



Low Level Design Document

Introduction

This Low Level Design (LLD) document outlines the implementation details for **MediaPulse - Entertainment Content Trends**. The project aims to deliver a Power BI dashboard for analyzing media content consumption trends, focusing on most-watched genres and viewer demographics using imported data and DAX measures.

1. System Components

Component	Description	Key Responsibilities
Data Import Module	Imports and refreshes source data	Connect to data sources, schedule refresh
Data Model Layer	Defines data schema and relationships	Model tables, relationships, calculated cols
DAX Measures Layer	Implements business logic using DAX	Create measures for trends, aggregations
Visualization Layer	Power BI dashboard visuals	Display charts, filters, and KPIs
User Interaction	Enables filtering and drill-down	Slicers, tooltips, interactive elements

2. Class/Interface Overview

Class/Interface	Description	Key Methods/Attributes
DataSourceConnector	Handles data import	<code>connect()</code> , <code>refresh()</code> , <code>getData()</code>
DataModel	Represents data schema	<code>tables</code> , <code>relationships</code>
DAXMeasure	Encapsulates DAX logic	<code>calculate()</code> , <code>expression</code>
DashboardVisual	Power BI visual component	<code>render()</code> , <code>bindData()</code>

Relationships:

- `DataSourceConnector` feeds data to `DataModel`
- `DataModel` is used by `DAXMeasure`
- `DashboardVisual` consumes `DAXMeasure` outputs

3. Data Structure Overview

Table Name	Key Fields	Description
Content	ContentID, Title, Genre, ReleaseDate	Media content metadata
Viewership	ViewID, ContentID, UserID, ViewDate, Duration	User content consumption records
User	UserID, Age, Gender, Location	Viewer demographic information



Relationships:

- Viewership.ContentID → Content.ContentID
- Viewership.UserID → User.UserID

4. Algorithms/Logic

Key DAX Measures (Pseudocode):

```
// Most Watched Genre
MostWatchedGenre =
    CALCULATE (
        MAX(Content[Genre]),
        TOPN(1, SUMMARIZE(Viewership, Content[Genre], "TotalViews", COUNTROWS(Viewership)))
    )

// Viewer Demographics by Genre
DemographicsByGenre =
    SUMMARIZE (
        Viewership,
        Content[Genre],
        User[Age],
        User[Gender],
        "ViewCount", COUNTROWS(Viewership)
    )
```

Dashboard Flow:

1. Import and refresh data sources.
2. Model relationships between tables.
3. Define DAX measures for trends and aggregations.
4. Bind measures to dashboard visuals (charts, slicers).
5. Enable user filtering and drill-down.

5. Error Handling

Scenario	Handling Approach
Data import failure	Log error, notify user, retry mechanism
Data schema mismatch	Validate schema, alert on mismatch
DAX calculation error	Display error message in visual
Missing/invalid user input	Show validation message, prevent action

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