## Experiment 10

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**Aim:**
Design Big Data Dashboards using Tableau on the datasets - Education sector
- Basic - Bar chart, Pie chart, Histogram, Time line chart, Scatter plot, Bubble plot
- Advanced - Word chart, Box and whisker plot, Violin plot, Regression plot (linear and nonlinear), 3D chart, Jitter

**Objectives:**
● Learn the fundamentals of Tableau and its application in data visualization.
● Create various chart types (basic and advanced) to represent different aspects of women empowerment data.
● Understand the significance of each chart type in conveying insights.

**Dataset Description:**
Link:
https://data.opencity.in/dataset/pune-udise-2021-22/resource/e33af90a-30be-469f-b3f2-ecd7d04da53a?view_id%3D633ef673-e8db-427a-9e05-b8024f84c9c4

The dataset provided appears to be related to schools in India, capturing various attributes related to school infrastructure, management, student demographics, and educational facilities. Each row represents data for a single school, with columns detailing various characteristics. Here's a breakdown of what each column represents based on the values provided:
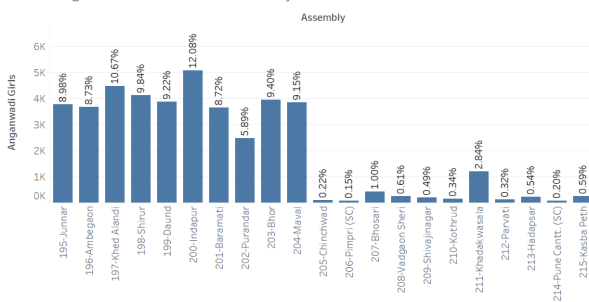
**Key Columns and Their Descriptions:**

1. **_id**: Unique identifier for the record (e.g., 8939554).
2. **psuedocode**: This could be a code representing the state or school but needs clarification (e.g., Maharashtra).
3. **state**: Name of the state (e.g., Maharashtra).
4. **district**: Name of the district (e.g., PUNE).
5. **rural_urban**: Indicates whether the school is in a rural (1) or urban (0) area (e.g., 1 for rural).
6. **assembly**: Name of the legislative assembly constituency (e.g., 198-Shirur).
7. **parliamentary**: Name of the parliamentary constituency (e.g., Shirur).

8. **lgd_urban_local_body_name**: Name of the urban local body (if applicable).
9. **lgd_ward_name**: Name of the local ward (if applicable).
10. **lgd_vill_name**: Name of the village where the school is located (e.g., `Golegaon`).
11. **lgd_vill_panchayat_name**: Name of the village panchayat (e.g., `GOLEGAON`).
12. **school_category**: Indicates the category of the school (e.g., `1` - could denote primary, secondary, etc.).
13. **school_type**: Type of school (e.g., `3` - could refer to government, private, etc.).
14. **lowclass**: Lowest grade/class offered by the school (e.g., `1` for Class 1).
15. **highclass**: Highest grade/class offered by the school (e.g., `4` for Class 4).
16. **managment**: Type of management or authority overseeing the school (e.g., `3` - could indicate government, private, etc.).
17. **pincode**: Postal code of the school location (e.g., `412210`).
18. **year_of_establishment**: Year the school was established (e.g., `1998`).
19. **year_of_recognition_pr**: Year the primary section was recognized (e.g., `1998`).
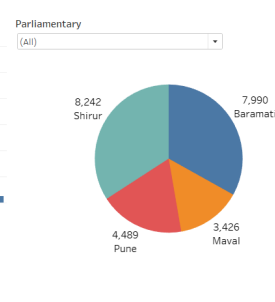20. **year_of_recognition_up**: Year the upper primary section was recognized (e.g., `0` indicating not recognized).
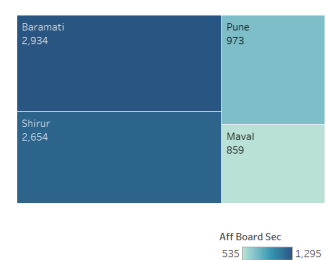
..and many other columns.

