



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)

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Lab no	08

Aim :- To design interactive dashboards and create visual storytelling using D3.js on a dataset related to Environment cover, covering basic and advanced charts.

Objectives :-

1. To understand how to use D3.js for data visualization.
2. To implement basic charts like Bar chart, Pie chart, Histogram, Timeline chart, Scatter plot, and Bubble plot.
3. To implement advanced charts like Word chart, Box and whisker plot, Violin plot, Regression plot (linear and nonlinear), 3D chart, and Jitter.
4. To draw observations and insights from each chart.
5. To create an interactive storytelling dashboard using the above visualizations.

Dataset :-

	States/UT: 2010-2011	2009-10	2008-09
1 Andaman & Nicobar	0	7	1
2 Andhra Pradesh	1119	1837	2442
3 Arunachal Pradesh	485	576	786
4 Assam	1322	2511	1901
5 Bihar	81	397	143
6 Chandigarh	0	0	0
7 Chhattisgarh	1074	2835	2849
8 Dadra and Nagar Haveli	0	0	0
9 Daman and Diu	0	0	0
10 Delhi	1	0	0
11 Goa	3	0	2
12 Gujarat	101	179	182
13 Haryana	5	29	21
14 Himachal Pradesh	6	125	168
15 Jammu and Kashmir	7	30	117
16 Jharkhand	192	1314	430
17 Karnataka	370	428	604
18 Kerala	10	106	166
19 Lakshadweep	0	0	0
20 Madhya Pradesh	1451	2386	2894
21 Maharashtra	882	1789	2257
22 Manipur	1275	2487	1477
23 Meghalaya	879	1743	1010
24 Mizoram	1691	4675	3434



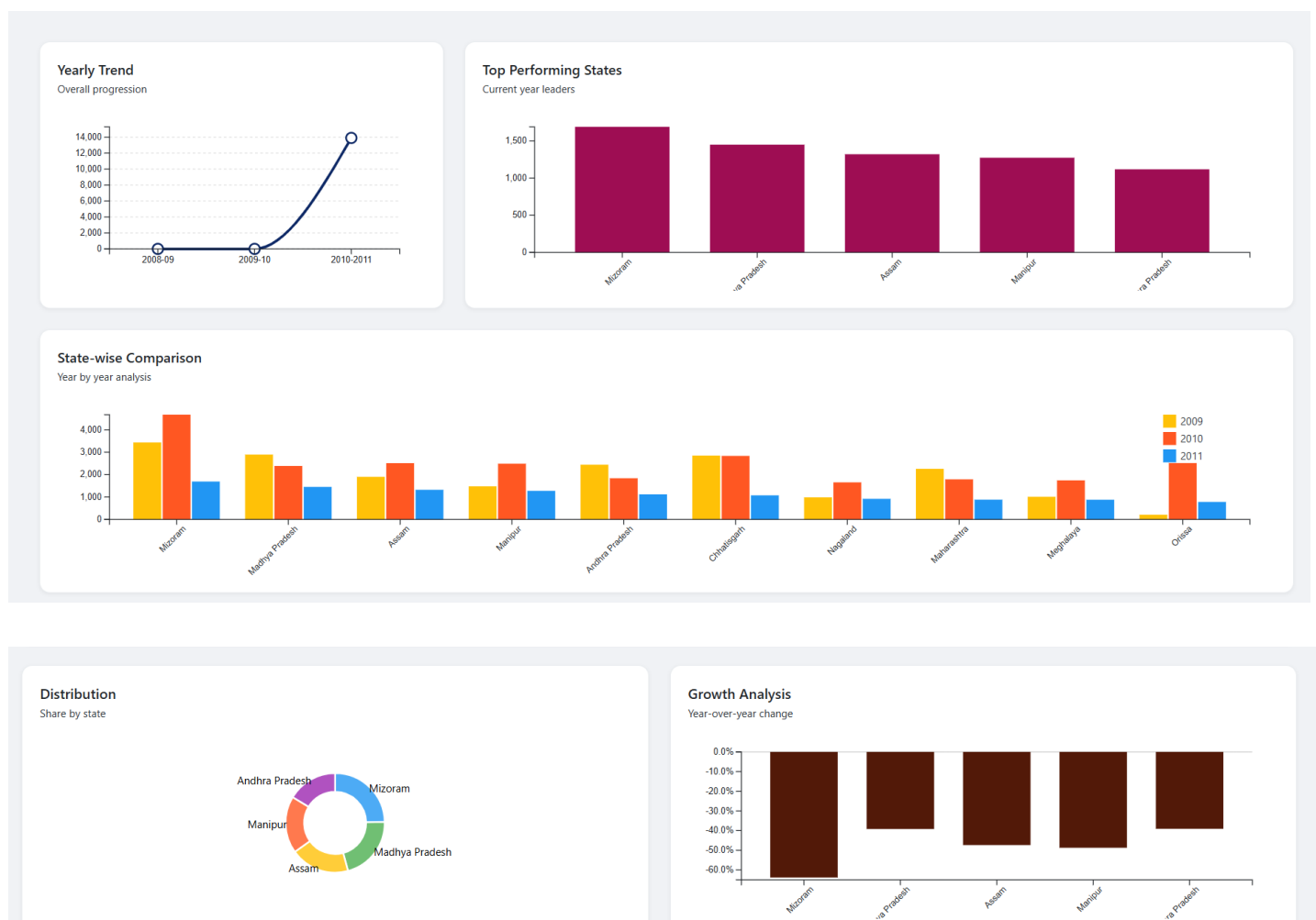
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Dataset description :-

