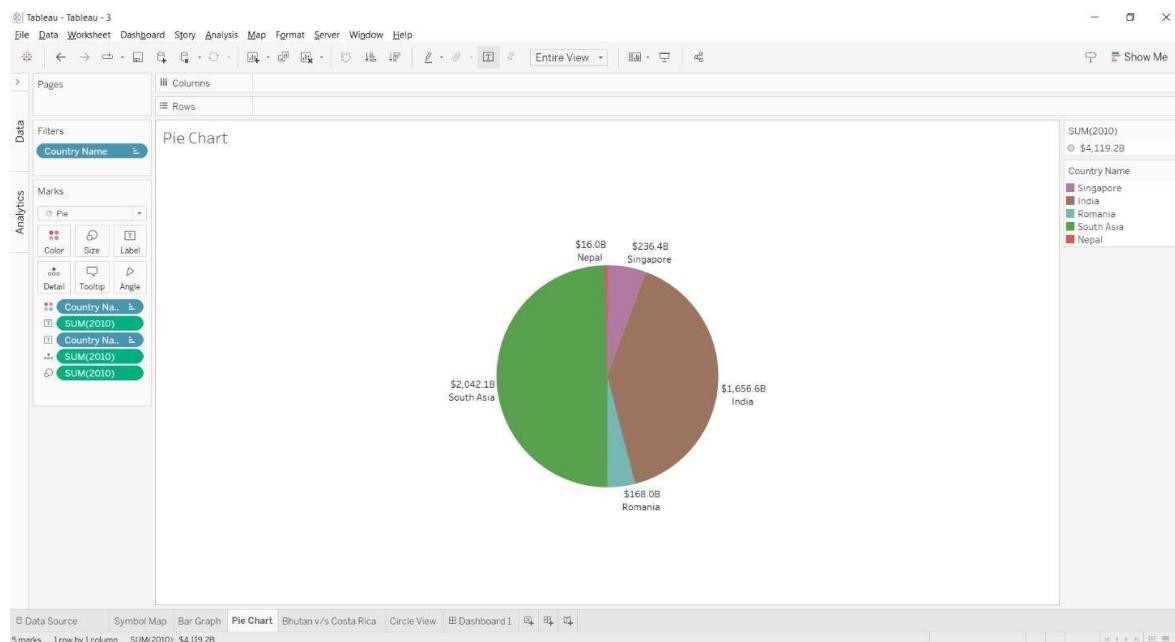


ii) a) Drag Country name to columns, fields from 2006 to 2016 to rows

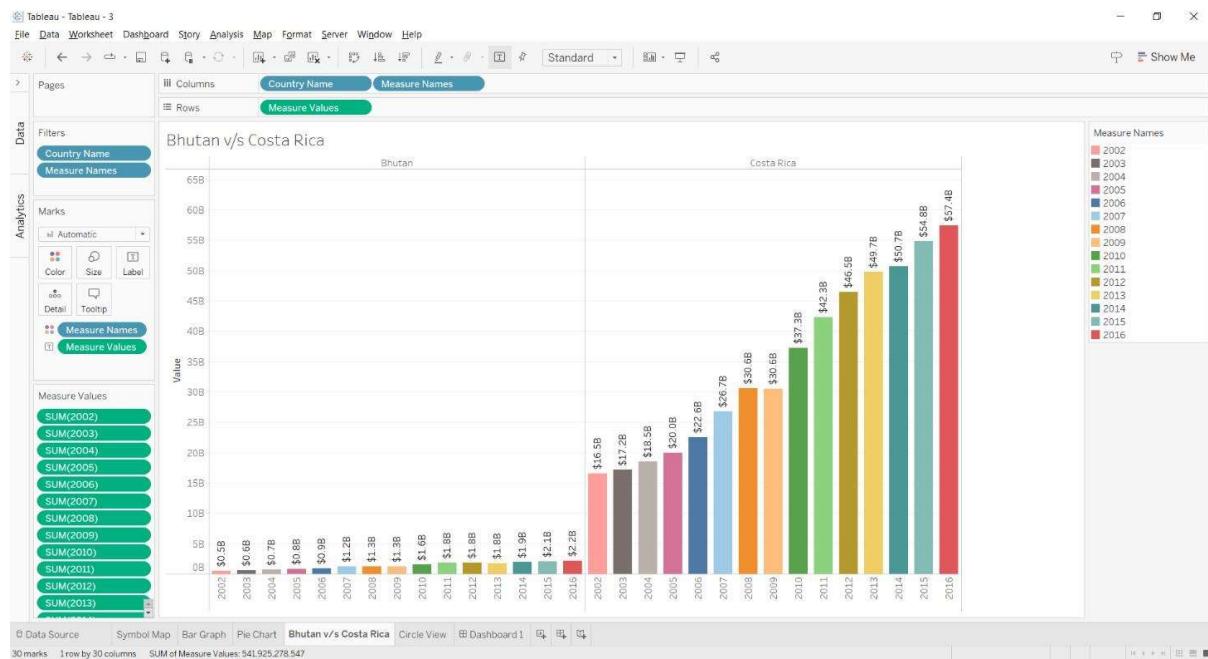
b) From drop down in Country name present in Columns, select edit filter choose Belgium only and click OK.



iii) a) Drag country name to columns from drop in it, select edit filter and choose India, Nepal, Romania, South Asia, and Singapore

