

USER REQUIREMENT DOCUMENT

Project Title: Student Performance Analysis System

Dataset: *Students Performance in Exams (Kaggle)*

Tools: Excel | SQL | Power BI

Purpose:

The purpose of this project is to develop a **Student Performance Analysis Dashboard** that analyzes students' academic results to identify trends, performance levels, and influencing factors such as gender and test preparation.

The system will provide interactive visual insights using Power BI.

Scope:

The system will:

- Analyze student scores in Math, Reading, and Writing
- Calculate overall average performance
- Determine pass and fail rates
- Compare performance by gender and test preparation
- Provide interactive filtering and visualization

The system will not:

- Predict future results
- Store new student records
- Modify source dataset

Stakeholders:

Stakeholder	Role
School Management	Monitor academic performance
Teachers	Identify weak subjects
Academic Analysts	Extract performance insights

Data Processing:

The system shall:

- Import student dataset from CSV
- Clean and transform data
- Calculate:
 - Average Score
 - Pass/Fail Status

Dashboard Requirements:

The dashboard shall display:

1. KPI Metrics

- Total Students
- Overall Average Score
- Pass Count
- Fail Count
- Pass Rate (%)

2. Subject Analysis

- Average score per subject

- Comparison of subject performance

3. Demographic Analysis

- Performance by Gender
- Performance by Race/Ethnicity

4. Test Preparation Analysis

- Average score comparison:
 - Completed test prep
 - No test prep

5. Filtering Capabilities

The system shall allow filtering by:

- Gender
- Test Preparation
- Race/Ethnicity

- Subject

System Architecture Overview:

Data Flow:

CSV Dataset → Excel Cleaning → SQL Analysis → Power BI Dashboard → Insights

Expected Outputs:

The system should generate:

- Interactive dashboard

- Visual subject comparison
- Pass rate percentage
- Analytical insights report

Success Criteria:

The project will be considered successful if:

- All KPIs calculate correctly
- Dashboard is interactive
- Insights can be derived clearly
- Filters dynamically update visuals
- Visualizations are clear and readable