Concept Note

Project Title: Student Performance Analysis

Course: Decoding Data: Insights & Impact through Analytics (2025–26)

Internship Program: IBM SkillBuild Certification Internship

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1. Objective

The objective of this project is to analyze students' academic performance using real-world data and extract meaningful insights. The focus is on identifying performance trends based on gender, subject scores, parental education, and the impact of test preparation courses.

2. Dataset Used

- Name: Students Performance in Exams

- Source: https://www.kaggle.com/datasets/spscientist/students-performance-in-exams

The dataset contains scores of students in Math, Reading, and Writing along with demographic information such as gender, race/ethnicity, parental education, lunch type, and test preparation status.

3. Tools & Technologies

- Microsoft Excel: For data cleaning, organizing, and basic statistical analysis.

- Power BI: For creating dynamic dashboards and visualizing subject-wise and gender-wise performance.

4. Tasks Performed

- Cleaned and structured the dataset in Excel.

- Calculated average, highest, and lowest scores for each subject.

- Created new rows like average, maximum and minimum score.

- Designed Power BI dashboards with:

  • Column charts for subject-wise performance.

  • Column charts for gender-wise comparison.

  • Slicers to filter by class, gender.

5. Outcome

A Power BI dashboard was developed that visually represents:

- Performance trends by subject, gender, and class.
- Key statistical indicators like average, highest, and lowest scores.
- Insights that can help educators identify areas of improvement and focus.

6. Key Insights

- Female students outperform males in Reading and Writing.
- Math scores are more variable, with a wider range.
- Test preparation courses significantly boost scores.
- Higher parental education correlates with better student performance.

7. Deliverables Submitted

- Cleaned Excel file (Student_Performance_Cleaned.xlsx)
- Power BI dashboard (Student_Performance_Visualization.pbix or screenshots)
- Final project presentation (Student_Performance_Final_Presentation.pptx)
- Two-slide summary (PPT)
- This concept note