BHARATIYA VIDYA BHAVAN'S
SARDAR PATEL INSTITUTE OF TECHNOLOGY
Bhavan's Campus, Munshi Nagar, Andheri (West), Mumbai – 400093-India
(Autonomous College Affiliated to University of Mumbai)

Department of Computer Science and Engineering

Course – Advanced Data Visualization (ADV)

Name	Tejal Subhash Komb
UID	2021600037
Batch	A
Lab no	09

Aim :- Design Big Data Dashboards using Tableau on the dataset - Gender participation

Objectives :- 1) To Visualize Gender Distribution
2) To Analyze Salary Trends by Gender
3) To Track Gender Participation Over Time
4) To Departmental Analysis

Dataset :- The dataset contains various metrics related to gender participation in the workforce, including the number of employees by gender, average annual salaries, and departmental distribution. The data spans multiple years and includes specific metrics for different departments.

Dataset description :-

1. **Year:-** The year in which the data was recorded.
2. **Department:-** The department name.
3. **Gender:-** Gender of the employees (Male or Female).
4. **Number of Employees:-** The total number of employees for each gender.
5. **Average Salary (in Thousands):-** The average annual salary of employees, in thousands.
6. **Employee Status:-** Indicates whether the employee is active or not.
7. **Engagement in Activities:-** Participation in various activities (e.g., Academics, Sports).

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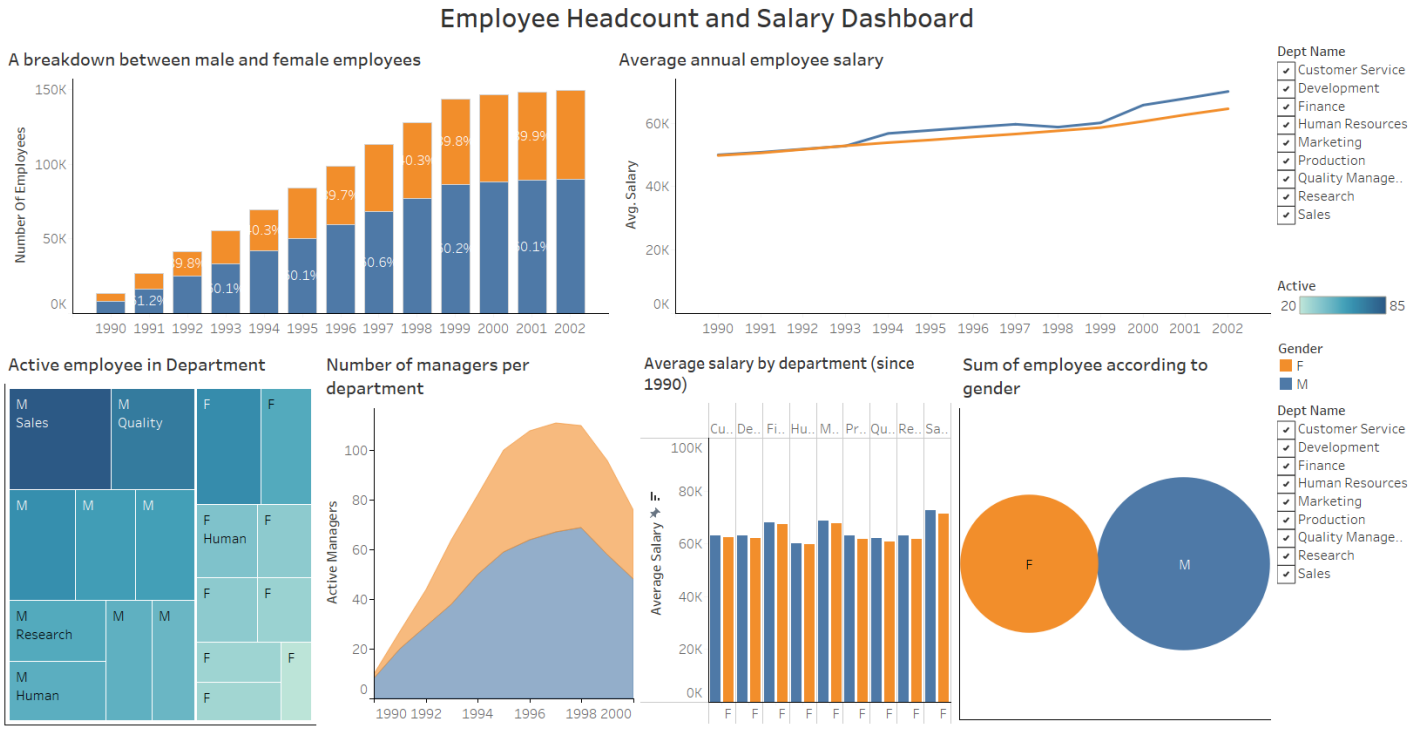
Implementation :- Implementation for Tableau Dashboard



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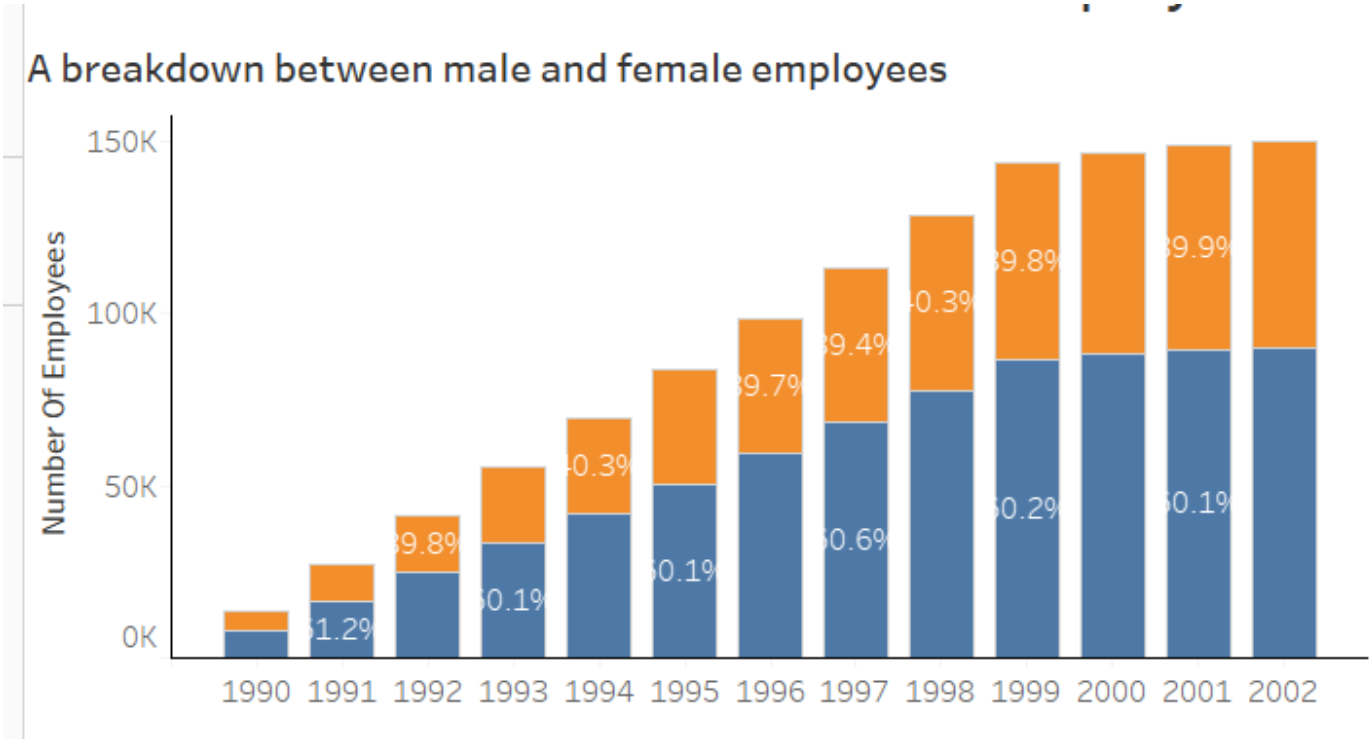
1] stacked bar chart ;- "A breakdown between male and female employees."

A stacked bar chart is a type of bar graph that shows data segmented into different categories. Each bar represents a total value and is divided into parts, each representing a category's contribution to that total. In this chart, the y-axis represents the **Number of Employees**, and the x-axis represents the **years** from 1990 to 2002. Each bar is divided into two segments: the blue segment represents **male employees**, and the orange segment represents **female employees**.