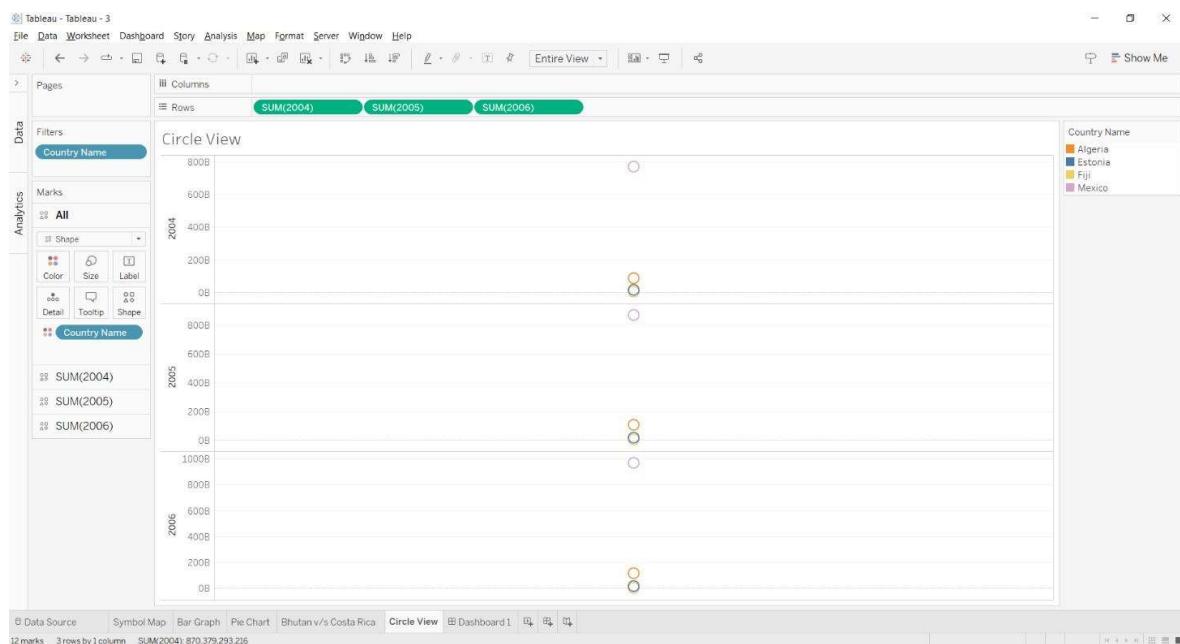


- b) Drag Year (2010) to rows.
- c) From "Show Me" select Pie chart.
- d) Drag Country name, 2010 to Label.
- iv) a) Drag Country name to columns from drop down in it, select edit filter and



choose Bhutan & Costa Rica.

- b) Drag years from 2008 to 2016 by holding shift key and selecting all at once.



v) a) Drag Country name to columns from drop down, select edit filter and select Mexico, Algeria, Fiji, Estonia and click OK.

b) Drag (Year) 2004, 2005, 2006, to rows

c) From "Show Me" select circle views.

vi) a) Select Dashboard.

b) Change height and width of the dashboard

c) Change objects from tiled to floating.

d) Drag all the sheets and rearrange them.

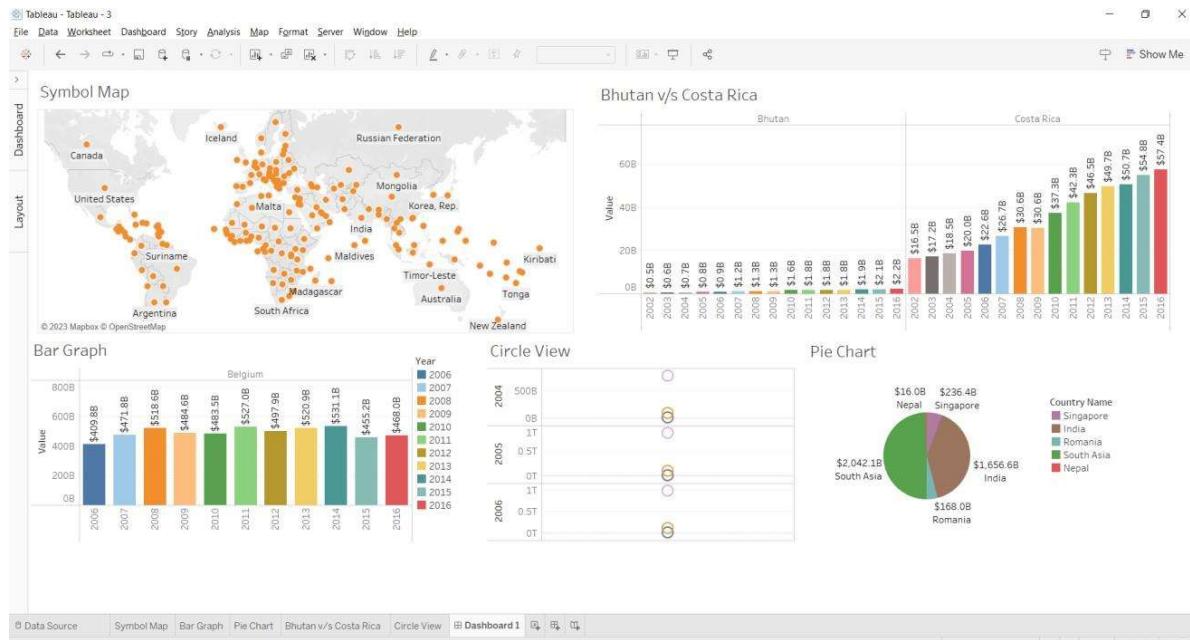


Tableau is essential for sorting and analyzing GDP data due to the data exploration and visualization capabilities. It enables users to easily connect to various data sources visualize GDP tools and sort based on GDP values or other matrices with interactive dashboards and filtering options, stakeholders can explore insights of their own, facilitating better understanding of GDP patterns and disparities. Tableau's geospatial features also help plot GDP data on maps for regional analysis. Additionally, its Scalability & performance ensure efficient handling of large GDP datasets and time series analysis.

Problem – 4

HR Dataset

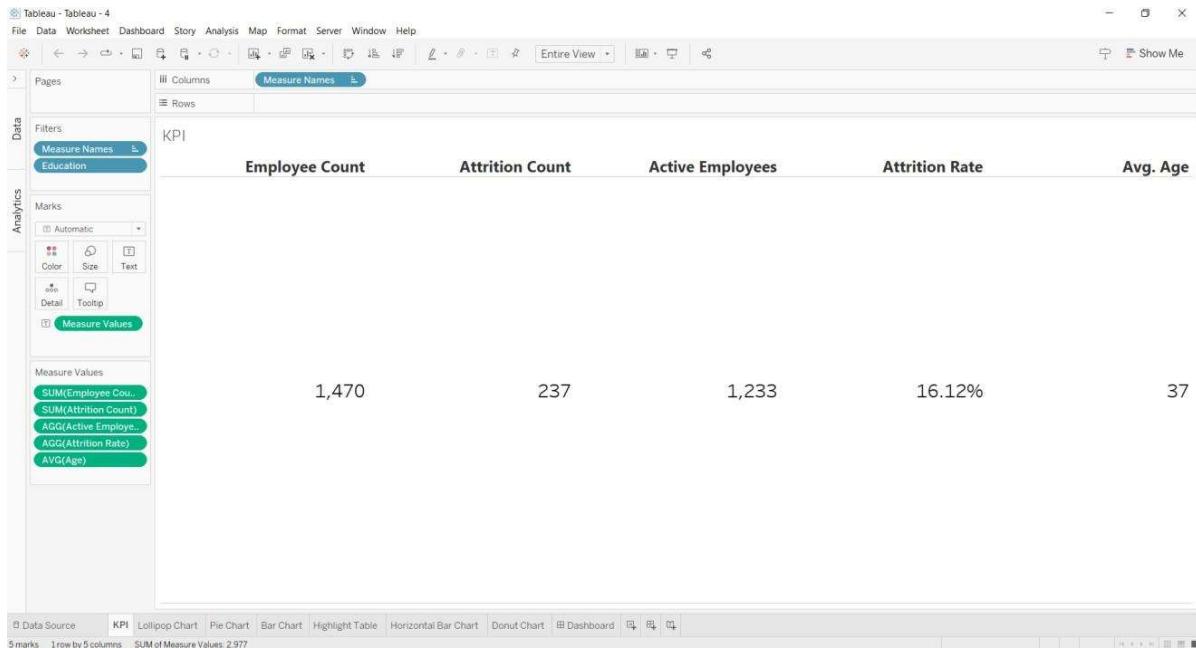
4. Analysis of HR Dataset:

