

# **ADVANCED DATA VISUALIZATION**

## **EXPERIMENT 10**

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BATCH: I

**AIM:** Design Big Data Dashboard using Tableau on the dataset - Education Sector

**OBJECTIVES:**

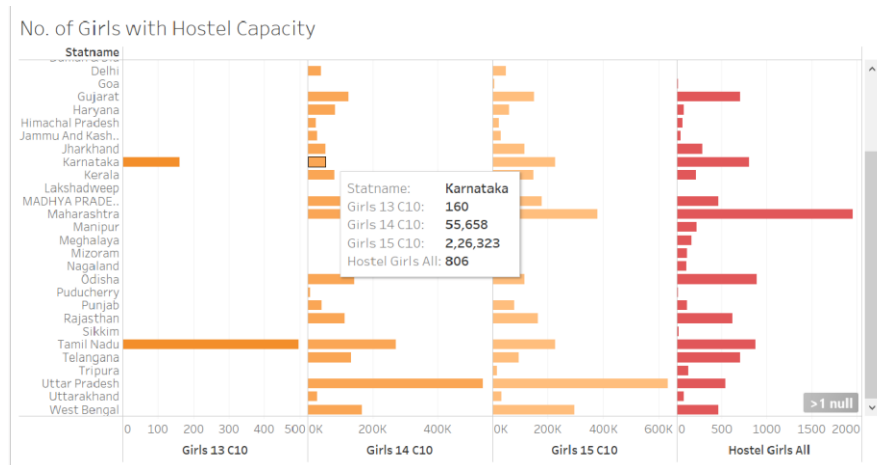
- Learn the fundamentals of Tableau and its application in data visualization.
- Create various chart types (basic and advanced) to represent different aspects of women empowerment data.
- Understand the significance of each chart type in conveying insights.
- Develop a comprehensive dashboard that integrates multiple visualizations for effective storytelling.

**DATASET:** The Education in India dataset provides comprehensive information on India's primary and secondary education landscape for 2015-16, including district and state-level data. It covers critical aspects such as dropout rates, factors impacting student performance, and literacy disparities, offering a foundation to explore educational challenges and regional variations across India.

Link: <https://www.kaggle.com/datasets/rajanand/education-in-india>

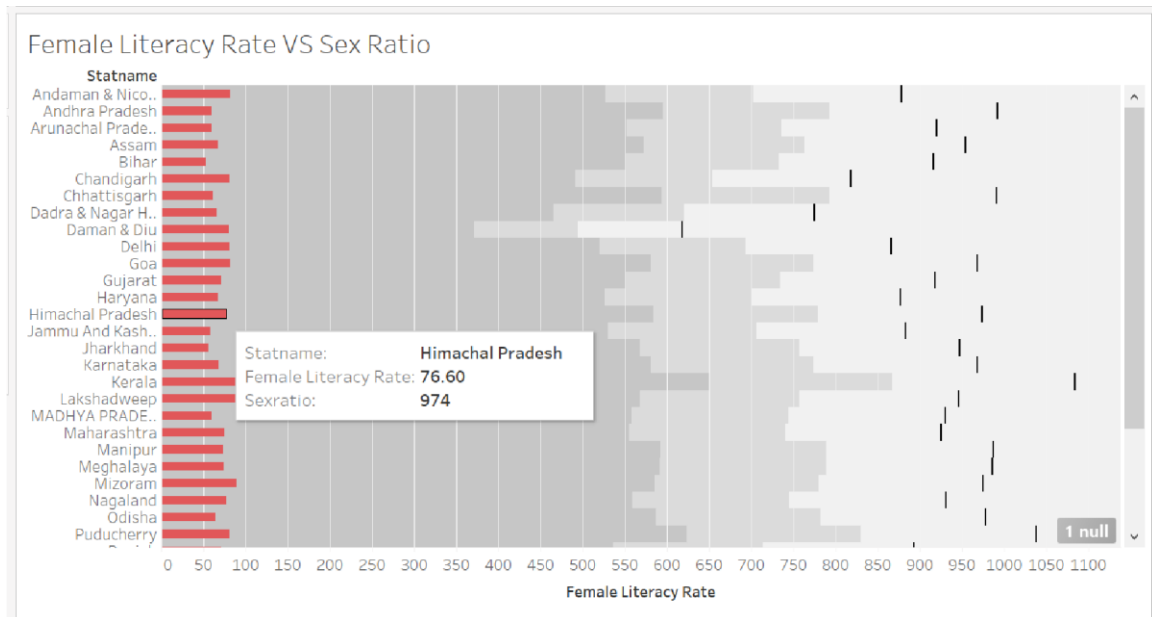
**DESCRIPTION WITH OUTPUT:**

1. **Analyzing the Female education data in Statewise Secondary schools using Horizontal Bar Graphs**

