Youtube Trending Video Database

1. Describe what data is stored in the database. (Where is the data from, and what attributes and information would be stored?)

Youtube Trending Video Data from Kaggle, including attributes like video id, video title, publish time, channel id, channel name, video category, view count and likes.

2.What are the basic functions of your web application? (What can users of this website do? Which simple and complex features are there?)

The proposed web application offers a range of essential features for analyzing and visualizing YouTube video trending data.

1. It utilizes pie charts to provide a visualization of viewership preferences across various regions, enabling the comparison of a video's popularity in different geographic areas. And the Line graph can depict popularity trajectory of specific videos, or the changing popularity of particular content creators over time.
2. Furthermore, the application offers ranking tables for content creators, allowing users to assess their popularity in various video categories and countries or channel name.
3. The user can also use the search box to find video recommendations based on titles, categories, or regions.
4. Additionally, real-time data updates are seamlessly integrated via the YouTube API to ensure that the information remains current.

3.What would be a good creative component (function) that can improve the functionality of your application? (What is something cool that you want to include? How are you planning to achieve it?)

1. **Real-time Data Visualization:** To enhance the user experience, we plan to implement real-time data visualization features. This will allow users to see dynamic representations of data trends and insights within the application.
2. **Web GUI Interactive Interface with CRUD**: We plan to create a user-friendly web-based graphical user interface (GUI) that enables users to interact with the application seamlessly. Users will have the ability to Create, Read, Update, and Delete data entries directly through this interface.
3. **Support for User-Customized Filters for Searching**: We also plan to implementation of custom filters. Users will have the flexibility to define their own search criteria. For instance, they can set specific time ranges, choose countries or regions of interest, and filter content based on video length. This customization will empower users to tailor their searches according to their unique requirements. Also, this algorithm can help video creators provide video content that is more attractive to customers.

4.Project Summary: It should be a 1-2 paragraph description of what your project is.

The YouTube algorithm, which we are most familiar with, is the recommendation algorithm. Its target is customers and to help them quickly find the most popular video and their favorite video. However, we rarely see recommendation algorithms for big data and large groups of people, such as analyzing the popularity of videos in different regions. This algorithm can more objectively help video creators provide video content that is more attractive to customers. Based on the user recommendation algorithm, our project hopes to fill this gap.

At the same time, in view of the rapid changes in data, we believe that data analysis should be done in real-time. Therefore, we implement real-time data visualization features, and customers can Create, Read, Update, and Delete data entries directly.

5.Description of an application of your choice. State as clearly as possible what you want to do. What problem do you want to solve, etc.?

Our goal is to develop an awesome website that not only showcases trending YouTube videos but also provides a rich array of tools and features for content creators and viewers alike.

Problem to solve：

1. Empowering Content Creators: Our platform caters to the needs of content creators by delivering a clear overview of trending YouTube videos across various genres and niches. Creators can leverage this data to make informed decisions about their content strategy. For instance, they can identify emerging trends, track competitor performance, and fine-tune their video production to capture the audience's attention.

2. Promoting Engagement: The platform not only helps users find the videos they want but also encourages engagement within the YouTube community. Users can interact with trending content by liking, commenting, or sharing, thereby contributing to the vibrant YouTube ecosystem.

6. Usefulness. Explain as clearly as possible why your chosen application is useful. Make sure to answer the following questions: Are there any similar websites/applications out there? If so, what are they, and how is yours different?

The application we made, which mainly focuses on the video popularity evaluation and comparison, is quite useful for these audiences who want to find the most popular videos (or ranking of the video) of some specific channels or categories or give them our objective evaluation of the assigned video according to the video data we have. For the video website staff part, our objective popularity evaluation and prediction of future video hits can help them decide whether to continue providing traffic incentives and promotion to the video and the creator in order to boost the website's revenue further. The video data ranking is widely used in today’s streaming media like YouTube and Twitter. They also have a search engine for historical views, likes, and popularity.