The dataset represents the number of occurrences of a certain event or metric across various States and Union Territories (UTs) in India over three consecutive years: 2010-2011, 2009-2010, and 2008-2009.

Implementation :- D3.js Dashboard



1] **Yearly Trend (Overall progression):** This is a line graph showing the overall progression over the years 2007-2008, 2008-2009, 2009-2010, and 2010-2011.



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The x-axis represents the years, and the y-axis represents the values, which range from 0 to 14,000. The graph shows a significant increase in values from 2009-2010 to 2010-2011, indicating a notable upward trend in the data over the given period.

2] Top Performing States (Current year leaders): This is a bar chart showing the top-performing states for the current year.

The x-axis lists the states: California, Texas, New York, Florida, and Illinois. The y-axis represents the values, which range from 0 to 1,200. All the states have values close to 1,000, with California having the highest value, indicating that California is the leading state in the current year based on the measured metric.

3] State-wise Comparison (Year by year analysis): This is a grouped bar chart showing a year-by-year analysis for different states.

The x-axis lists the states: California, Texas, New York, Florida, Illinois, Ohio, Georgia, Pennsylvania, North Carolina, and Michigan. The y-axis represents the values, which range from 0 to 3,000. Each state has three bars representing the years 2009 (yellow), 2010 (red), and 2011 (blue). The chart shows the comparison of values for each state across these three years, providing a clear visual comparison of how the metric has changed over time for each state.

4] Distribution Plot (Share by state):

- **Type:** Circular pie chart
- **Description:** This pie chart shows the distribution of shares by state.
- **States Included:**
 - Andhra Pradesh
 - Mizoram
 - Manipur
 - Assam
 - Madhya Pradesh

Each state is represented by a different color segment of the pie chart, illustrating their respective shares. This visualization provides a clear comparison of the proportional shares among the listed states.

5] Growth Analysis Plot (Year-over-year change):

- **Type:** Bar chart
- **Description:** This bar chart displays the year-over-year change in growth for different states.
- **States Included:**
 - Manipur
 - Arunachal
 - Assam
 - Nagaland



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- Mizoram

All the bars are colored brown and show negative growth, indicating a decline in year-over-year change for each state. This chart highlights the decrease in growth across these states over the specified period.

Conclusion :- The data visualizations highlight key insights. The demonstrates how shares are divided among five states, showcasing Andhra Pradesh, Mizoram, Manipur, Assam, and Madhya Pradesh's contributions. The reveals a uniform trend of negative growth across states like Manipur, Arunachal, Assam, Nagaland, and Mizoram, indicating a consistent decline in their year-over-year metrics. Overall, these visualizations stress the need to address the negative growth trends while recognizing the current share distribution among states.