- **X-axis**: Years from 1990 to 2002.
- **Y-axis**: Number of Employees, ranging from 0K to 150K.
- **Bars**: Each bar shows the total number of employees for that year, segmented by gender (blue for male and orange for female)



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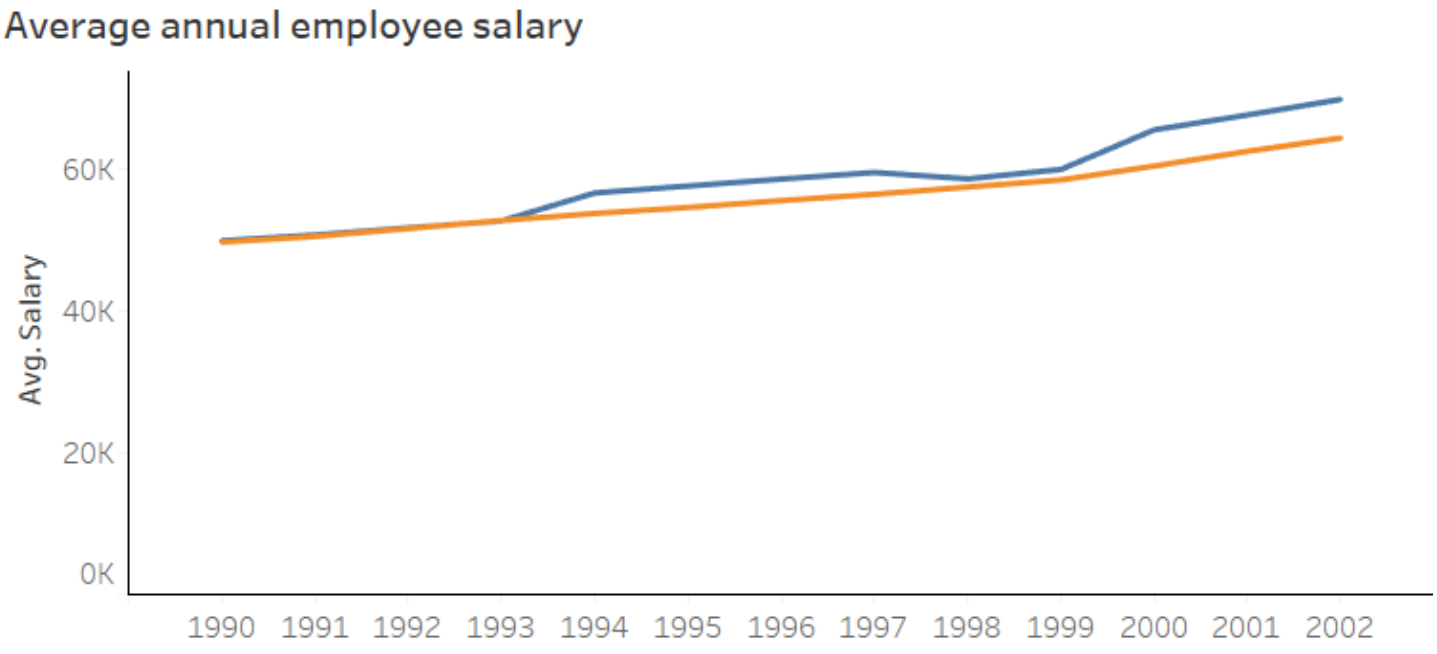
2] line graph :- "Average annual employee salary."

A line graph is a type of chart used to show information that changes over time. Each point on the line represents a value, and the points are connected by straight lines to highlight trends and changes over intervals. This specific line graph tracks the average annual employee salary over a span of years.

- **X-axis (Years)**: Represents the years from 1990 to 2002.
- **Y-axis (Average Salary in Thousands)**: Represents the average annual salary in thousands (K) of dollars, ranging from 0K to 60K.

The graph contains two lines:

- **Orange Line**: Shows a steady increase in average annual employee salary from 1990 to 2002.
- **Blue Line**: Shows a similar trend but with some fluctuations, indicating a slightly higher average annual employee salary compared to the orange line in most years.



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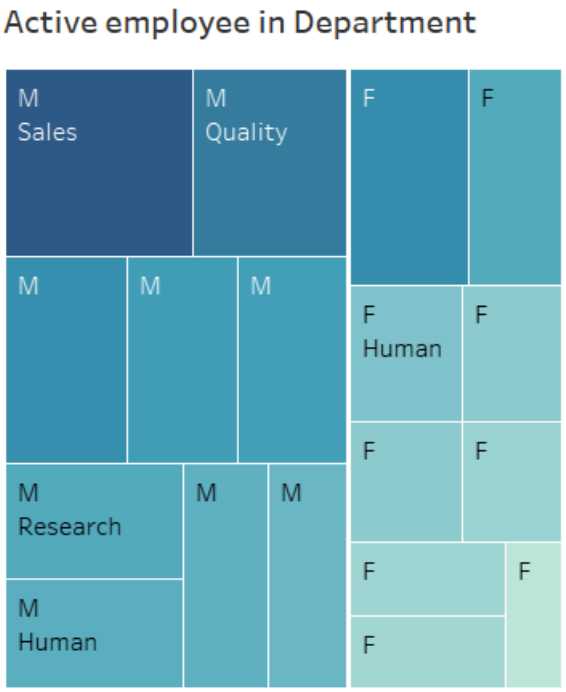
3] treemap plot:- "Active employee in Department."

