Stage 6: Project Report

1. Please list out changes in directions of your project if the final project is different from your original proposal (based on your stage 1 proposal submission).

Our final project is on track with our initial project proposal. In our initial project proposal, we mentioned that our application will have functionalities such as fetching for game data, and making updates in the database based on user request and input. Our final completed project successfully implemented all the features we proposed.

2. Discuss what you think your application achieved or failed to achieve regarding its usefulness.

We have implemented the following features: keyword search with given game information; create and store personal game list and store game information in the list; add new game entry, update review note on game and delete game entry in lists; displaying different game rank based on advanced queries that we designed; display game record in different highlight color with inserting a new record based on game info using trigger.

3. Discuss if you change the schema or source of the data for your application

As we selected two datasets as our source of our data from Kaggle in the beginning, we managed to merge columns from both of the datasets since they were from the same topic later for the application. By applying R, the columns which contained the same information such as game name and so on were merged together in order to make more data points. Also, we filtered out columns that were not meaningful and useful for our application. The schema was changed during implementation as well, because we realized that some of the schemas contained wrong types of variables. For example, we put the game review as Varchar at first, and then realized that it should float later.

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?

One of the major changes to our table implementation was that we re-designed the table applied for personal lists of users. In the beginning, we tried to use the ‘Personal List’ table to store information related to personal lists which the user would be creating. And the contents of this table only contained three columns. However, when we implemented the application later, it turned out

that the original table would not work as it was not possible to store items in the personal lists. Therefore, we re-designed this table into a new table ‘Item_list’ so that users were able to add items to their personal lists.

5. *Discuss what functionalities you added or removed. Why?*

We added several recommendation lists on our websites using the stored procedures. Also, we added the color changing after inserting new games in the personal lists.

We removed two functions which were hard to implement. The first was the category selection, which was intended for the users to browse games according to their selections on genres, platforms and so on. The second one was the function of comparing two games. We removed this because we thought this was unnecessary.

6. *Explain how you think your advanced database programs complement your application.*

Large volumes of data can be stored in one place. Multiple users can read and modify the data at the same time. Databases are searchable and sortable, so the data you need can be found quickly and easily.

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.*

Yanni Zhou:

When we are implementing the application, the major challenges are related to coming up with how the frontend and backend should interact with each other using Flask. Especially when we needed to extract information from the user input forms in frontend, at first it was hard to come up with how to relate such information to backends.

Xipeng Song:

The challenge was that, when we implemented the function for inserting the game item for the personal list, we had trouble in creating the primary key for this table. The solution was using a global list to maintain the current indexes. Also, we created the logic of modifying the list in our insert and delete functions.

Xinyi Ai:

One of the biggest challenges we met was how to load our data into the MySQL server. The last column of loaded data was missing some information. This problem caused a lot of trouble. We were not able to test our api return result. After carefully searching for a similar bug at stackoverflow, we found out that we miss one critical command TERMINATED BY ',' ENCLOSED BY '"'. After reloading the csv file into MySql by new command, we were able to get correct and complete data.

Bing Lin:

A challenge that we encountered during the project development process was optimizing the query performance with adding indexes to our database. During the designing phase of the two advanced queries, we had one query that didn't have significant performance improvement so we made multiple modifications on our original advanced query based on the performance test statistics while keeping the query meaningful for users.

8. Are there other things that changed comparing the final application with the original proposal?

At the beginning, we hoped to implement a content-based recommendation system which is able to filter similar item features to recommend other items similar to what the user likes, based on their previous actions or explicit feedback.

9. Describe future work that you think, other than the interface, that the application can improve on

For future database design, it is clear to separate the game sales in different areas into different tables. And also the application can have one personalized recommendation system according to different user's personal preferences. Users can receive daily push notifications about any similar games they may feel interested in. Also we hope to implement a content-based recommendation system in the future. This system is able to recommend similar genre movies according to the users' search result.

10. Describe the final division of labor and how well you managed teamwork.

There are four members in our team. Since the workload of the backend is heavier, Xipeng Song, Bing Lin, and Xinyi Ai work on the backend, and Yanni Zhou is responsible for the frontend. The teamwork was wonderful, and we helped each other all the time so the project was finished successfully.