Student Performance Factors Report

Introduction:

This dataset consists of 6,607 records, each representing an individual student's profile and various factors influencing their academic performance. It includes 20 features, capturing details about the student's academic habits(e.g., hours studied, attendance), personal lifestyle factors (e.g., sleep hours, physical activity), and socio-economic context (e.g., family income, parental education level). Additionally, the dataset covers access to resources such as the internet, participation in extracurricular activities, and parental involvement, which are critical for learning support.

Internship Milestones:

Milestone 1 Pipeline:
- Understanding the Financial Data
- Creating Basic Visualizations

DAX:

Data Analysis Expressions, is a formula language used in Power BI, Power Pivot, and SQL Server Analysis Services (SSAS) to create custom calculations and aggregations. It's essential for creating sophisticated data models and generating insightful visualizations in Power BI. DAX functions are similar to Excel formulas but tailored to work with relational data models and perform dynamic calculations.

DAX Functions I have used:

1. Avg_Score_LearningDisabilities:

```
Avg_Score_LearningDisabilities =
   AVERAGEX(
     SUMMARIZE('StudentPerformanceFactors', 'StudentPerformanceFactors'[Learning_Disabilities], "AvgScore",
AVERAGE('StudentPerformanceFactors'[Exam_Score])),
     [AvgScore] )
```

This DAX measure calculates the average exam score for each group of students(with or without learning disabilities.

2. Avg_StudyHours_By_Motivation:

```
Avg_StudyHours_By_Motivation = AVERAGEX(FILTER('StudentPerformanceFactors',
'StudentPerformanceFactors'[Motivation_Level]), 'StudentPerformanceFactors'[Hours_Studied])
```

This measure provides the average no. of hours studied by students with any specified motivation level in the motivation_level column.

3. High_Attendence:

High_Attendence = COUNTROWS(FILTER(StudentPerformanceFactors, StudentPerformanceFactors[Attendance] > 90))

It provides the total no. of students with an attendance rate above 90%.

4. Income_Availability:

Income_Availability = IF(ISBLANK(StudentPerformanceFactors[Family_Income]), "Missing", "Available")

It shows that "Missing" if the family_income field is blank, "Available" if the family_income field is present.

5. Median_Exam_Score:

Median_Exam_Score = MEDIAN('StudentPerformanceFactors'[Exam_Score])

It provides the median of all values in the Exam_Score column, representing the middle exam score.

6. PassOrFail:

PassOrFail = IF([Exam_Score] >=65, "Pass", "Fail")

It shows that if the Exam_Score is greater than or equal to 65, the student is Pass otherwise the student is fail.

7. Student_segment:

Student_segment = CONCATENATE([Gender], "-" &[School_Type])

Creating a combined identifier that shows both Gender and School_type, which can help in grouping or segmenting data.

8. Total_Score:

Total_Score = SUMX(StudentPerformanceFactors, [Previous_Scores] * [Hours_Studied])

It provides the sum of all calculated products of Previous_Score and Hours_Studied for each student.

STUDENT PERFORMANCE FACTORS

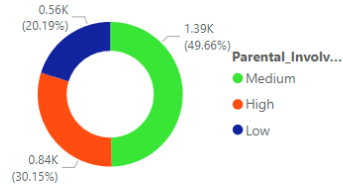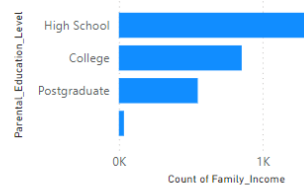| Sum of Attendance	Sum of Exam_Score	Sum of Hours_Studied	Sum of Previous_Scores
223K	**188K**	**56K**	**210K**

Count of PassOrFail by Parental_Involvement

0.56K (20.19%)
1.39K (49.66%)
0.84K (30.15%)

Parental_Involv...
- ● Medium
- ● High
- ● Low

Count of Family_Income by Parental_Education_Level

Parental_Education_Level
- High School
- College
- Postgraduate

0K — 1K
Count of Family_Income

Sum of Physical_Activity by Extracurricular_Activities

5K
4K
3K
Yes — No
Extracurricular_Activities
Sum of Physical_Activity
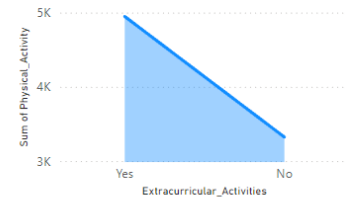
Gender
- Female
- Male

Count of Motivation_Level

2793
0 — 5586
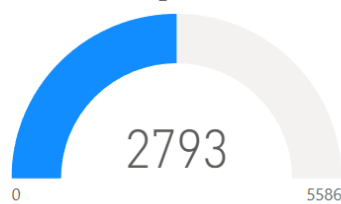
Sum of Total_Score by PassOrFail

Pass — Fail

Count of School_Type by High_Attendence, Extracurricular_Activities and Gender

Gender ● Female

100%
50%
0%
Yes — No
Extracurricular_Activities
1590
Count of School_Type
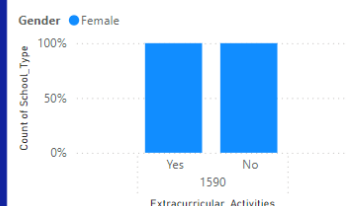
CONCLUSION:

This dataset provides a comprehensive view of the multifaceted factors that can impact student performance. By examining a range of academic, personal, and socio-economic variables alongside each student's exam score, we gain insights into the potential influences on academic achievement. Patterns emerging from factors such as study habits, parental involvement, and access to resources can help educators, policymakers, and researchers identify areas for targeted interventions. This data can be pivotal in crafting strategies to support students more effectively, addressing areas like motivation, resource accessibility, and overall well-being to foster improved academic outcomes.