Business Requirements Document (BRD) for Power BI Student Performance Dashboard

1. Project Overview

The objective is to develop a **Power BI Dashboard** to analyze student performance across various dimensions such as gender, parental education, test preparation, and lunch type. This interactive dashboard will enable educators and stakeholders to gain insights into trends and relationships affecting student academic outcomes.

2. Scope

- Import and transform data using **Power Query Editor**.
- Model relationships and define calculated columns/measures using **DAX**.
- Create **interactive visualizations** to explore student performance.
- Enable **filtering, slicing, and cross-filtering** to identify patterns and correlations.

3. Data Source

The dataset includes the following fields:

- **Gender** – Student's gender (Male/Female)
- **Race/Ethnicity** – Ethnic group classification
- **Parental Level of Education** – Highest education level attained by parents
- **Lunch** – Type of lunch received (Standard/Free or Reduced)
- **Test Preparation Course** – Whether the student completed a test prep course (None/Completed)
- **Math Score** – Score in Mathematics
- **Reading Score** – Score in Reading
- **Writing Score** – Score in Writing

4. Requirements

4.1 Functional Requirements

Power BI Data Model:

- Use Power Query to clean and transform data.
- Create relationships and define calculated fields (e.g., total average score).

Visualization Features:

- **Overall Performance Summary**: Card/Matrix visual with average scores in each subject.
- **Gender-Based Score Distribution**: Clustered bar or column chart.
- **Impact of Test Preparation**: Side-by-side bar chart comparing test prep completion.
- **Parental Education Influence**: Line chart or column chart by education level.
- **Lunch Type & Performance**: Pie or stacked bar chart showing distribution and score impact.

Filters & Interactivity:

- Slicers for **Gender**, **Ethnicity**, **Parental Education**, **Lunch Type**, and **Test Prep**.
- Interactive visuals supporting drill-through and tooltip insights.

4.2 Non-Functional Requirements

- Intuitive and interactive user experience.
- Refreshable dataset for future data additions.
- Performance-optimized data model for handling large volumes.

5. Deliverables

- **Power BI Report (.pbix)** file containing:
    - Cleaned and modeled data
    - Interactive dashboard with visual insights
    - Slicers and filters for user-driven exploration

6. Success Criteria

- Dashboard provides **clear, visually rich, and actionable insights**.
- End-users can explore data using **filters and interactivity**.
- **Accurate representation** of student performance trends by key attributes.