MINI PROJECT

PROJECT TITLE

“Students Exams Scores ”

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Introduction

The mini project titled “Students Data Analysis using Power BI” aims to transform raw academic data into meaningful insights that help in understanding student performance, attendance trends, and overall progress. With the increasing importance of data-driven decision-making in the education sector, this project utilizes Microsoft Power BI, a powerful business intelligence tool, to visualize and analysis student-related data efficiently.

The project demonstrates how data can be cleaned, transformed, and model using Power BI’s Power Query and Data Analysis Expressions (DAX). Various interactive visuals are designed to represent patterns such as subject-wise marks distribution, overall academic performance, and attendance percentage. These visual insights help educators, administrators, and stakeholders make informed decisions for improving academic outcomes.

Through this mini project, key skills like data cleaning, dashboard design, and data storytelling are showcased. The project also highlights the use of modern BI techniques to simplify complex datasets and present them in a clear, interactive, and visually engaging format.

Data Description

- The dataset contains 6 Columns and 200 Rows.
- The dataset used in this project was “ Students Exam Scores **”.** The data is structured in a tabular format with each Columns & rows representing a record.
- Key fields included in the dataset are:
  1. Student_id
  2. Studied_Hours
  3. Sleep_hours
  4. Attedance_Percent
  5. Previous_Score
  6. Exam_Score

Data Cleaning & Preparation

1. Importing Dataset
2. Removing Duplicates & Blank - Columns & Rows
3. Data Type Correction
4. Column Formatting & Renaming
5. Handling Missing
6. Created Calculated Columns
7. Creating Visuals

Dashboard Design

Visual Type	Field Used	Purpose / Insight Generated
KPI Cards	Total Students, Avg Attendance, Pass %, Avg Marks	To show key metrics at a glance.
Clustered Column Chart	Department vs Average Marks	To compare academic performance across departments.
Donut Chart	Gender vs Student Count	To show gender-wise distribution of students.
Bar Chart	Grade vs Number of Students	To visualize grade distribution and academic outcomes.
Line Chart	Attendance (%) vs Total Marks	To identify correlation between attendance and marks.
Table / Matrix	Student Name, Department, Marks, Grade, Result	To provide a detailed view of individual performance.
Slicers / Filters	Department, Gender, Result	To enable interactive filtering of the dashboard.

Analysis & Insights

After designing and visualizing the dataset in Power BI, several meaningful insights were derived from the analysis of student performance, attendance, and results. The dashboard enabled a deeper understanding of how academic outcomes are influenced by various factors such as department, attendance percentage.

1. Overall Academic Performance
2. Department Wise Performance
3. Attendance Analysis
4. Top Performs
5. Result Insights

Conclusion

The mini project “Students Performance Analysis using Power BI” successfully demonstrates how raw academic data can be transformed into meaningful insights through data analytics and visualization. The project utilized Power BI’s robust features — including Power Query, DAX calculations, data modeling, and interactive visuals — to convert student-related data into a clear, engaging, and data-driven dashboard.

Through this dashboard, important trends and relationships were identified, such as the impact of attendance on marks, department-wise performance comparisons across students. These insights can help educators and academic administrators take data-informed decisions to improve student outcomes, identify struggling departments, and promote consistent academic excellence.

The project also enhanced key analytical skills such as:

- Data Cleaning and Transformation using Power Query,
- Data Modeling and Relationships for structured analysis, and
- Dashboard Design and Storytelling using interactive visuals.

This mini project highlights how modern tools like Power BI empower decision-makers in the education sector to analysis, monitor, and improve performance effectively.

Overall, the project not only achieves its objective of visualizing student performance but also showcases the power of business intelligence tools in educational analytics — making data accessible, actionable, and impactful.

Future Scope & Limitations

- Focusing on the Visuals, Cards, and more driven data.
- Data Story Telling from the Dashboard.

Screenshot of Dashboard