A treemap is a visualization technique that displays hierarchical data using nested rectangles. Each rectangle represents a category (in this case, a department), and the size of the rectangle corresponds to the value of the data (the number of active employees). The plot categorizes the data by gender, with different colors or labels indicating male and female employees.

- **Rectangles**: Each rectangle represents a different department.
- **Size of Rectangles**: The size of each rectangle indicates the number of active employees in that department.
- **Labels**: The labels within the rectangles indicate the gender (M for male, F for female) and the department name.



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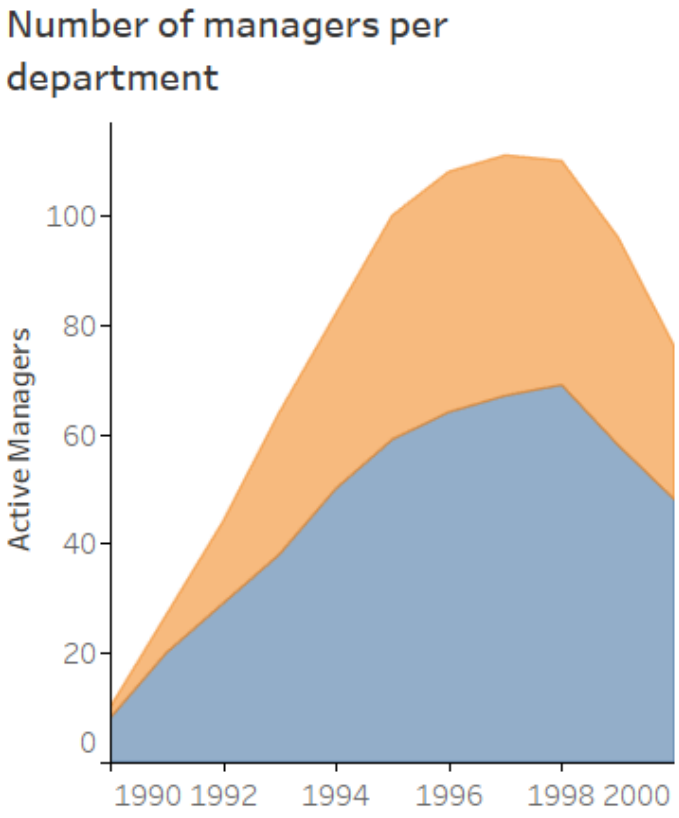
4] stacked area chart :- "Number of Managers per Department."

A stacked area chart is a type of graph that shows how different parts contribute to a whole over time. The areas are stacked on top of each other, so the total height of the areas shows the cumulative value of all the parts. The x-axis represents time, and the y-axis represents the value of the variables being plotted.

- **X-axis (Years)**: Represents the years from 1990 to 2000.
- **Y-axis (Number of Active Managers)**: Represents the number of active managers, ranging from 0 to 120.
- **Blue Area**: Represents the number of active managers in one department.
- **Orange Area**: Represents the number of active managers in another department, stacked on top of the blue area.



