Project Proposal

Project Title

Development of a web application for MUBI movie lovers

Team

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Project Summary

Most of the services we use on the web are provided by web database applications. A web database application can allow users to manage the data and get analytical results based on the data. In this project, we will design a web application interface using the MUBI database for movie lovers. Firstly, we will use RSQLite database queries to extract data from the MUBI database and build the database model. Secondly, we will use Shiny to build an interactive web application with basic functions. Finally, we will work on the back end to improve our web application with full user functionalities. Our project will provide the MUBI movie lovers a web tool to access, manage, and analyze the MUBI movie data.

Project Description

Objectives

MUBI, formerly known as the Auteurs, was founded in 2007 by Efe Çakarel. The purpose of MUBI was to create a social network for cinema lovers. It doesn't look as popular as Netflix, Disney+ or Amazon prime video, but the diversity and the quality of the selections are exhilarating. MUBI is one of several first-rate sites that cater to cinephiles, and its mix of current and vintage films, the global scope of the selections, and the truly eclectic array of genres is great. MUBI is a two-syllable name with no specific meaning and its rhyme with "movie" is neat and crosses many borders. MUBI could be described as the "Netflix for art movies" and one of the alternatives of Netflix.

MUBI users may ask the following questions: Which movie is most popular here? In a specific year, which movie is most popular? Which movie has the highest rating? Which director is most popular? For monthly active users and monthly paying users, what is different with time? To help

the users answer these questions, we can develop a web application which allows them to manage the data and get analytical results from the database. It makes the connection with the database, query and update (with RSQLite), and analytics and visualization (with Shiny). Shiny can help us to build web applications that can provide more information for users. We will develop a web application to meet the needs of users, including database query, update, analytics, visualization, and recommendation.

Usefulness

MUBI is an ideal online streaming platform for independent film lovers and fans of classic cinema who want to see the best international movies. It is also a good option for people who want to watch new movies but don't know where to start. MUBI adds one new movie every day. So, the web application that we build would help the users to find what kind of movie is popular and the users' review would help other users to choose before they watch the movie.

We choose to develop a web-based application based on the MUBI dataset. Instead of using an app installed on the computer, users can access the application from any devices which can access the Internet. Typically, the minimum requirement would be a web browser. We can run the web application in Windows, Mac OS or Linux. Maintaining and updating the web application system is much simpler and easier. Any updates can be deployed via the web server. It is much easier to deploy web applications for any platform in any type of work environment. It is also much easier to secure the data by removing access to the data and back-end servers. One can dramatically lower cost with the help of Web based applications. Due to reduced maintenance, lower requirements and simplified architecture, costs of web applications are dramatically lower compared to traditional software-based Systems. Our web application will provide the MUBI movie lovers a convenient web tool to access, manage, and analyze the MUBI movie data.

Dataset

The MUBI dataset was acquired from the Kaggle website (https://www.kaggle.com/clementmsika/mubi-sqlite-database-for-movie-lovers). Data was collected by Clément Msika with MUBI API in 2020 and then transformed into a SQLite database to facilitate the analysis. User IDs were anonymized. Data from MUBI users who set their profile in private mode are not in this database. This data was used to analyze the MUBI user base, user behavior, user preferences.

This dataset is a SQLite database created in SQLite. It consisted of 5 tables – movies, lists, list_users, ratings, and rating_users. Each table has its own primary key variable, which is a unique identifier of each record in the table. Each table also has foreign keys to link to other tables. The table 'movies' contains data from all movies registered on MUBI. There are 226,575 records and 10 fields in the movies table. It includes the movie_id, movie_title, movie_release_year, movie_url, movie_title_language, movie_popularity, movie_image_url, director_id, director_name, and director_url. There are 5 missing values for movie_release_year. We need to use SQL queries to clean the table. The table 'ratings' contains movie ratings data on MUBI. This table goes back to 2008 and has about 15.5 million rows and 13 columns. There are 26.7k missing values for rating_score. We need to use SQL queries to clean the data with missing rating scores. The table

'ratings_users' is three times smaller than the table 'ratings'. It has 4.30 million rows and 8 columns. It has a daily granularity. Only the user information related to the last rating for a specific day is stored in this table. The table 'lists' contains lists data from MUBI. It contains 80.3k rows and 14 columns. It includes user_id, list_id, list_title, list_movie_number and other columns. The table 'lists_users' contains additional user information related to the list table. It includes update_date, creation_date, user_subscriber, user_has_payment_method and other information. We will use RSQLite database queries to extract data from the MUBI database and build our database model for our project.

Description of the functionalities

The web offers two main functionalities. **Basic functions**: Our web application allows the user to insert, update, delete, search on the website. Editor feature allows the user to update the contents of the website. Search engine allows the user to search by keywords on the website. Statistics feature gives comprehensive statistics on a movie's rating, popularity, and comments. The Recommend page allows the user to make comments on the movies and the site administrator can monitor each message from the back end. **Advanced functions**: Client database, the SQL database holds all the user details. The website can define the fields of the database and query, filter and sort the contents of the database. Discussion features allow the user to post discussions on the website. Events management system allows the website to enter event details which will display on an events calendar. The user can view and book for events. Survey tool allows the web to create online surveys to send to participants.

Task Divisions

Table. Project plan and team responsibilities

Project:	Development of a web application for MUBI movie lovers	
Tasks	**Deadline**	**Team Responsibilities**
Project proposal	Week 8 3/6/2022	Jie Zhen: Describe the functionalities and milestones Xuemei Hu: Write the project description: objective, usefulness Xin Tu: Summarize the project, describe the dataset, provide project plan, and assign team responsibilities
Database preparation	Week 10 3/20/2022	Jie Zhen: using SQL database queries to extract data from database Xuemei Hu: perform exploratory data analysis and visualizations Xin Tu: build and evaluate the database model
Design a web application (mock)	Week 13 4/3/2022	Jie Zhen: build database interactions Xuemei Hu: generate UI layouts (navigation bar and well panel) Xin Tu: Select inputs and outputs to generate mock functions
Finalize the web application	Week 16 4/24/2022	Jie Zhen: control user input from a select list, dashboard for web overview from well panel Xuemei Hu: display the outputs in a data table, plot to visualization Xin Tu: manage UI inputs and outputs to provide full functions

Communication and Sharing

We will discuss the project issues via Messages and Email. We will set up a weekly zoom meeting to discuss the project progress. We will use Google Drive to share and edit project documents. We create a github repository for sharing our project. See the github link below. https://github.com/Ashin200/web-application-for-movie-analysis.git

Milestones

Week 8 – Draft project proposal

Week 9 – Database query: using SQL database queries to extract data from database

Week 10 – Perform exploratory data analysis and visualizations (knowing data and constraints)

Week 11 – Design and evaluate database models - submit Part 2

Week 12 – Design a web application (mock)

Week 13 – Work on web design (mock) and start working on back-end - submit Part 3

Week 16 – Work on back-end to finalize the web application with full user functionalities

Reference

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