PROJECT 2

STUDENT PERFORMANCE ANALYSIS REPORT

Domain: Education Analytics

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1. Introduction

Educational institutions increasingly rely on data to monitor academic performance and improve learning outcomes. Understanding the relationship between attendance and academic achievement is crucial for student success.

This project analyzes student performance data to identify trends, weaknesses, and risk factors affecting academic results.

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2. Problem Statement

Educational challenges include:

- Declining student performance
- High failure rates in specific subjects
- Poor attendance impacting results

This project uses data analysis to identify key performance drivers and provide solutions.

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3. Objectives

- Analyze overall student performance
- Calculate pass/fail rates
- Compare subject-wise scores
- Examine attendance impact
- Identify at-risk students

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4. Dataset Description

The dataset includes:

- Student ID
- Scores in Mathematics, Science, and English
- Attendance percentage

Each row represents an individual student.

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5. Data Preparation

- Standardized column names
- Handled missing values
- Calculated average score per student
- Created pass/fail classification

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6. Analysis

6.1 Pass/Fail Distribution

Most students passed, but failures were concentrated among students with low attendance.

6.2 Subject Performance

Mathematics showed lower average scores compared to Science and English.

6.3 Attendance Impact

Correlation analysis confirmed that higher attendance leads to better academic outcomes.

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7. Key Insights

- Attendance strongly influences academic success
- Subject-specific weaknesses require intervention
- Early detection of low attendance can reduce failures

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8. Recommendations

- Enforce attendance policies
- Introduce remedial teaching programs
- Provide early academic counseling

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9. Conclusion

This project highlights the role of data analytics in improving educational outcomes through evidence-based interventions.