

# Advanced data visualization

## Experiment-9

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### Aim:

Design Big Data Dashboard using Tableau on dataset -Women empowerment / Gender participation

### Dataset:

1. **ID** - Unique identifier for each respondent in the dataset.
2. **Gender Groups Y/N** - Indicates if the respondent is part of a gender-based group (Yes/No).
3. **Race Groups Y/N** - Indicates if the respondent is part of a race-based group (Yes/No).
4. **Gender Comps Y/N** - Indicates if the respondent has made gender-based comparisons (Yes/No).
5. **Race Comps Y/N** - Indicates if the respondent has made race-based comparisons (Yes/No).
6. **Empowerment Sent** - Captures the respondent's sentiment on empowerment (e.g., negative, neutral, positive).
7. **Gender Group Sent** - Sentiment regarding the respondent's experience with gender groups.
8. **Race Group Sent** - Sentiment regarding the respondent's experience with race groups.
9. **Gender Comp Sent** - Sentiment toward gender-based comparisons.
10. **Race Comp Sent** - Sentiment toward race-based comparisons.
11. **Improvement Sent** - Sentiment on areas for improvement.
12. **Age** - Age group of the respondent (e.g., 18-24, 25-34).
13. **Occupation/Title** - Job title or occupation of the respondent.
14. **Are you a current student?** - Indicates if the respondent is currently a student (Yes/No).
15. **Gender** - Gender of the respondent (e.g., Female, Male).
16. **Education** - Highest level of education completed by the respondent.
17. **School** - Name of the educational institution attended by the respondent.
18. **Cluster** - Cluster label representing grouping based on specific characteristics.

## Analysis and description of the charts/dashboard



### 1. Pie Chart - Age

- **Description:** This pie chart visualizes the age distribution of respondents, with color coding for each age group: 18-24, 25-34, 35-44, and 45-54.
- **Analysis:** The chart shows that the majority of respondents fall within a certain age range. If the largest segment is, for instance, the 25-34 age group, this could suggest that younger adults are more engaged in discussions related to female empowerment or were more represented in the dataset. This age distribution insight is crucial because sentiment on empowerment topics could vary significantly by age.

### 2. Bar Chart - Empowerment Sent

- **Description:** This bar chart shows the count of respondents grouped by different empowerment sentiments: negative, neutral, positive, and "n/a" (not available).
- **Analysis:** The chart reveals the general sentiment toward empowerment within the dataset. A high count in the "negative" category, for instance, could suggest that respondents have significant concerns about empowerment issues. Conversely, a larger "positive" sentiment would indicate a more optimistic view. The "n/a" category may represent respondents who did not provide sentiment feedback or whose sentiment could not be determined, which could be useful to exclude in further analysis if focusing on sentiment only.

### 3. Horizontal Bar Chart by Gender - Empowerment Sent

- **Description:** This horizontal bar chart breaks down empowerment sentiment by gender, with sentiments represented by different colors: negative, neutral, and positive.
- **Analysis:** This chart provides a gendered perspective on empowerment sentiment. If females predominantly express negative sentiment, it may indicate specific gender-based concerns related to empowerment that need addressing. On the other hand, a more balanced sentiment across genders would suggest shared views on empowerment issues. The visualization helps in understanding whether gender plays a role in differing empowerment perspectives.

### 4. Stacked Bar Chart - Gender Group Sent and Race Group Sent

- **Description:** This stacked bar chart compares gender group sentiment with race group sentiment across categories like negative, neutral, and positive.
- **Analysis:** This visualization allows for a side-by-side comparison of how gender and race groups perceive empowerment topics. If the majority sentiment is negative for both, it might suggest that issues of empowerment intersect across both gender and race. Differences between the two, such as a more positive sentiment in one group over the other, could highlight unique challenges or perceptions within these categories. This insight could inform targeted empowerment initiatives for specific groups.

### 5. Bubble Chart - Cluster Comparison

- **Description:** This bubble chart visualizes clusters based on age and gender, with the size of each bubble representing the number of respondents or other metrics, and different colors representing age groups.
- **Analysis:** Clustering allows for the identification of respondent segments with similar demographic or sentiment characteristics. For example, a large cluster of younger female respondents with similar sentiments would suggest that particular concerns or views are concentrated within this demographic. The bubble sizes give a sense of the cluster density, indicating which groups are most prevalent. This chart is useful for segmenting the dataset into meaningful groups that may require different empowerment strategies.

### 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. The skills acquired in this lab can be applied to various data visualization tasks and contribute to effective decision-making.