

User Manual

Overview of the Application's Functionality

The Movie Database Management System (DBMS) is designed to manage and analyse movie-related data efficiently. The application fetches data from The Movie Database (TMDb) API and stores it in a structured MySQL database. It includes several features and functionalities to help users interact with and analyse the stored data.

Key Features

Database Schema Creation

- The application creates a well-structured database schema with tables for movies, genres, persons, movie genres, and movie cast.
- Proper indexing and foreign key constraints are applied to ensure efficient query execution.

Data Population

- The application fetches data from the TMDb API, including movie details, genres, and credits.
- It populates the database with over 5,000 records, ensuring comprehensive data coverage.

Full-Text Search Queries

- The application includes full-text search queries to find movies based on specific keywords in their overviews.
- Example: Finding the top 5 movies mentioning 'Leonardo DiCaprio' in their overview with the highest average rating.

Complex Queries

- The application includes complex queries involving nested subqueries, aggregations, and the EXISTS clause.
- Example: Finding the top 5 most popular movies mentioning 'Action' in their overview, along with their genres and the number of actors in each movie.

Query Execution

- The application provides a script to execute and demonstrate the implemented queries.
- Users can run the script to see the results of the queries and understand the data analysis capabilities of the application.

Database Optimizations

- The application includes proper indexing strategies to optimize query performance.
- Indexes are created on columns frequently used in queries to ensure efficient data retrieval.

How to Use the Application

Install Dependencies

- `pip install -r requirements.txt`
- Ensure you have Python 3.11.4 and MySQL server installed.
- Install the required Python libraries using the requirements.txt file.

Create the Database

- `python src/create_db_script.py`
- Run the script to create the database schema.

Populate the Database

- `python src/api_data_retrieve.py`
- Fetch and insert data from the TMDB API.

Execute Queries

- Run the script to execute and demonstrate the queries:
- `python src/queries_execution.py`