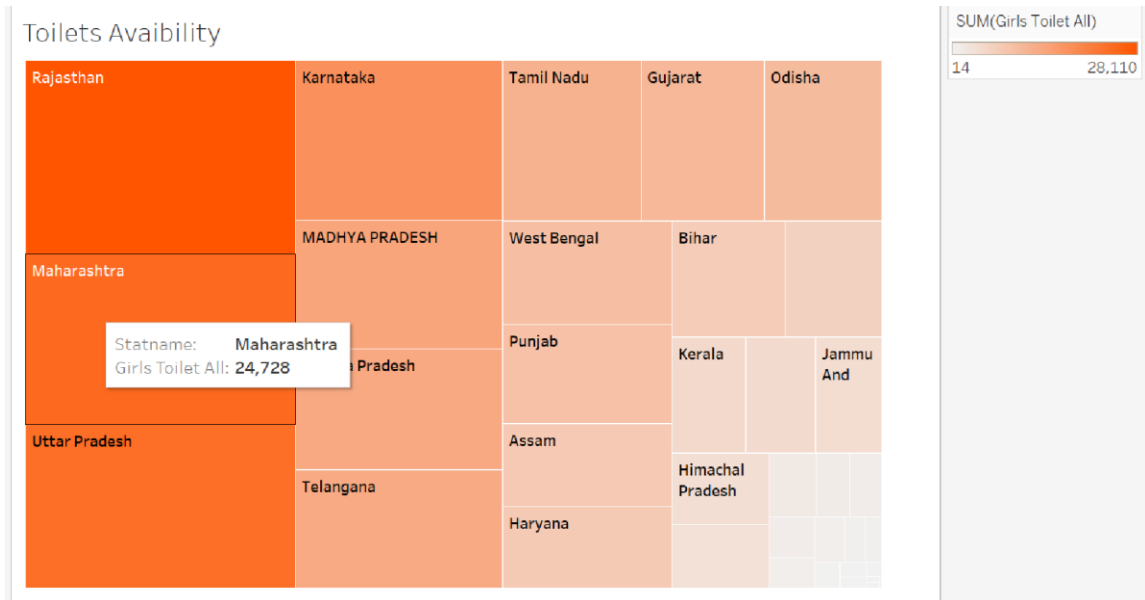


- Karnataka shows a significant increase in numbers across age groups, particularly from Girls 13 C10 (160 girls) to Girls 14 C10 (55,658 girls) to Girls 15 C10 (2,26,323 girls), demonstrating a dramatic expansion of hostel capacity as the age group increases. ● Maharashtra shows one of the highest numbers in "Hostel Girls All" category (approximately 2000), suggesting it has the largest overall hostel capacity among all states, while states like Goa and Sikkim show relatively lower numbers across all categories.
- There's considerable variation across states, with some states like Tamil Nadu and Uttar Pradesh showing consistently high numbers across different age groups, while others like Puducherry and Mizoram maintain relatively lower numbers throughout.

## 2. Bullet to visualize how female literacy rate is dependent on the sex ratio, that is the number of females in each state