So in summary, our unique features are:

1. Predictions of the future stream of videos based on historical data to evaluate future revenue and

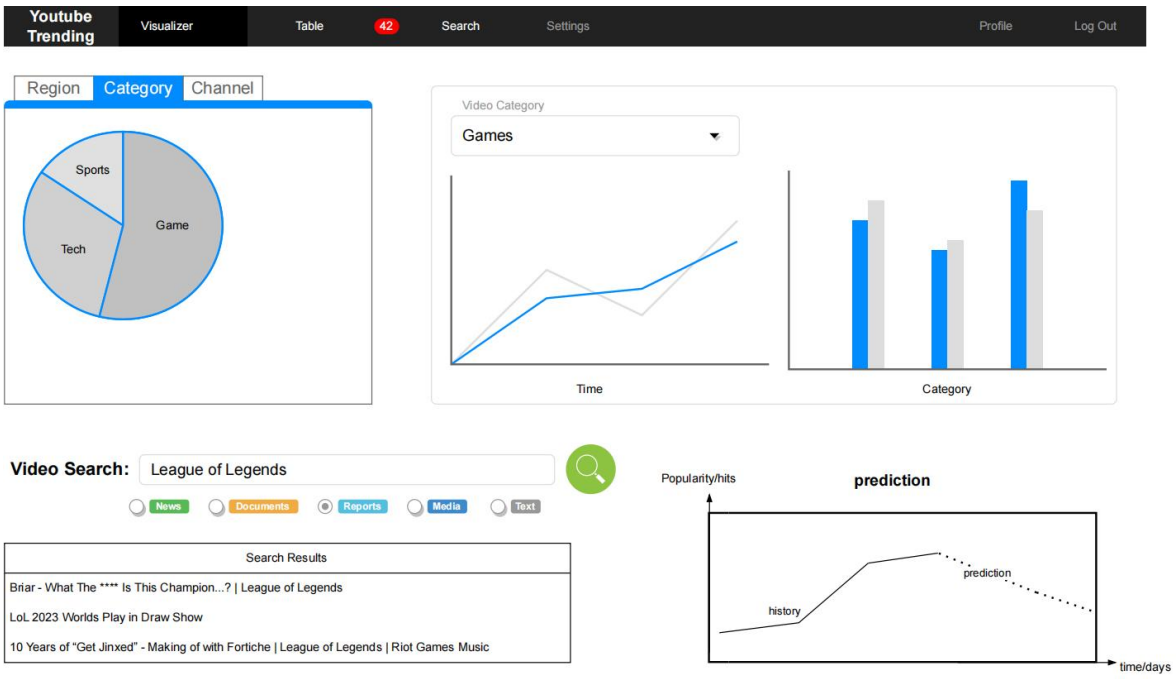
2. Video popularity comparison between different countries to precisely provide video recommendations in different areas.

6. Realness. Describe what your data is and where you will get it.

We will use the Youtube video data from Kaggle, and we also plan to fetch recent data through Youtube API.
Also, we plan to merge the given dataset to other Youtube video datasets including: "Statistics and Social Network of YouTube Videos" from Simon Fraser University, "Online Video Characteristics and Transcoding Time Dataset" from UCI.

7.Description of the functionality that your website offers. This is where you talk about what the website delivers. Talk about how a user would interact with the application (i.e., things that one could create, delete, update, or search for). Read the requirements for stage 4 to see what other functionalities you want to provide to the users. You should include:

1. A low-fidelity UI mockup: What do you imagine your final application's interface might look like? A PowerPoint slide or a pencil sketch on a piece of paper works!



2. Project work distribution: Who would be responsible for each of the tasks or subtasks? List of the person responsible for which exact functionalities in section 6. Explain how backend systems will be distributed across members. Be as specific as possible as this could be part of the final peer evaluation metrics.

   Front End:
   The user interface for ranking, including creating maps, is led by **Wentao Yao** and assisted by **Shixin Chen**, and the user interface for recommendation and update is led by **Shixin Chen** and assisted by **Wentao Yao**

   Back End:

The data storage and retrieval for recommendation function and update function is handled by Yi

The data storage and retrieval for recommendation function and update function is handled by **Yifei Song**, and the data storage and retrieval for ranking function is charged by **Chenhao Li**.