## Dashboard:



This dashboard offers an overview of Pune's education landscape, focusing on student enrollment, teacher hours, and infrastructure. Key insights highlight gender disparities in student

enrollment, with significant differences across assemblies, and most premises concentrated in Pune and Baramati. Teacher hours show fluctuations, indicating inconsistencies in workload, while a box plot reveals varying school accessibility across regions. The data suggests Pune has a well-established education system but needs targeted interventions to address gender disparities, teacher workload, and infrastructure accessibility. Further analysis can guide policymakers in improving educational outcomes and resource allocation in Pune.
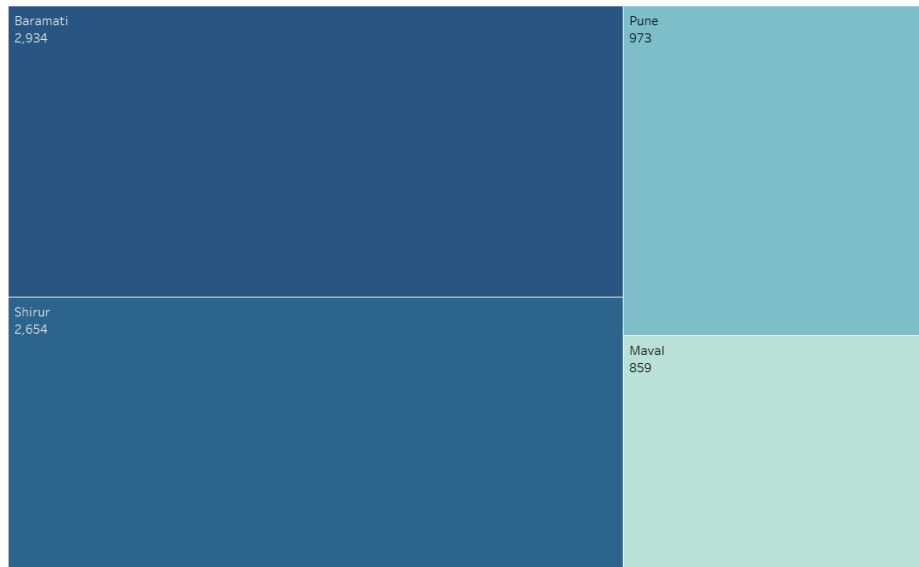
**Observations:**
1) **Pie chart:**
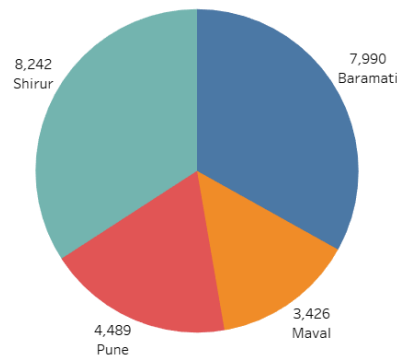


The pie chart shows the distribution across four different categories,regions or districts.
- The chart shows a clear difference in the distribution of the quantity across the four categories.
- Baramati and Shirur have the largest shares, while Pune and Maval have smaller shares.
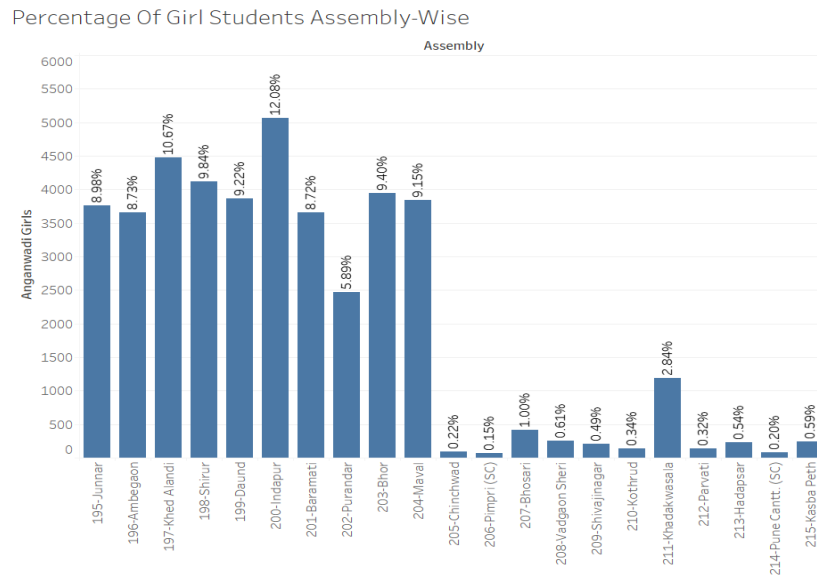
2) **Tree Map:**