- i. Create KPI to show employee count, attrition count, attrition rate, attrition count, active employees, and average age.
- ii. Create a Lollipop Chart to show the attrition rate based on gender category.
- iii. Create a pie chart to show the attrition percentage based on Department Category-Drag department into colours and change automatic to pie. Entire view, Drag attrition count to angle. Label attrition count, change to percent, add total also, edit label.
- iv. Create a bar chart to display the number of employees by Age group,
- v. Create a highlight table to show the Job Satisfaction Rating for each job role based on employee count.
- vi. Create a horizontal bar chart to show the attrition count for each Education field Education field wise attrition – drag education field to rows, sum attrition count to col,
- vii. Create multiple donut chart to show the Attrition Rate by Gender for different Age group.

Solutions:

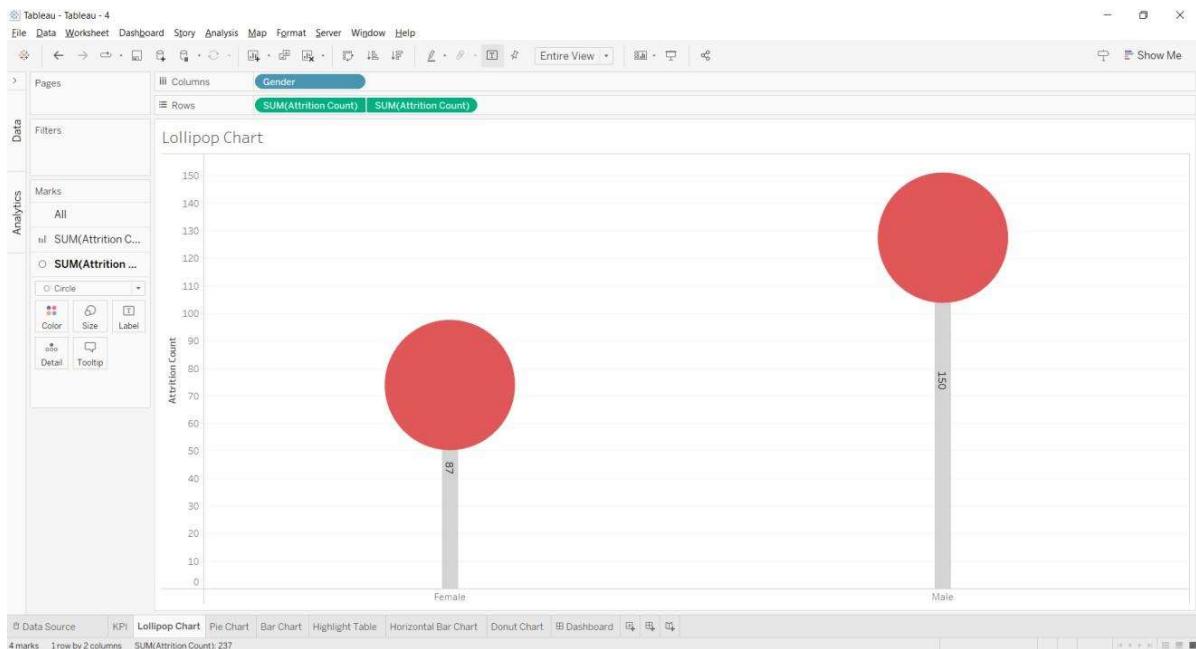
- i) a. Employee Count: Drag Employee Count to the Label shelf.
 - b. Attrition Count: Create a calculated field **Attrition Count** with the formula: IF [Attrition] = 'Yes' THEN 1 ELSE 0 END. Double-click on this calculated field to place it on both the Rows and Columns shelves, then reverse the order.
 - c. Attrition Rate: Create a calculated field **Attrition Rate** with the formula: $\text{SUM}([\text{Attrition Count}]) / \text{SUM}([\text{Employee Count}])$. Format it as a percentage with 2 decimal places.
 - d. Active Employees: $\text{SUM}([\text{Employee Count}]) - \text{SUM}([\text{Attrition Count}])$.
 - e. Average Age: Right-click on the Age field, change measure from SUM to AVG. Format all numbers as decimal places with 0.

Data Visualization Lab (BAIL504)

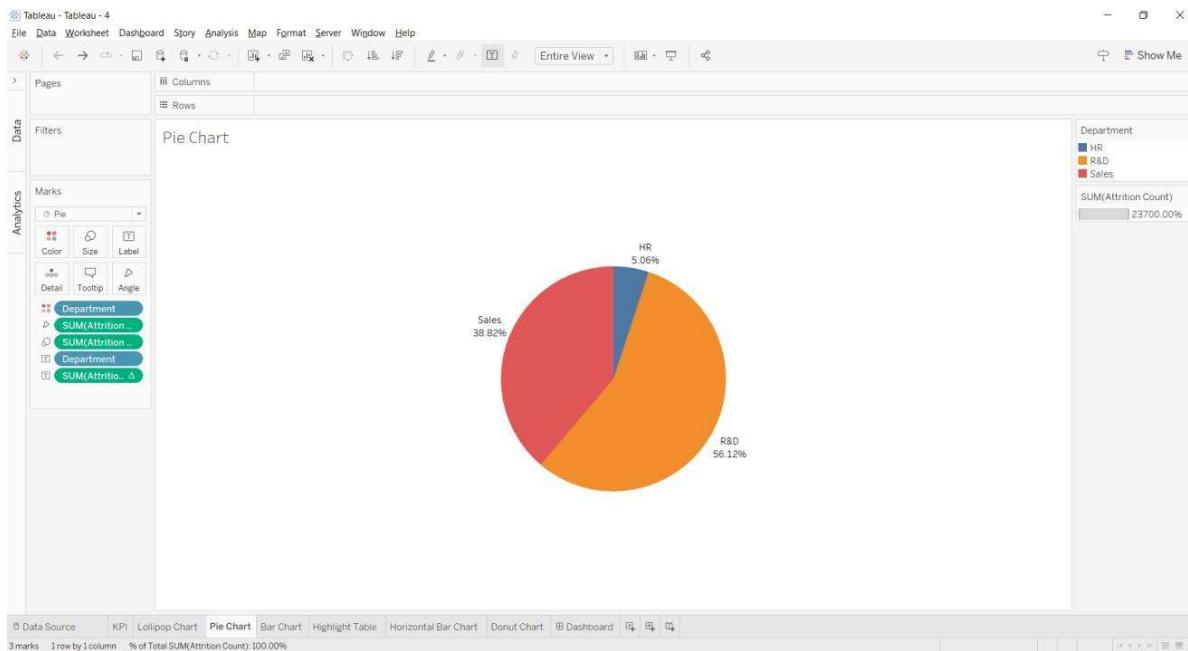


ii) a. Drag Gender to Rows.

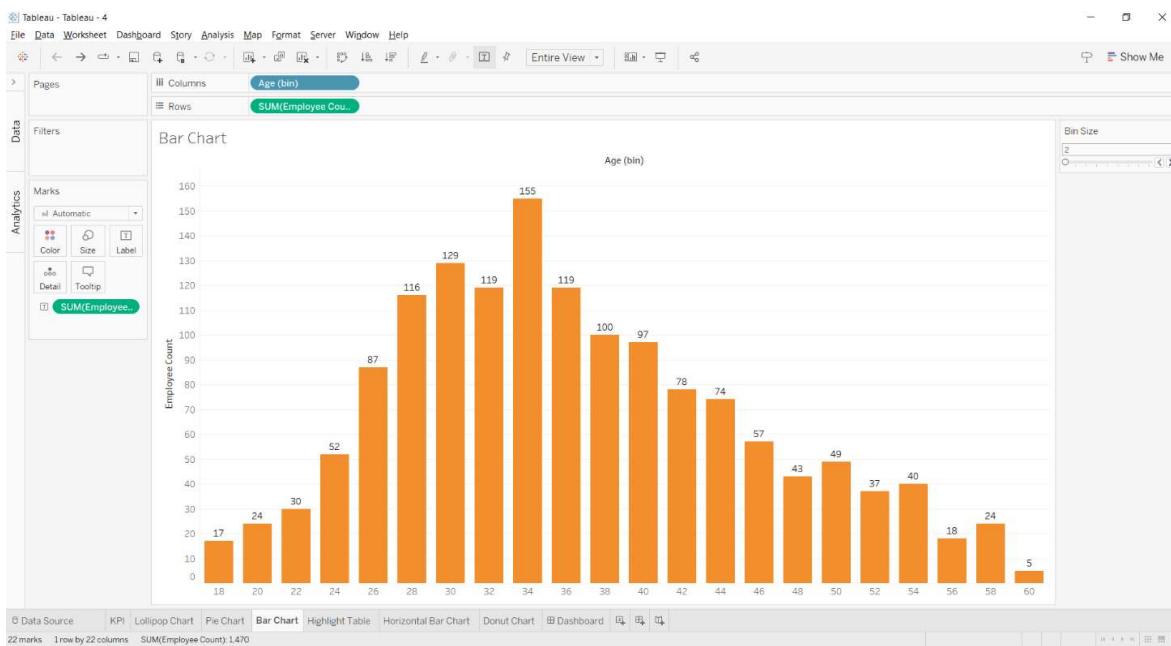
- Drag Attrition Count to Columns twice. Change the second instance to a Circle mark.
- Create dual axes for both charts (Columns shelf dropdown > Dual Axis).
- Reduce the size of the circle chart to create the lollipop effect.
- Add Label to show the count and align it to the center in the format tab.



- iii) a. Drag Department to Colors shelf.
- b. Change the mark type to Pie.
- c. Label the slices with the Attrition Count and format them as percentages.
- d. Add a total label and edit the label accordingly.

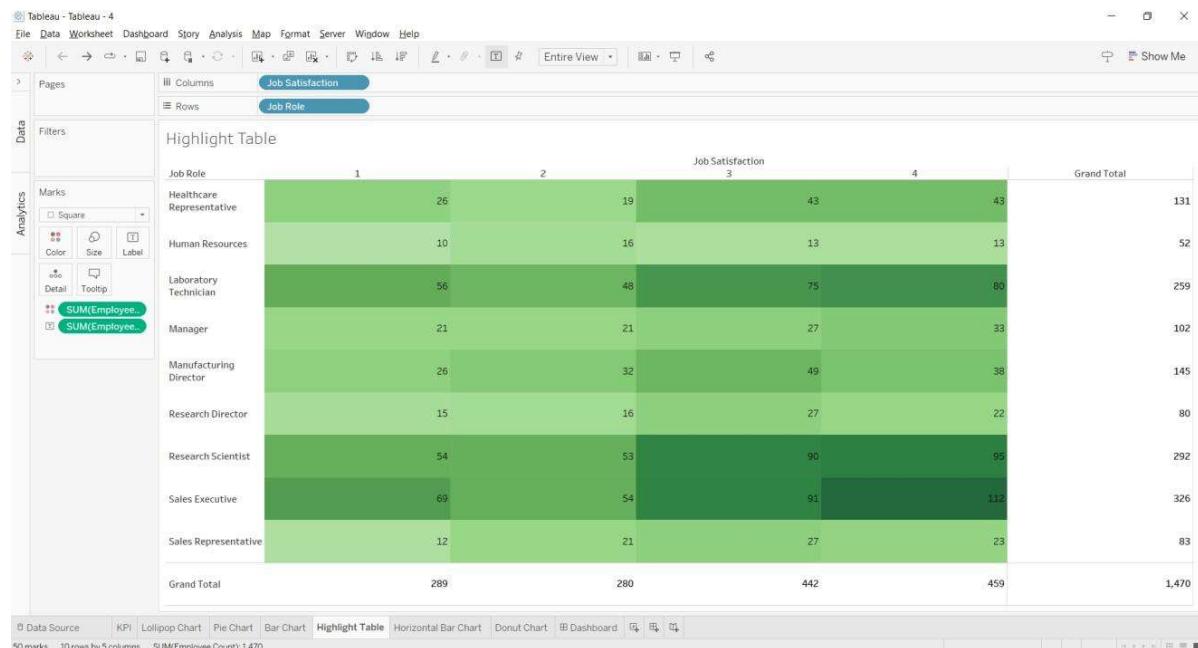


- iv) a. Create a parameter for Age Bin (dropdown > Create Parameter) with bin size 3, min 2, max 10, step 1.



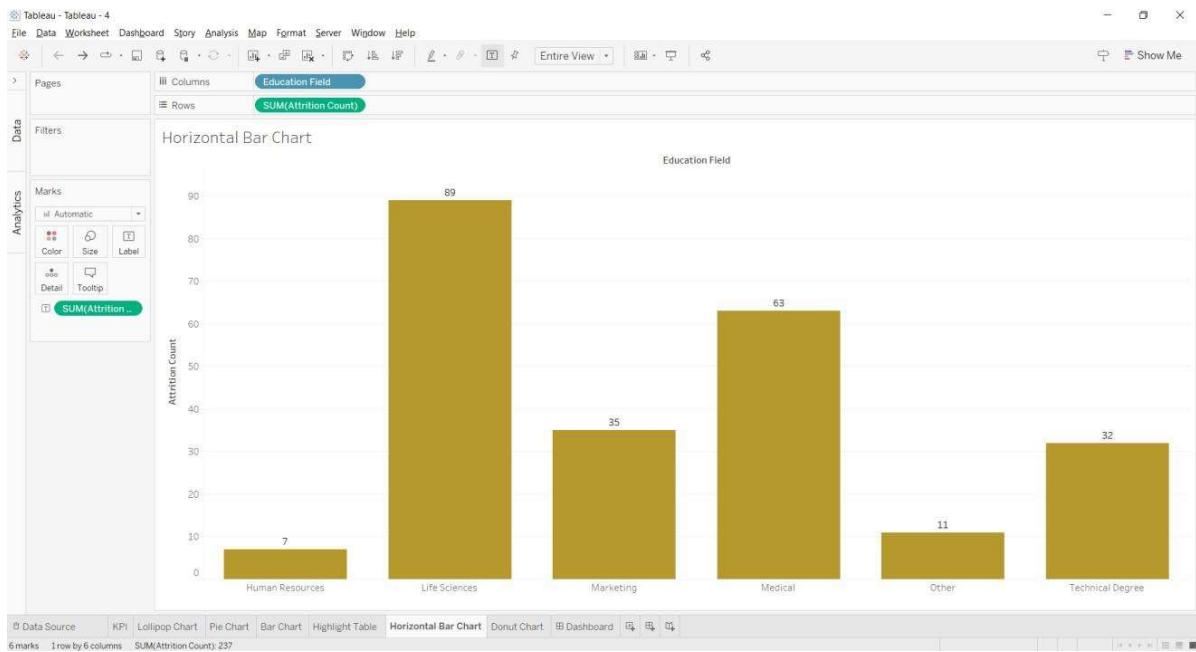
- b. Drag Age Bin to Columns and drag the Employee Count to Rows.
- c. Right-click on the Age Bin in Columns, choose Show Parameter Control.

- v) a. Drag Job Role to Rows.
- b. Drag Sum of Job Satisfaction to the Columns shelf and then move it to Dimensions.
- c. Drag Job Satisfaction to Columns.
- d. Drag Employee Count to Text.
- e. Analyze > Totals > Show Column and Row Grand Totals.
- f. Change the chart type to Highlight Table.

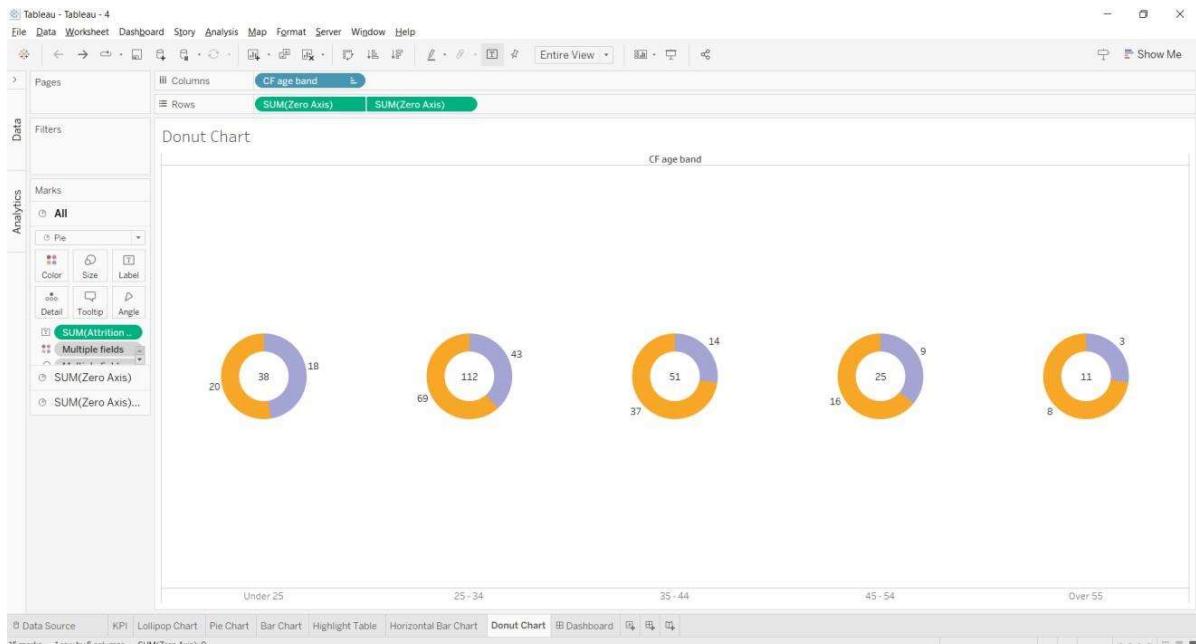


- vi) a. Drag Education Field to Rows.
- b. Drag Sum of Attrition Count to Columns.
- c. Label Attrition Count.

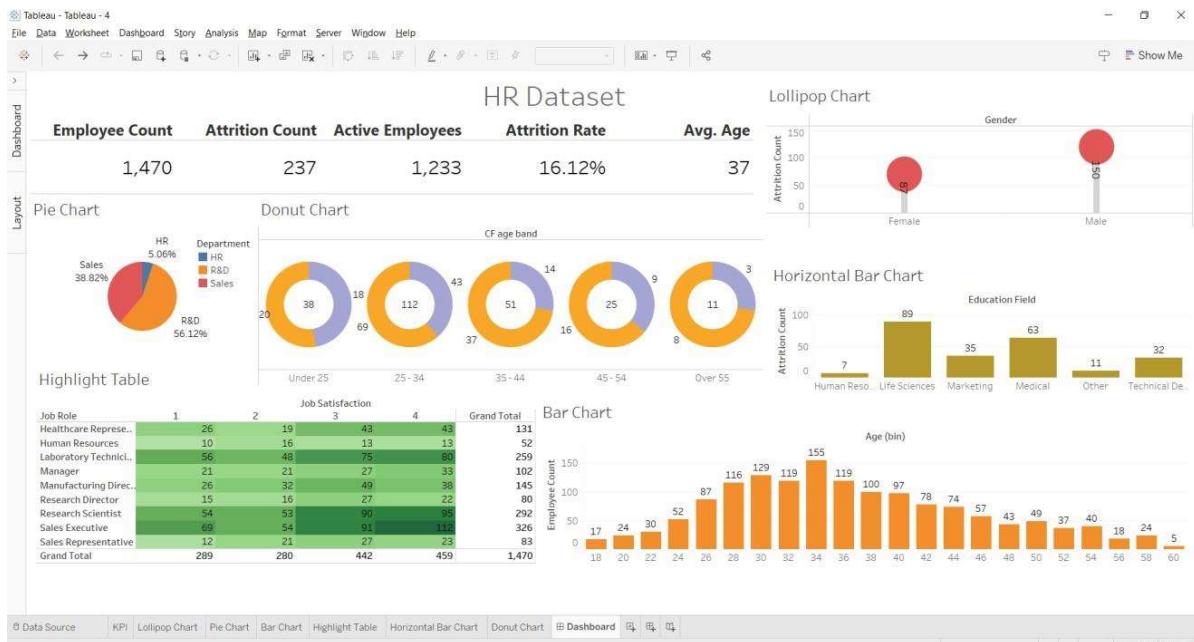
Data Visualization Lab (BAIL504)



- vii) a. Drag Age Band to Columns.
- b. Create a pie chart by changing the mark type to Pie and selecting entire view.
- c. Drag Gender to Color.
- d. Drag Attrition Count to Angle.
- e. Create a second instance of Attrition Count and place it on Rows to create a donut chart. Use the Age Band field for sorting by dragging it to the dropdown and selecting Manual.



- viii) a. Create a new Dashboard.
- b. Rename the Dashboard.
- c. Change the objects to floating.
- d. Drag all the sheets, label & rearrange them.



Analyzing HR Data in Tableau is crucial for organizations to gain valuable insights into their workforce and make informed decisions. By examining variables such as turnover rates, employee performance diversity & compensation, Tableau can help HR teams identify patterns, improve employee satisfaction, and optimize workforce planning. Visualizing demographic data can aid in promoting inclusivity, while salary analysis ensures fair compensation practice. Evaluating factors like engagement career growth, and geographical impact helps foster a productive and satisfied work pace. Through data-driven decision making, Tableau empowers HR professionals and organizational leaders to create an efficient, engaged, and successful workforce.

Problem – 5

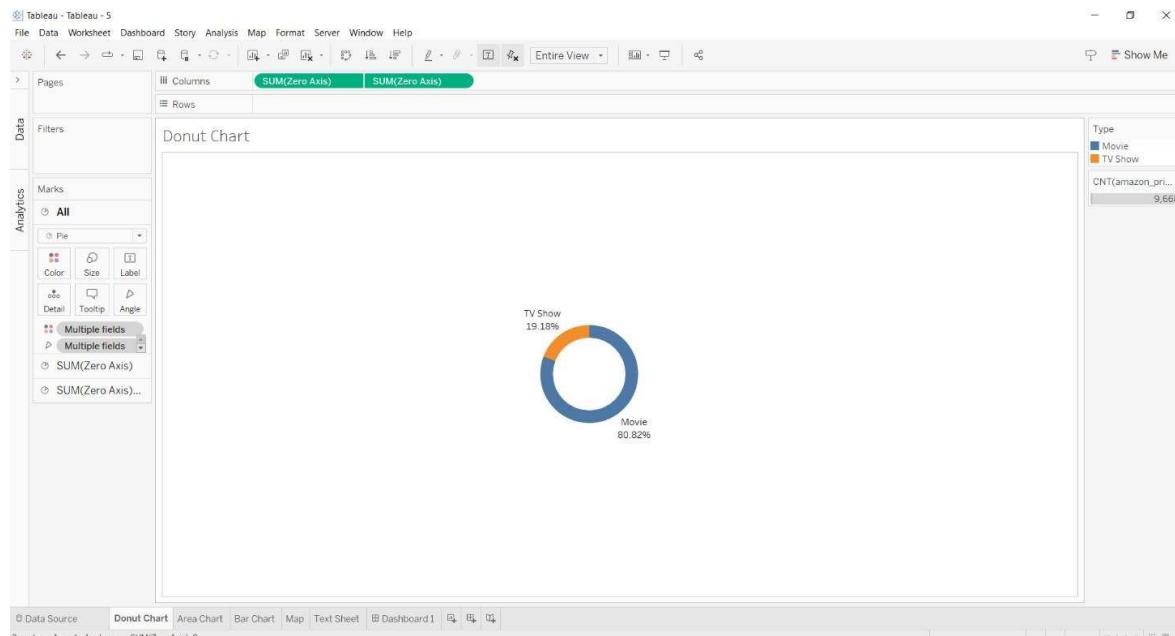
Amazon Prime Dataset

5. Analysis of Amazon Prime Dataset:

- i. Create a Donut chart to show the percentage of movie and tv shows
- ii. Create a area chart to shows by release year and type
- iii. Create a horizontal bar chart to show Top 10 genre
- iv. Create a map to display total shows by country
- v. Create a text sheet to show the description of any movie/movies.
- vi. Build an interactive Dashboard.

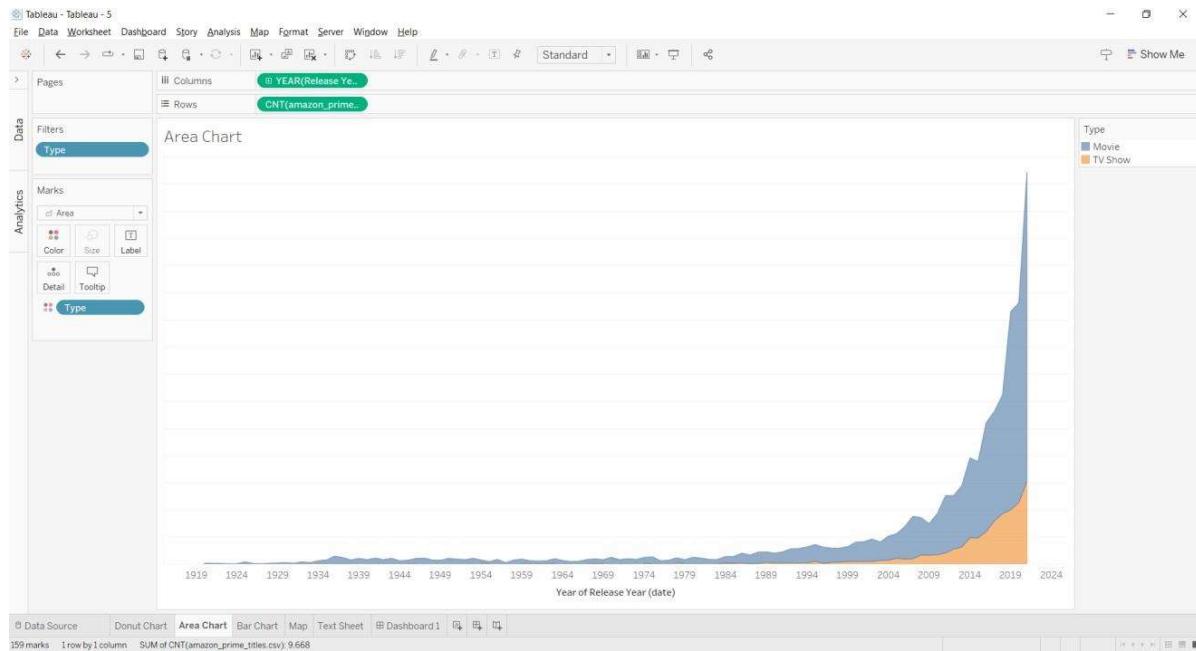
Solutions:

- i) a. Drag Type and Title to column and rows shelf respectively
- b. Select Pie Chart from 'Show Me' section.
- c. Right click on the title - Measure → Count (distinct), type to Color.
- d. Drag Type and Title to Label
- e. Create calculated field called Zero Axis
- f. Drag it twice to rows shelf.
- g. Then under Marks, two fields of Zero Axis exist go to second one - remove all fields and decrease its size.



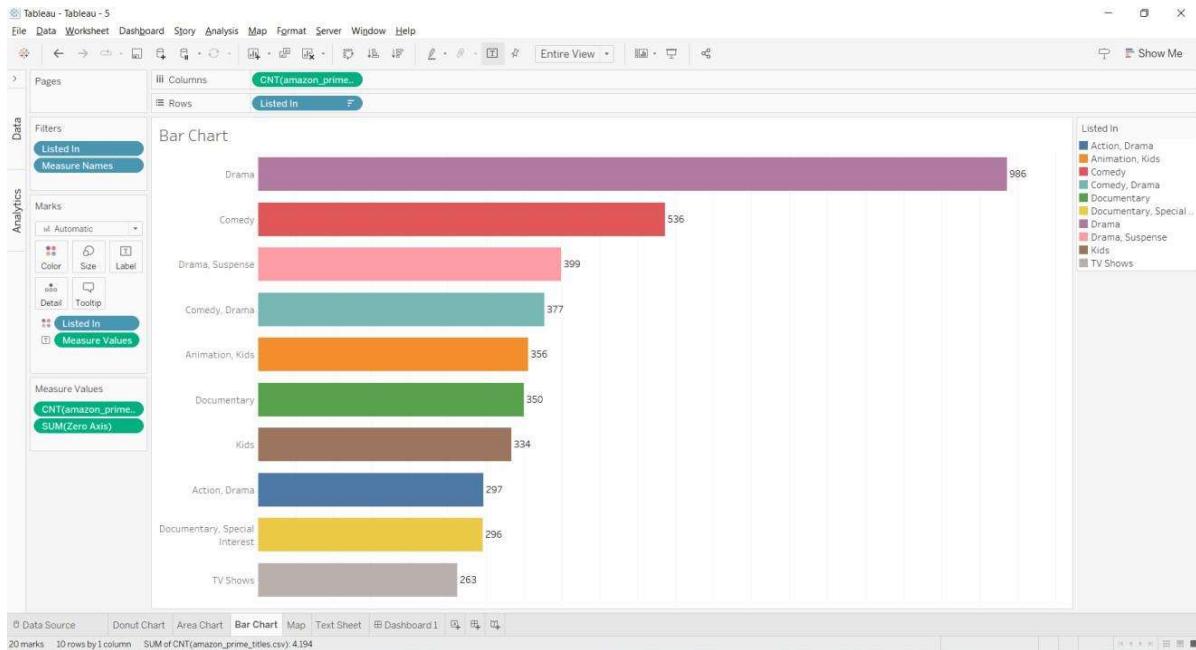
- h. Right click on the second Zero Axis and select dual axis.
- i. Change the color of the second pie chart to white.

- ii) a. Drag and drop 'Release year' and "Show ID" to Columns and rows shelf respectively.
- b. Right click on 'Show ID' in rows shelf, click on measure select Count (distinct)
- c. In the "Marks" section, select area from the drop-down list in place of automatic.
- d. Drag and drop 'Type' to color.
- e. Drag and drop 'Type' to Label.

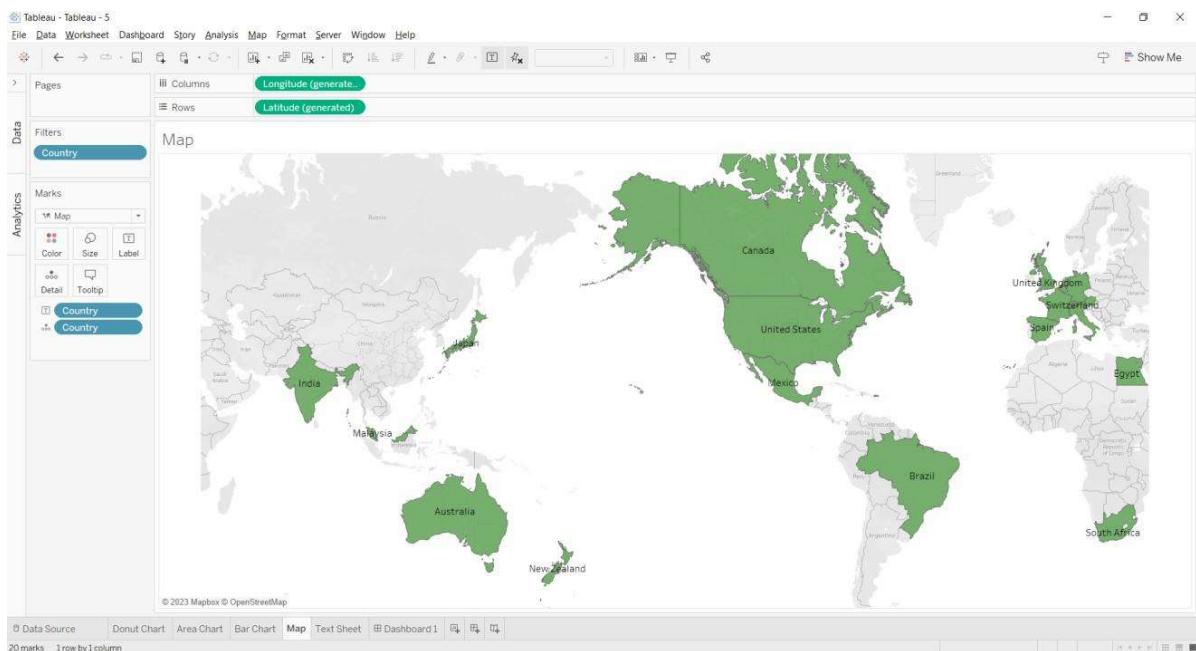


- iii) a. Drag Listed In" and "Show ID" to rows and Column shelf respectively
- b. Right click on "Show ID" then go to Measure → Count (distinct)
- c. Drag 'Listed In' to filter and edit it Accordingly to get top 10 Genres.
- d. Drag "Show ID" to label
- e. Select Horizontal Bars in Show me drop down to get horizontal bar chart.

