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**Batch: D**

**Class: CSE(AI & ML)**

## **EXPERIMENT NO: 10**

### **Design Big Data Dashboards using Tableau on Education Sector Dataset**

#### **1. Aim:**

To design interactive Big Data dashboards in Tableau using datasets from the Education sector, focusing on enrollment rates, academic performance, funding, and demographics, among other factors. This project aims to reveal insights on trends, disparities, and key metrics in education.

#### **2. Objectives:**

1. Create basic and advanced charts in Tableau to visualize data relevant to the Education sector.
2. Develop dashboards that convey meaningful insights on various education metrics.
3. Derive observations and trends from each visualization to understand the educational landscape better.
4. Document findings for each visualization and provide a basis for future research or recommendations.

#### **3. Theory:**

Big Data visualization using Tableau provides a powerful way to gain insights into extensive datasets. In this lab, we explore how to use Tableau to visualize gender-based data effectively.

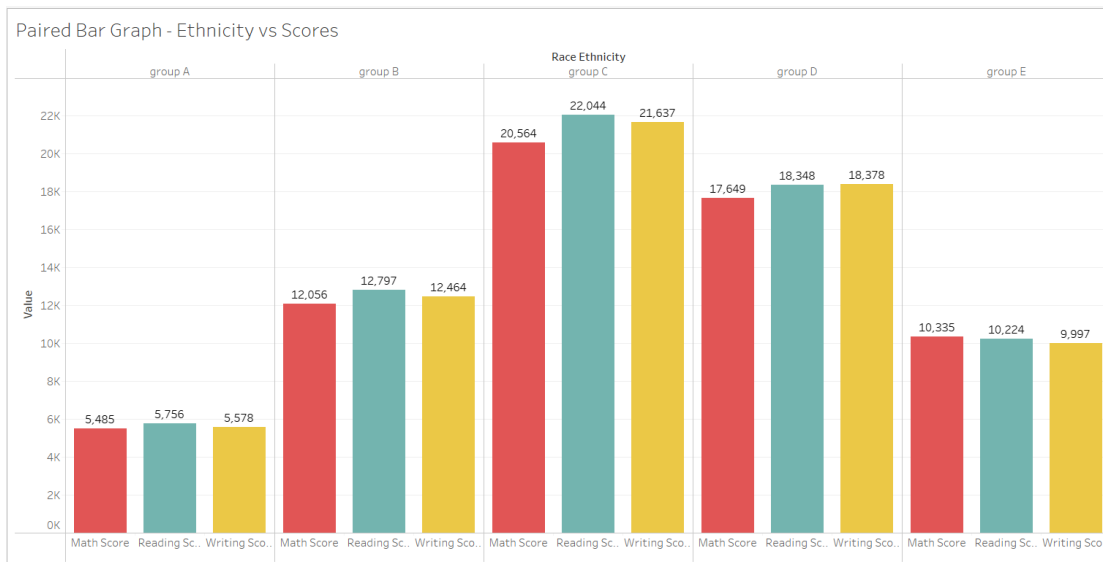
Each chart has a specific use:

1. Bar and Pie charts are effective for categorical comparisons.
2. Histograms help understand data distributions.
3. Timeline and Scatter plots show trends over time and relationships between variables.

4. Bubble plots add another dimension to scatter plots, useful for displaying data points with varying magnitudes.
5. Box and Whisker, Violin plots display statistical distributions.
6. Regression plots analyze relationships between variables.
7. 3D charts provide a multi-dimensional view.
8. Jitter plots prevent overplotting by slightly shifting data points.