This chart presents the "Count of Boy Students Parliamentary-Wise" for the Pune region.
- The chart shows a clear disparity in the number of boy students across different parliamentary constituencies in Pune.
- Baramati has the highest number of boy students, followed by Shirur, Pune, and Maval.

**3) Bar Graph:**



Percentage Of Girl Students Assembly-Wise

This bar chart presents the percentage of girl students in different assemblies of Pune
- There is a significant variation in the percentage of girl students across different assemblies.
- Most assemblies have a percentage of girl students between 8% and 12%.
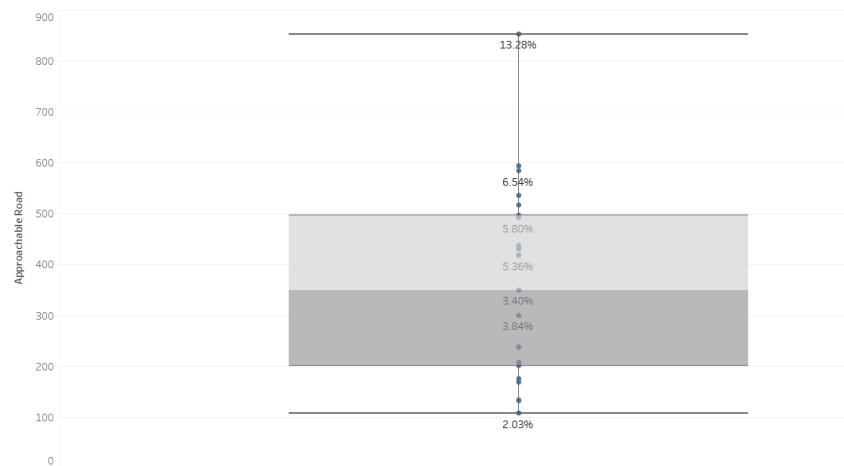
**4) Line Chart:**



Average School Hours Of Teachers Year-Wise
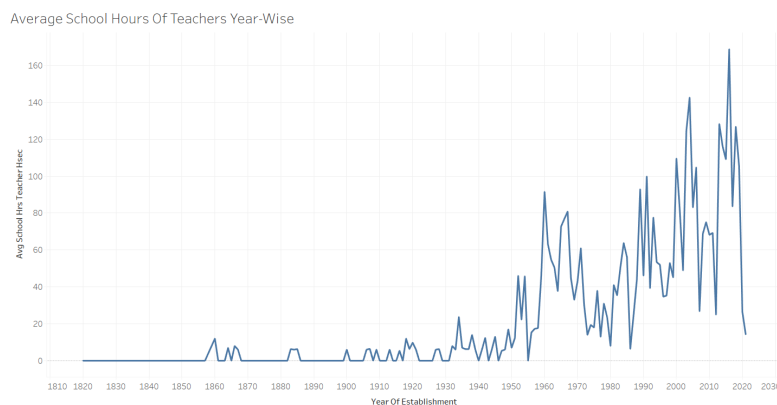
- The chart shows significant fluctuations in the average school hours of teachers over the years. There are periods of rapid increase and decrease.
- Overall, there seems to be an increasing trend in average school hours, particularly in recent years.

## 5) Box Plot:



Range Of Approachable Roads Assembly-Wise

This chart presents the "Range of Approachable Roads Assembly-Wise" in Pune

- The chart uses a box plot to visualize the distribution of approachable roads across different assemblies.
- The box plot shows the median, quartiles, and outliers for the data.
- The box shows that 50% of the assemblies have between 300-600 approachable roads (the interquartile range).

**Conclusion:** Through this lab,I have gained proficiency in using Tableau to create informative and visually appealing dashboards for women empowerment data. I have explored a variety of chart types and learned how to interpret the insights they provide.