Questions:

1. **Please list out changes in the directions of your project if the final project is different from your original proposal (based on your stage 1 proposal submission).**
   The only thing we changed from our original project proposal was we did not include saved videos of the user. We felt that this wouldn't be relevant to the suggestion platform we wanted to create. In order to encourage users to use our Creator Suggestions tool, we made this the only way to see a user's suggested/saved videos.
2. **Discuss what you think your application achieved or failed to achieve regarding its usefulness.**
   Our application is useful in the sense that it allows users to search the top trending videos through various filters and search algorithms as well as allows them to generate suggestions for their incoming video upload. It could improve its usefulness by updating the database every day based on the new trending video database however we decided that this was not a major component of our project and will require manual effort to update the database every day from Kaggle.
3. **Discuss if you changed the schema or source of the data for your application**
   We did not change our data source for our application, but we did add onto our database schema. We followed the original schema but then added tables to account for our stored procedure and trigger functionalities. I elaborate on this in the next question.
4. **Discuss what you change to your ER diagram and/or your table implementations. What are some differences between the original design and the final design? Why? What do you think is a more suitable design?**
   We changed our tables by adding information we needed for the interaction score of a user. We added a UserPoints table and SearchHistory table to keep track of how many points a user gets for each search as well as their total points. We also had to add a column to our CreatorSuggestions table to account for how many points a user achieved from using our suggestion tool. This was a more suitable design for our project since it incorporates the idea of letting a user see how active they are with our platform as well as in comparison to other users.
5. **Discuss what functionalities you added or removed. Why?**
   Added**:** We added an interaction score / leaderboard element to our application inorder to encourage users to increase their engagement with our app.
   Removed: We removed the saved videos functionality because it conflicted with the Creator Suggestions tool
6. **Explain how you think your advanced database programs complement your application.**
   The advanced queries help users to search for videos based on complex algorithms that will optimally return results based on user preferences. The two advanced queries are used to provide two different ways of searching the database based on different search priorities. The first algorithm searches for videos from channels that already have

multiple trending videos, and the second gives the videos ordered by most engagements (number of comment/likes) without including the top 50 most disliked videos. This allows the user to get more insight into the metrics that have allowed a certain video to be successful.

The stored procedure and trigger is useful to increase user engagement on the platform by motivating users with a leaderboard and interaction score element. Users will be encouraged to utilize our application more to climb up the leaderboard.

7. **Each team member should describe one technical challenge that the team encountered. This should be sufficiently detailed such that another future team could use this as helpful advice if they were to start a similar project or where to maintain your project.**
    - Violet: One technical challenge we encountered was dealing with the formatting of our database. For example, the details of each video includes tags that are an unformatted string. We wanted to use this in our Creator Suggestions feature but were struggling to find a way to match words despite the formatting. We ended up finding a solution for this when looking at SQL documentation by using match instead of the LIKE keyword, this is definitely something I would recommend for a future team to use if they have varying formatted strings in their database that they need to match.
    - Diya: Another challenge we encountered was linking the database with frontend and backend, particularly through GCP. Most of us did not have experience in creating a full-stack application with NodeJS so it was a fruitful experience for us to learn NodeJS while strengthening our database knowledge in class. Looking into documentation and stack overflow posts helped debug our errors and progress our project.
    - Zayaan: One challenge that I encountered was coming up with advanced queries that made sense given our dataset without being needlessly complicated. I was having trouble coming with queries that used all the required elements given that UNION operations weren't working with MySQL at the time of the project. I think that with the benefit of hindsight this issue could have been mitigated by planning for the advanced queries earlier. Additionally, for a while we didn't know that we could edit our code in VSCode rather than the SSH shell, which one we figured out increased our productivity greatly. I think that in the future it would be nice if there was more provided documentation on setting up development environments.
    - Hangoo: Similar to what Diya said, we also had a challenge to change our UI whenever we made some changes to our output from the backend side. Everytime that we wanted to test whether the backend side worked correctly and was showing in the website correctly, we needed to reformat our UI which took a long

time. However, looking at javascript documentation and stack overflow helped to speed up this process which also made our work much easier and efficient.

8. **Are there other things that changed comparing the final application with the original proposal?**
   Initially we were thinking of using the Youtube API to gather more information about the trending videos however we figured that the information provided in the database was sufficient to achieve our goals for the application.
9. **Describe future work that you think, other than the interface, that the application can improve on**
   The application could improve the recommendation algorithm by utilizing more sophisticated filters and machine learning libraries to provide personalized results for each user. Additionally, the creator suggestions could be customized based upon the user search history of trending videos.
10. **Describe the final division of labor and how well you managed teamwork.**
    - Diya: NodeJS backend interactions between frontend and database
    - Violet: HTML code development, stored procedures and trigger queries, CreatorSuggestions query
    - Zayaan: HTML code development, advanced queries, demos, etc.
    - Hangoo: HTML frontend
    - Everyone worked together weekly to implement the individual things we had been working on, to discuss ideas, and the rest of the application features like the creative component