



Low Level Design Document

Introduction

This Low Level Design (LLD) document outlines the implementation details for **MediaPulse - Entertainment Content Analytics**. The project aims to deliver a Tableau dashboard for analyzing streaming content performance, including viewership trends, genre popularity, and user ratings, with interactive filters for content type and time period.

1. System Components

Component	Description	Key Responsibilities
Data Source	Raw data storage (CSV/DB)	Store and provide content analytics data
ETL Pipeline	Data extraction, transformation, loading	Clean, aggregate, and format data
Tableau Data Model	Structured data for Tableau	Expose data fields for dashboard
Tableau Dashboard	Visualization layer	Display analytics, enable interactivity
User Interface	Dashboard controls (filters)	Allow user-driven data exploration

2. Class/Interface Overview

Class/Interface	Description	Key Methods/Attributes
ETLProcessor	Handles data ingestion/cleaning	<code>extract()</code> , <code>transform()</code> , <code>load()</code>
ContentRecord	Represents a content data row	<code>content_id</code> , <code>title</code> , <code>genre</code> , <code>views</code> , <code>rating</code> , <code>date</code>
TableauDataSource	Interface to Tableau	<code>getDataFrame()</code> , <code>refresh()</code>

Relationships:

- `ETLProcessor` processes raw data into `ContentRecord` objects
- `TableauDataSource` consumes processed data for dashboard use

3. Data Structure Overview

Field	Type	Description
<code>content_id</code>	String	Unique identifier
<code>title</code>	String	Content title
<code>genre</code>	String	Content genre



content_type	String	Movie, Series, etc.
views	Integer	Number of views
rating	Float	Average user rating
date	Date	Viewership date

4. Algorithms/Logic

ETL Pipeline Pseudocode:

```
def extract():
    # Load raw data from source (CSV/DB)
    return raw_data

def transform(raw_data):
    # Clean, filter, and aggregate data
    # e.g., group by genre, calculate averages
    return processed_data

def load(processed_data):
    # Export to Tableau-compatible format (CSV/DB)
    pass
```

Dashboard Logic:

- Load processed data into Tableau
- Configure filters: content_type , date_range
- Visualize:
 - Viewership trends (line chart)
 - Genre popularity (bar chart)
 - User ratings (scatter/heatmap)

5. Error Handling

Scenario	Handling Approach
Data source unavailable	Log error, notify admin, retry
Data format mismatch	Validate schema, skip invalid rows
ETL process failure	Log error, halt pipeline, alert admin
Tableau data refresh failure	Retry, log, notify admin
Filter returns no data	Display “No data available” message

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