High Level Design Document

Introduction

This High Level Design (HLD) document outlines the architecture and core components for **MediaPulse - Entertainment Content Trends**. The project aims to deliver a Power BI dashboard that analyzes trends in media content consumption, focusing on most-watched genres and viewer demographics, using imported data and DAX measures.

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1. System Architecture Overview

Architecture Description:
MediaPulse consists of three main layers: Data Source, Data Processing & Modeling, and Visualization. Data is imported, transformed, and modeled in Power BI, then visualized through interactive dashboards.

Module/Component	Role/Responsibility
Data Source	Stores raw media consumption and demographic data
Data Import & ETL	Imports and transforms data for analysis in Power BI
Data Model & DAX Layer	Defines relationships, measures, and calculations
Visualization Layer	Presents dashboards and reports to end-users

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2. Component Interactions

Sequence Step	Interaction Description
1	Data is imported from external sources into Power BI
2	ETL processes clean and transform data for modeling
3	Data Model & DAX Layer computes measures and aggregates
4	Visualization Layer renders interactive dashboards using processed data
5	Users interact with dashboards to explore trends and insights

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3. Data Flow Overview

Source Component	Destination Component	Data/Process Description
Data Source	Data Import & ETL	Raw media consumption and demographic data
Data Import & ETL	Data Model & DAX Layer	Cleaned, structured data tables
Data Model & DAX	Visualization Layer	Aggregated metrics, calculated measures

Visualization Layer	End Users	Interactive dashboards and reports

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4. Technology Stack

Technology / Tool	Purpose
Power BI	Data import, modeling, DAX, visualization
DAX	Data analysis and calculation expressions
Excel/CSV	Example data source formats

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5. Scalability & Reliability

- **Scalability:** Power BI supports incremental data refresh and can handle moderate data volumes typical for business analytics. For larger datasets, integration with cloud data sources (e.g., Azure) is possible.
- **Reliability:** Power BI provides robust data refresh scheduling and user access controls. Data integrity is maintained through ETL validation and model constraints.
- **Security:** Access to dashboards and data is managed via Power BI's role-based permissions.

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