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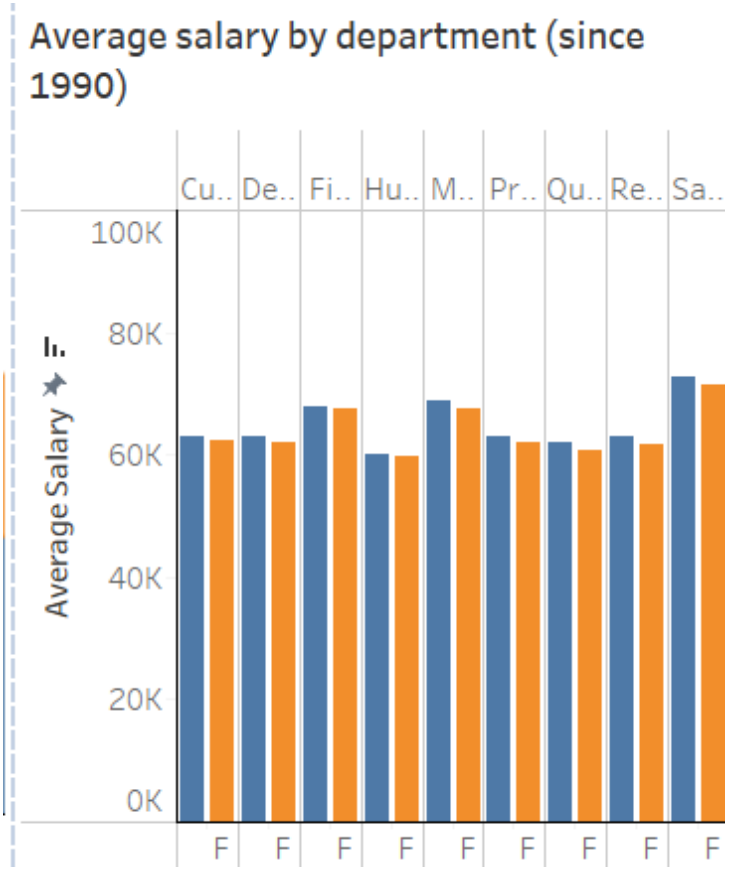
5] Bar chart :- **"Average salary by department (since 1990)."**

A bar chart is a graphical representation that uses rectangular bars to compare different categories of data. The length of each bar corresponds to the value it represents, making it easy to compare various data points at a glance.

- **X-axis (Departments)**: Represents various departments, abbreviated as Cu., De., Fi., Hu., M., Pr., Qu., Re., Sa.
- **Y-axis (Average Salary in Thousands)**: Represents the average salary in thousands of dollars, ranging from 0K to 100K.
- **Bars**: Each department has two bars, one in orange and one in blue, representing different categories (likely different time periods or groups, though the exact categories are not specified in the image).



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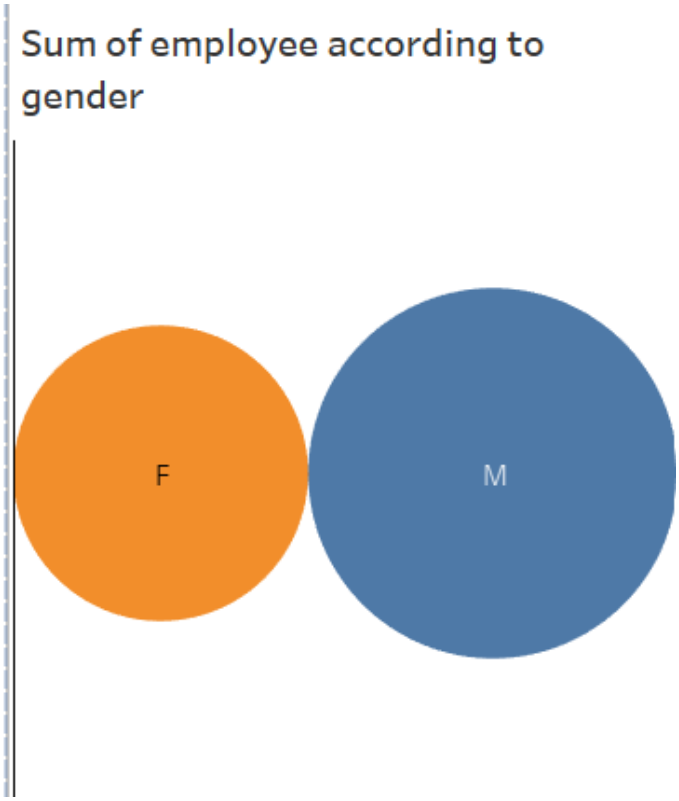
6] bubble chart :- **"Sum of employee according to gender."**

A bubble chart is a type of chart that displays three dimensions of data. Each point on the chart represents a data point, with the position determined by the first two dimensions and the size of the bubble representing the third dimension. In this bubble chart, the position of the bubbles is not specified, but their sizes correspond to the sum of employees for each gender.

- **Bubbles**: There are two bubbles in the chart:
  - **Blue Bubble (M)**: Represents male employees. The size of the blue bubble is larger, indicating a higher number of male employees.
  - **Orange Bubble (F)**: Represents female employees. The size of the orange bubble is smaller, indicating a lower number of female employees.



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Conclusion :- Creating Big Data Dashboards using Tableau on the gender participation dataset has provided significant insights into workforce dynamics. The visualizations highlight key trends and disparities in gender distribution, salary trends, and departmental participation over time. The data shows the evolution of gender representation, with a detailed analysis of how different departments compare in terms of male and female participation.