High Level Design Document

Introduction

This High Level Design (HLD) document outlines the architecture and core components for **EduDash - Student Performance KPI Dashboard**. The purpose of this project is to design a Power BI dashboard that visualizes key student performance indicators, including average grades, attendance rates, and subject-wise trends, with interactive filters and conditional formatting for actionable insights.

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1. System Architecture Overview

Architecture Description:
EduDash consists of a data ingestion layer, a data model, and a Power BI dashboard interface. Data is sourced from student records, processed, and visualized through interactive reports.

Component	Role/Function
Data Source	Stores raw student data (grades, attendance, subjects)
Data Ingestion Layer	Extracts and loads data into Power BI
Data Model	Structures and transforms data for analysis
Power BI Dashboard	Visualizes KPIs, provides filters, and applies conditional formatting

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2. Component Interactions

Step	Interaction Description
1	Data Source provides raw student data to the Data Ingestion Layer
2	Data Ingestion Layer loads and refreshes data into Power BI
3	Data Model processes and structures data for reporting
4	Power BI Dashboard queries the Data Model to display KPIs and visualizations with user-driven filtering

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3. Data Flow Overview

Source	Destination	Data Transferred
Data Source	Ingestion Layer	Student grades, attendance, subjects
Ingestion Layer	Data Model	Cleaned and formatted student data
Data Model	Dashboard	Aggregated KPIs, trends, and metrics
Dashboard	End User	Visualized reports and interactive views

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4. Technology Stack

Layer/Component	Technology/Framework
Data Source	CSV, Excel, or Database
Ingestion/ETL	Power BI Dataflows/Queries
Data Modeling	Power BI Data Model (DAX)
Visualization	Power BI Desktop/Service

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5. Scalability & Reliability

- **Scalability:** Power BI supports incremental data refresh and can handle moderate data volumes typical for educational dashboards. For larger datasets, direct query or scheduled refresh can be configured.
- **Reliability:** Data refresh schedules and access controls ensure up-to-date and secure reporting. Power BI's role-based access restricts sensitive data visibility.
- **Security:** Data is secured via Power BI's authentication and authorization mechanisms.

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