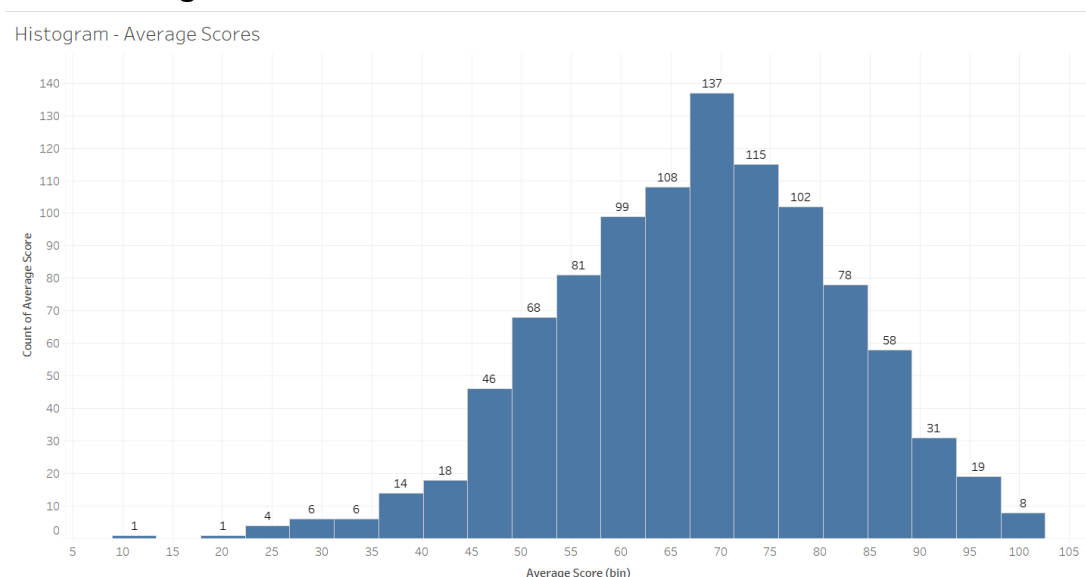
#### 4. Tableau visualization:

##### 1. Paired Bar Graph:



**Reading, Writing and Math Scores Based on Ethnicity - Group C scores the most and Group A scores the least.**

##### 2. Histogram:



Spread of Average Score calculated on test scores - Most of the students Scored an average test score between 60 to 70

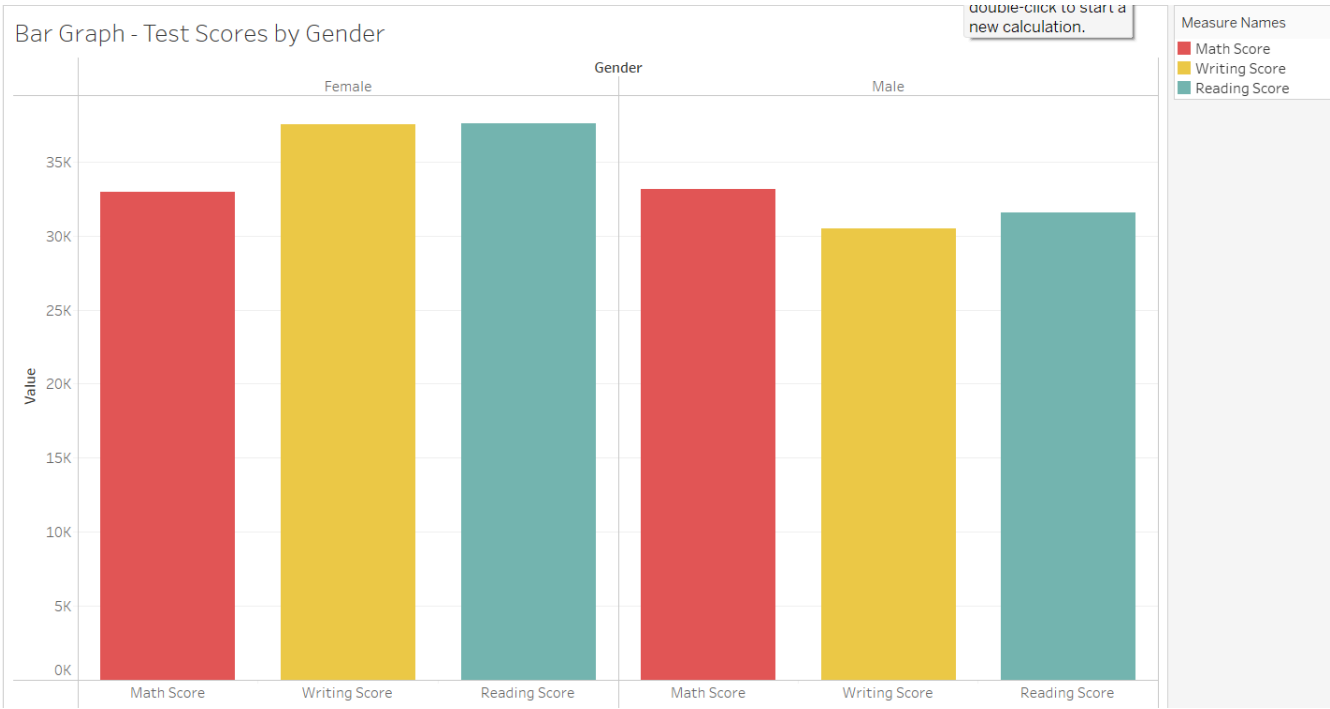
3. Word Chart:

Word Chart - Avg Score by Parental level of education



Word Chart of Parental Education Level by Average Scores - Parent's graduated from some college and associate degree have their kids score better.

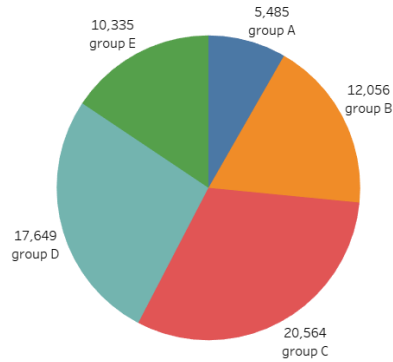
4. Bar chart:



**Bar chart of test scores by Gender - Female tend to score more in writing and reading exams but males score more in math exam.**

## 5. Pie Chart:

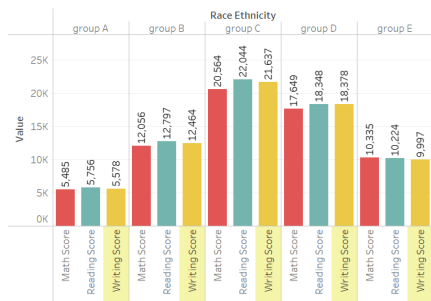
Pie Chart - Math Scores by Race



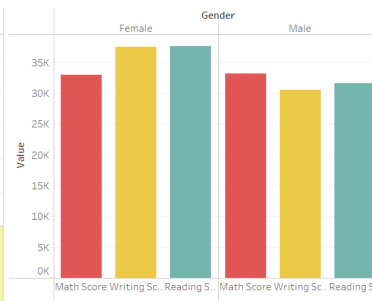
**Pie Chart of Math score by Race - Group C has the most overall math score and Group A has the least.**

## 6. Dashboard:

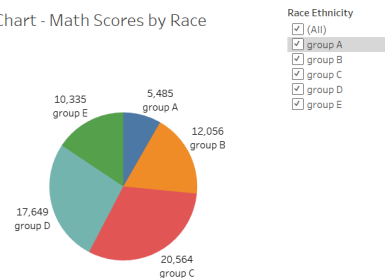
Paired Bar Graph - Ethnicity vs Scores



Bar Graph - Test Scores by Gender



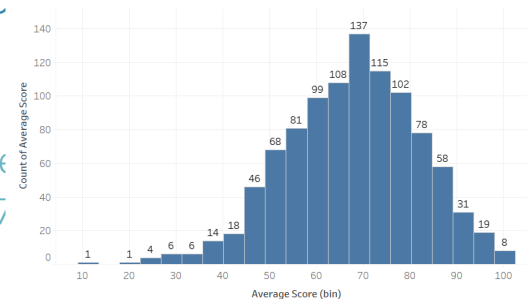
Pie Chart - Math Scores by Race



Word Chart - Avg Score by Parental level of education



Histogram - Average Scores



**Interactive Dashboard based on Ethnicity, can be used to filter out based on Ethnicity.**