Stage 6 Report

Demo Video Link:
https://drive.google.com/file/d/1SHgYFu54AnvDJCT5E6_IvjZFELPrKB3O/view?usp=share_link

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).
   a. The appearance of our application is different from our original design as we do not know much about front-end development.
   b. We changed the default preset list. Originally, we wanted to allow users to search based on food or restaurant. However, we decided to change the direction during our implementation. Instead, depending on the user's role, users can log in and search only or add/delete restaurants.

2. Discuss what you think your application achieved or failed to achieve regarding its usefulness.
   a. It does a good job being able to search for different restaurants and menu items, but it is not able to compile continuous filtering by different fields as we originally intended.
   b. We achieve the functionality of favorite restaurants, writing comments for a restaurant as well as comparison between different restaurants.
   c. It can be really useful if we provide a link to the restaurant's website when the user clicks the restaurant. But we didn't achieve this.

3. Discuss if you changed the schema or source of the data for your application
   a. We added one field in the user table that is used to track user vs administrator roles.
   b. We added delivery and dine_in attributes in restaurant schema as we think this information might be useful for some users.
   c. We collect information about restaurants from Google Map as intended but collect information about food from Yelp because Google Map doesn't provide menu data. Also, as there are too many restaurants in Chicago, we only collect about 1000 restaurants to simplify our work.

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?

a. There are no significant changes to our UML diagram. But we think we can simplify our UML diagram by combining Restaurant, Locate, Location tables and combining Reviewer, Writes, Review table.

5. Discuss what functionalities you added or removed. Why?
   a. We remove the functionality of the filter because it's too complicated to do the interface.
   b. We added a login interface for users and administrators. Because we think users should not be allowed to modify information about restaurants and only administrators can do this.
   c. We added a simple visual comparison tool that can help highlight the similarities/differences between two restaurants.
   d. Using the trigger of calculating the average rating of restaurants, we add a comment shielding function. One user could submit the comment on the same restaurant many times, which will be recorded in the database, but only the first comment will be used to calculate the average ratings. It can be used to avoid "review bombing".
   e. Using a stored procedure, we were able to allow users to search for restaurants they previously liked based on their opening time. Also, based on the average restaurant and user ratings, it will suggest users which restaurants to go to.

6. Explain how you think your advanced database programs complement your application.
   a. It allows for user logins to actually be useful as you can like restaurants, rate and review them, and keep track of these liked restaurants. Being able to search for menu items and restaurants gives value to the database.
   b. It allows users to search based on all kinds of criteria and return the best restaurant based on that criteria. It gives useful feedback to users who want to use our application to find the most suitable restaurants.

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.
   a. At first, we tried to use some APIs to collect the original data and that's very hard. Most of them are very expensive and we didn't want to pay for them. And the size of the data did not meet our expectations. After several days, We ultimately decided to use some web page collector application

and we found an excellent website called “allmenu” with almost all the restaurants in the US. It did work and we collected 800,000 data by running the computer all night.

b. Some functionality of our application sounds easy to implement but is more complicated than thought. For example, when a user writes a comment, we need to update four tables: Review, Reviewer, Writes, Contain. And if you delete a comment, you have to do the same! Once something is wrong, you need to restore to original data again. Besides, you need to judge if this user is already in the Reviewer table or not. It can be time consuming work.
c. I think we were quite ambitious about the things that we were going to achieve at the beginning of our proposal. However, as we were unfamiliar with dealing with a large number of schemas and the front-end development, we were unable to achieve them as we had intended to. I realized that we should have thought about the process more carefully before coming up with the proposal.
d. Another challenge we encountered was the problems that were beyond what was taught in this class such as how to use HTML and Javascript. It was something that we spent quite some time to figure out. It would be very useful to be familiar with this before doing the project.

8. Are there other things that changed comparing the final application with the original proposal?
    a. Showing the results in another webpage is discarded because we just found that we could show the result at the bottom of that page by coding smartly, which is more clear and cool. We just need to arrange the space, set the background and do some typeface changes to make it better.

9. Describe future work that you think, other than the interface, that the application can improve on?
    a. Adding more functionality and features that include different ways to search. Having a map feature that shows the location of restaurants on a map could also be beneficial. Also extending this app to different cities, because currently it only has Chicago restaurants.
    b. We can also include more information for each restaurants such as links to the restaurants’ website or they can just click and call the restaurant.
    c. We can also allow restaurant owners to have their own login account so that they can reply to their own customer’s comments.

10. Describe the final division of labor and how well you managed teamwork.
    a. We divided labor with members completing tasks as their schedule allowed. For example, if one member had a busy week and the other three did not, then the busy member would not be asked to do a lot.
    b. All four members worked on finding solutions for the schema as well as importing the data. Suhao downloaded the data, and Hanggang created the database from this. Ling and David worked to get the basics of the website working and to allow different web requests to query and update the database. Each member then continued to improve and update the app and its functionality.
    c. We used discord to communicate and managed teamwork well. There were no real conflicts, with the only small issue being finding mutually available meeting times.