Data Visualization Lab (BAIL504)



- iv) a. Drag Country and Show ID to rows and column shelf respectively.
 - b. Drag "Country" to filters and remove null values.
 - c. Drag Type to filters and select TV Shows only.
 - d. Drag "Country" and "Show ID" to Label.
 - e. Select Map in place of "automatic from drop down list in Marks."



- v) a. Drag and drop Title to rows
 - b. Select "Text" in place of automatic in the Marks section.
 - c. Add Title to filter. Right click on 'Title' and select Show Filter.
 - d. Drag "Type" to filter and select Movies only.
 - e. Drag and drop Description to Text.

Tableau - Tableau - 5

File Data Worksheet Dashboard Story Analysis Map Format Server Wigdow Help

Fit Width

Pages

33 marks 33 rows by 1 column

Text Sheet

Description

(Multiple values)

3 Caminos	3 Caminos tells the life story of five friends, each one of a different nationality, all of them connected by El Camino in three specific moments of their lives.	
3 Caminos (4KUHD)	3 Caminos tells the life story of five friends, each one of a different nationality, all of them connected by El Camino in three specific moments of their lives.	
8 Out Of 10 Cats	8 Out of 10 Cats is a British comedy panel show.	
12 'O'Clock	12 'O'Clock revolves around a young girl, Gauri who starts getting traumatized with frightening nightmares and incidents of eerie sleepwalking. What follows to extricate her from t...	
100 Streets	100 Streets is a powerful ensemble drama, follows three contrasting and interwoven stories as they play out in one square mile of modern day London starring Idris Elba and Gemma...	
A Haunting on Hanwell	760 hours of investigation condensed into a hair-raising 90 minute documentary. The most thorough paranormal investigation ever conducted. A location so active, an exorcist had to...	
A Landing on the Sun	20 years ago, George Summerchild fell to his death from a Ministry of Defence building. Was it suicide? Despite all the speculation, no one has ever solved the mystery. Now Brian Jes...	
ACT 2 - Title 1a		
Act 6 - Series 1	2 after onboardings 1	
Act 6 - Series 2	2 after onboardings	
Address Unknown	10 years after their fathers' deaths, two teenagers' tragic common bond leads to friendship and adventure. Determined to uncover what really happened to their fathers, Matt and T...	
Anagnosha Christie's Th...	1933. Hercule Poirot, older and greyer, receives letters threatening murder. The sender signs themselves only as "A.C." When he takes the letters to the police looking for help, Her...	
Agyness	1.0 - A Agent inside a dark NASA division using alien technology receives a packet by a new nation "The Ferret Nationals" who've armed a doomsday device as they hold his wife capti...	
Aladdin	77,000+ reviews and counting, Aladdin is a live-action musical about Aladdin, a thief and his love for Princess Jasmine.	
Dark/Way	7.5MM Nominations and "One of our best streaming horror TV series" according to Den of Geek. A genius programmer's mysterious disappearance leads to the reunion of old friend...	
Favourite Nursery Rh...	10 sing-a-long animated and classic nursery rhymes. A must for all pre-schoolers.	
Fortress 2: Re-Entry	7 years after the original Fortress movie, Brennick along with the rebels are captured and sent to a new, more sophisticated fortress prison, in outer space.	
Her Name Was Jo	10 year-old girl Jo and Selma eek out an existence along the Shenandoah River, scraping, fishing - surviving. But when Jo's junkie stepdad dies, she and Selma dump his body, steal...	
Hostel Daze	6 friends enter their second year of college and dig deeper into the notorious universe of an Indian hostel. Hostel Daze Season 2 incorporates the second chapter of hostel-life in the li...	
Hostel Daze (4K UHD)	6 friends enter their second year of college and dig deeper into the notorious universe of an Indian hostel. Hostel Daze Season 2 incorporates the second chapter of hostel-life in the li...	
Jeff, Who Lives at H...	30-year-old slacker (Jason Segel) finds his true destiny as he helps his brother (Ed Helms) stalk his possibly cheating wife in this offbeat comedy about fate and family.	
Mardi Gras: Spring B...	3 best friends travel to Mardi Gras during their senior year of college with the hope of getting some action.	
Merrick	10 years after an epidemic killed the majority of the population, Merrick, former boxing champion, survives alone near a remote lake. His life is shocked by the arrival of a eerie teen...	
Money for Nothing	16-year-old Gary bets his best friend he will be a millionaire by the end of the school holidays. Transformed into a businessman by a suit on credit, he arrives at an auction for an old h...	
My Father's Guests	80-year-old retired doctor Lucien has a big personality. He is and has always been a man of action, famous for his defense of women's rights and family planning. Nowadays, Lucien st...	
Ramchand Scott & Ro...	15-year-old orphan Brian Turner (De Witte) struggles to survive in the rural South in the 1910's. He arrives in a small town where crusty small-town newspaper editor Doyle Myles (...	
Satiyanam Vidyam	3 girls. Satiyanam is intense jealousy. Family life is up a three for Revenge. Grist: Ambar & Zoya are 3 innocent motherless sisters living with their father. Each one has her own...	
Soothing Surf Car...	8 hours for a full night's sleep. Let the rolling surf of the Pacific lull you to a deep slumber. Recorded on location at Carmel by The Sea, this ultra-dark sleep video helps reduce the blue...	
The Black List	11 tales of suspense and horror told from an African American perspective. From the mind of the award winning director/photographer Patrick A. Abrait.	
The Missouri Traveler	15-year-old orphan Brian Turner (De Witte) struggles to survive in the rural South in the 1910's. He arrives in a small town where crusty small-town newspaper editor Doyle Myles (...	
The Scar	14 years ago a child was kidnapped from Anya, who babysat the two-year-old son of rich Moscow relatives. But everything changes dramatically when Anya accidentally meets an a...	
Tranquil Lake Sound...	8 hours for sleep, featuring uninterrupted ultra dark video of serene Lake Davidson accompanied by natural sounds on location. This video helps create healthy sleep habits by reduc...	
Turned Out	3 best friends whom which are all having relationship issues. Diamond(lesbian) who is getting cheated on by her girlfriend is being shown interest by a persistent man (Jersey) who wi...	

- vi) a. Click on the Create new Dashboard button located at bottom left corner of Tableau Window.
 - b. Increase the width of the dashboard.
 - c. Select floating windows under objects in the dashboard.
 - d. Drag and drop all sheets and arrange them properly.

Data Visualization Lab (BAIL504)

