Project Proposal

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

   The data set we chose includes data on what videos were trending on youtube in different countries around the world, with up to 200 videos listed per day. Each country in the database is listed in a separate file that lists the video title, channel title, publish time, tags, views, likes/dislikes, description, as well as the comment count. It also includes a category id to help differentiate the videos by country. The format of this dataset is a csv file with its size varying based on the country you choose to view. This data is taken from Kaggle, with the link listed here.

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 web application is designed to help content creators understand the factors that contribute to the success of their videos. The application also has the ability to help users formulate and release content with keywords and tags that will maximize audience engagement and reception.
The first feature focus is on the title of the video. As this is the first aspect that users come across, it is crucial in attracting their attention. The application allows users to select a category that their video falls into. The application will then return important keywords (that it will find through SQL queries) that would have high reception based upon previous trending videos in the same category with similar words.

In addition, it helps users find keywords, key phrases, and tags that are popular in videos that are trending. This provides the user a better understanding of what content people are currently interested in as well as the best ways to capture a viewer's attention.

Moreover, our website allows users to input their own videos if they are not currently included in the database. We can use stored procedures to do this. Users can also update their entries if desired as well.

Finally, the application will allow users to input a certain Youtube channel and see the number of trending videos or average view count for a single creator over a specified time period through a simple SQL query. This allows users to follow the growth or fall of certain creators within all categories. Users can also track their own channel to see the impact of their content over time.

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?)**

One creative component that would improve the functionality and uniqueness of the web application is a visualization of trending videos, split by video categories, demographics, and other selectable sort filters. This would provide users with a visual representation of how their content is performing compared to other videos in their category and desired audience demographic. To achieve this, we could use charting tools such as ChartJS or D3, which are specially tailored to creating interactive and engaging graphs.

Another component that could be added is a video recommendation system. This system would use the title of an inputted video as well as the category the user believes it falls in and connect it to related titles in a similar video category that have performed well. The recommendation system could be simple, matching based on keywords and tags, or more complex, using machine learning algorithms such as natural language processing to make the connections. To do this with SQL, we could first find popular keywords and then use the “LIKE” and other filtering keywords to find related titles. We can store these matches in a new table to have them at hand the next time a user asks for them. This component would help users discover new content that is likely to be of interest to them and increase their engagement with the application.

4. **Project Title:**

Making YouTube Yours!

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

For this project, we developed an application that can display intuitive data distribution and keyword recommendations to users, focusing on educators. This application will let educators know more about the audience and their viewing preferences and habits, allowing them to produce better videos and get inspiration for creating relevant new content, increasing their exposure and engagement. Our application will provide a comprehensive analysis of popular video titles, tags and keywords, and recommend to video creators the tags that similar videos use as well as possible video categories determined by the description entered by the video creator. This allows educators to choose titles and hashtags that are likely to attract a larger audience.

In this project, we will use SQL queries to find the most popular publish times and also to find the most popular keywords in titles and return this information to users. Trend tracking through view counts and likes and relevance analysis capabilities using video categories and keywords. This will allow educators to understand how some of the hottest topics of the moment influence their audience's interests, helping them create more relevant content. The application in our project also supports a video recommendation system, helping users discover new content they may be interested in and increasing their interaction with the application by using common keywords and category information. We also have a visualization of trending videos, giving users a visual representation of how their content is performing compared to other videos in their category and desired audience demographics.

6. **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.?**

The main purpose of this application is to help content creators put out meaningful content and spread their messages more effectively. It does this by providing them with tools to pick better titles and tags for their videos. This is especially useful for educators, such as professors at our very own UIUC, who create highly informative content but may not have the skills or resources to reach a large audience.

The application uses SQL queries and stored procedures to provide a comprehensive analysis of popular video titles, tags, and keywords, enabling users to create titles and tags that are likely to attract more viewers. The trend tracking and correlation analysis features also allow educators to understand how popular topics are affecting their audience's interests, helping them to create more relevant content.

By using the application, creators, especially educators, can increase the reach and impact of their content, ensuring that their message is heard by as many people as possible, resulting in a more widespread knowledgeable audience.

7. **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?**

Our application would allow content creators to have a larger reach, and to expand their audiences. Hardworking YouTube accounts, such as those trying to share educational content, do not get the same reach as channels with younger creators and more dramatic content. Understanding trends in which videos are successful, and sharing these trends with the public, would help these smaller creators. We chose to use a website because we felt it was easiest for interactive features and had the best canvas to display larger visualizations. Additionally, web development is a topic that we are all very interested in and want to gain more experience with!

We could not find free tools that provided these services. There are some websites that tell you the popularity of certain keywords, but none in the context of YouTube. We want to create a tool that allows creators to put in a title, that will then be evaluated and improved to increase success. In this way, our application would be different because there are apps that both evaluate a current title using data and also providing improvements.

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

We will be using one of the provided datasets from kaggle.com, “Youtube Trending Videos Dataset”. This dataset contains data with up to 200 trending videos, separated by region. It provides the video title, tags, description, publish times and measures of viewer engagement such as likes, views, and comments. We plan on using this data to understand currently trending titles and topics, how current events factor into a video’s success, and help creators find better titles for their videos. We will download this data and create a database which can then create the backend of our web application.

9. **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 stages 4 and 5 to see what other functionalities you want to provide to the users. You should include:**
    a. **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!**
    b. **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.**

    The UI mockup is on the last page of this document.

Users of the application will interact with the application by using the four features listed in tabs as drawn below. Each tab will have a different purpose but the interaction with the backend database system should be relatively similar. The user can create new entries in the database when using the "Title Generator" feature and searching with an inputted video title, description, tags, and category. The system will analyze this information and recommend the user a related title with keywords that are trending. This will update the database with a new connection between the user input and the application output. The user can also update their previous queries which will update the information in the database as well. The user can search for specific Youtubers in the "Track a Youtuber" feature as well as search for trending keywords based on a given input if desired in the "What's Trending" feature. They can also filter the results based on categories and topics to discover more relevant topics. The user can also delete their imputed titles and resultant generated output if they no longer wish to have them on the platform. This can all be achieved using SQL.
This system of user interactions will allow for maximum engagement with the application allowing users to optimize their video content while tracking their performance. The database will begin with the data set described above and then continuously update with user actions to provide the most relevant and up-to-date information to users.

A diagram of our user interface mockup is included at the bottom of this PDF and shows what we plan our home page to look like. It includes a navigation bar at the top that will lead to other pages of the website. Our home page contains our project name and description and some data visualizations from our

data. Our feature pages will look similar in design and will allow users to toggle between features or use search bars to use our tools for their specific needs.

We are planning on building four main features for our website, that involve both frontend and backend. Since our team members would like to gain experience working with both parts of the website, we will work in pairs and divide up aspects of the frontend and backend. Riya and Sritha have experience with frontend so they will lead the frontend teams. Yue and Ayush will then lead the backend teams. We will begin by building the bare bones for each page of our web application first, most likely using ReactJS. Then moving on to backend and designing functionality for the features, we would like to work on each feature with a partner. We would start off working on building our database and use task oriented distribution of work. And then we would split up the work for building different features of our website by giving each member one feature to work on.

User Interface Mock-up: