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Dept & Batch	COMPS (D)
Experiment No.	10

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

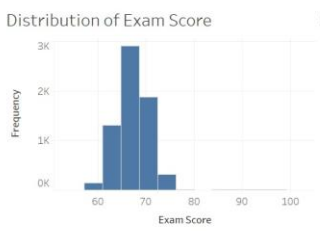
Attribute	Description
Hours_Studied	Number of hours spent studying per week.
Attendance	Percentage of classes attended.
Parental_Involvement	Level of parental involvement in the student's education (Low, Medium, High).
Access_to_Resources	Availability of educational resources (Low, Medium, High).
Extracurricular_Activities	Participation in extracurricular activities (Yes, No).

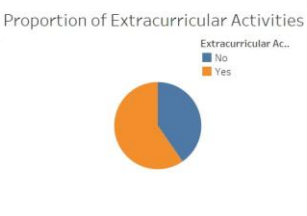
	Sleep_Hours	Average number of hours of sleep per night.
	Previous_Scores	Scores from previous exams.
	Motivation_Level	Student's level of motivation (Low, Medium, High).
	Internet_Access	Availability of internet access (Yes, No).
	Tutoring_Sessions	Number of tutoring sessions attended per month.
	Family_Income	Family income level (Low, Medium, High).
	Teacher_Quality	Quality of the teachers (Low, Medium, High).
	School_Type	Type of school attended (Public, Private).
	Peer_Influence	Influence of peers on academic performance (Positive, Neutral, Negative).

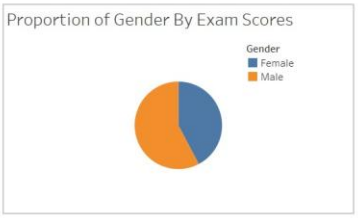
Physical_Activity	Average number of hours of physical activity per week.
Learning_Disabilities	Presence of learning disabilities (Yes, No).
Parental_Education_Level	Highest education level of parents (High School, College, Postgraduate).
Distance_from_Home	Distance from home to school (Near, Moderate, Far).
Gender	Gender of the student (Male, Female).
Exam_Score	Final exam score.

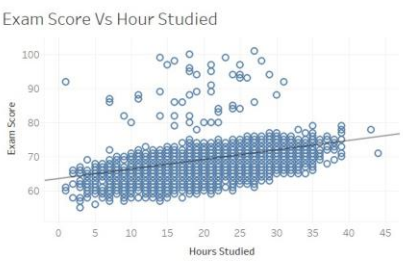
Link: https://www.kaggle.com/datasets/lainguyn123/student-performance-factors/data

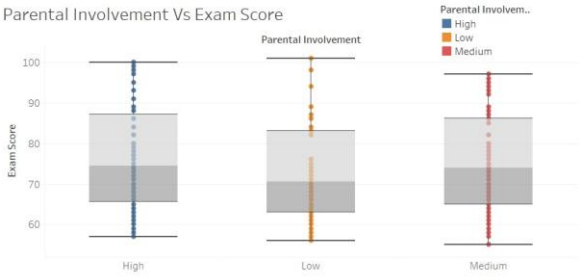
Charts/ Dashboard:











Distribution of Exam Score

- **Type of Plot**: Histogram
- **Observations**:
  - Most students scored between 60 and 75, with a peak around the 70 mark.
  - Few students scored below 60 or above 80, indicating that extreme scores are uncommon.
  - This distribution suggests that exam scores are relatively consistent, with most students clustered around the average.

Proportion of Extracurricular Activities

- **Type of Plot**: Pie Chart
- **Observations**:
  - A larger portion of students participate in extracurricular activities than those who do not.
  - This could imply a positive trend in students engaging in activities outside academics, which may impact their overall development.
  - The balance suggests that the majority of students manage

academics alongside extracurricular commitments.

Proportion of Gender by Exam Scores

- **Type of Plot**: Pie Chart
- **Observations**:
  - A higher percentage of females are represented in the exam scores than males.
  - This could indicate that more females are taking the exams or performing at this level.
  - It may reflect gender-based enrollment trends or differences in academic performance within this dataset.

Exam Score vs. Hours Studied

- **Type of Plot**: Scatter Plot with Regression Line
- **Observations**:
  - There is a slight positive correlation between hours studied and exam score, as shown by the upward trend in the regression line.
  - However, there is a high variance in scores for each study hour amount, indicating that some students score high even with fewer study hours, while others study more but do not score as high.
  - This suggests that while study hours can impact performance, other factors (like study quality, personal ability, or external support) also play a significant role.

Parental Involvement vs. Exam Score

- **Type of Plot**: Box Plot
- **Observations**:
  - Students with high parental involvement tend to have higher median exam scores, with a broader range of scores observed.
  - The median exam scores for students with low and medium parental involvement are lower compared to those with high involvement.

	○ This pattern suggests that higher parental involvement may positively impact students' academic performance, but there are outliers in each category. ○ The range for high parental involvement shows a wider spread, indicating that while some high-involvement students excel, there is still variability in performance.
CONCLUSION	In conclusion, this Big Data Dashboard on the "Education Sector" provides a comprehensive overview of key education metrics, such as average exam scores, participation in extracurricular activities, parental involvement, and gender distribution. The dashboard emphasizes a positive correlation between parental involvement, study hours, and academic performance, highlighting areas where additional support and resources could boost student success. By tracking these metrics over time, the dashboard helps identify where targeted interventions in study support, extracurricular opportunities, and family engagement could have the most impact, supporting global efforts to improve educational outcomes and equity.