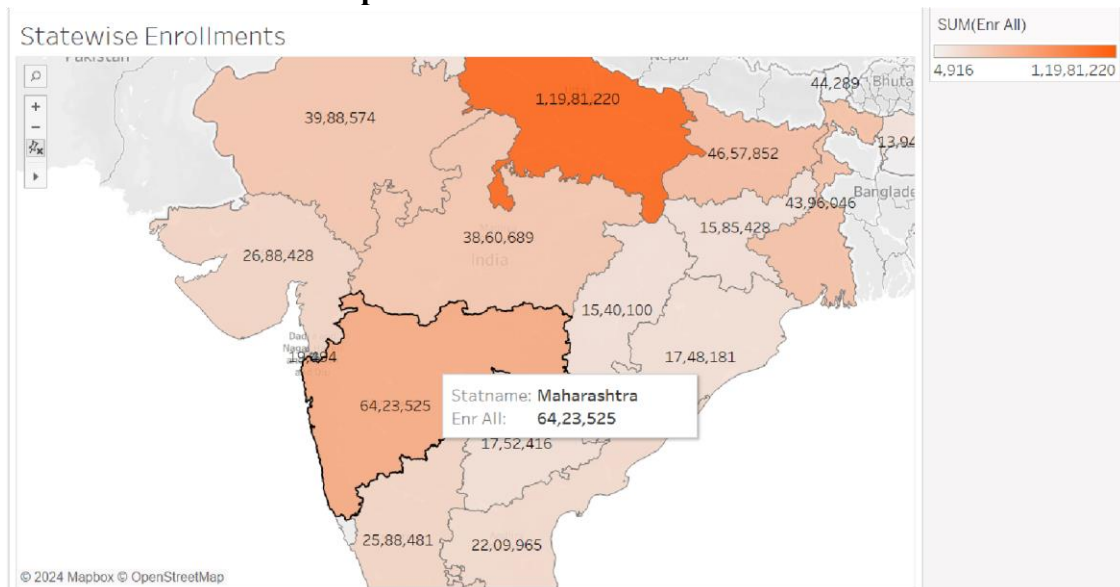


- Kerala stands out significantly, showing both a high female literacy rate (around 90-95%) and what appears to be one of the highest sex ratios among all states.
  - There's a wide disparity in female literacy rates across states, ranging from approximately 50% in some states to over 90% in others, while the data point for Himachal Pradesh shows a female literacy rate of 76.60% with a sex ratio of 974.
  - Most states seem to cluster in the middle range for female literacy (60-80%), suggesting this is the typical level of female education across India, though there are notable outliers on both ends of the spectrum.
3. **Treemap to identify states with a high and low proportion of girls' toilets relative to their population or area size.**



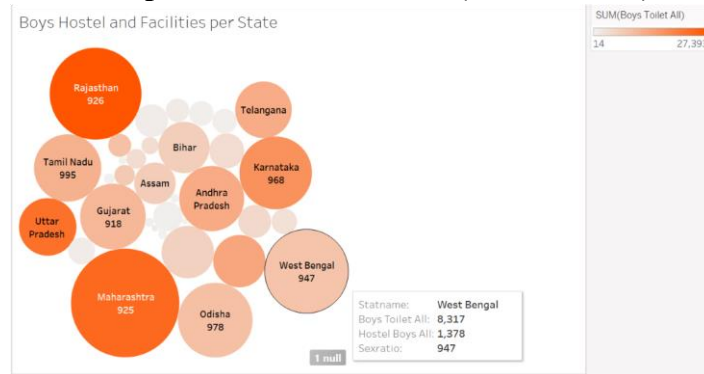
- Rajasthan, Maharashtra, and Uttar Pradesh have the largest blocks in the visualization (shown in darker orange), suggesting these states have the highest number of girls' toilets, with Maharashtra specifically showing 24,728 toilets.
- The visualization shows a clear disparity in toilet availability across states - while larger states have more facilities, some smaller states have comparatively fewer toilets.
- The total number of girls' toilets across all states shown is 242,740 (as indicated at the bottom of the visualization), with values ranging from 14 to 28,110 (shown in the color scale on the right).

#### 4. State Wise Enrollments map visualization of India



- The state with the highest enrollment appears to be Uttar Pradesh (shown in darkest orange), with approximately 1,19,81,220 students enrolled, showing a significant lead over other states.
- Maharashtra has 64,23,525 enrollments (as shown in the tooltip), placing it among the states with relatively high enrollment numbers in the country.

##### 5. Boys Hostel and Facilities per State visualization (bubble chart)



- Rajasthan (926), Maharashtra (925), and Karnataka (968) have some of the largest bubbles and darker orange colors, suggesting they have relatively high numbers of facilities for boys across their educational institutions.
- West Bengal, as shown in the tooltip, has 8,317 boys' toilets and 1,378 hostel facilities, with a sex ratio of 947, providing specific insight into the infrastructure available in that state.

DASHBOARD

