CS 411
Reflection Report
Team No. 030

1. Changes of the Proposal

The functionalities and directions of the projects remained the same, which is to create a community where people can have access to resources such as workout videos, recipe videos, and forums that prompts a healthier lifestyle across the globe. However, we made some adjustments to the web page design. In the original design, we wanted to have a cover flow on the main page (an animated 3D virtual scrolling bar) that displays the covers of popular videos for users to choose from. Considering the simplicity of navigation from user experience perspective, we decided to keep the search bar on the main page along with tabs that bring users to each sub-section. For an interactive user experience, we added interactive charts that display the tendency of view counts of videos based on different workout types within a specific period. It helps us as developers to track popular trends on our websites and also gives users a preview of trends of different workout types across the globe.

2. Application Achievement

a) We built an assembling community where users can look up a variety of types of workout and recipe videos without having to browse through various websites.
b) Our application gives users free and numerous open sources of training and recipe videos.
c) Forums allow people to share their experiences and thoughts on their workout journey with all the users across the globe.

What we failed to apply in our application is a more interactive user experience. The interactive chart we added plays a role as a visual aid that helps our users to catch the newest trends in workouts. A monthly user report where users can track their workout history and habits would be more effective. Unlike the original design, users do not have the option to retweet other user posts or to comment under the videos, which we claimed to be a distinctive feature on our website that might help users to make friends and to promote healthier living habits. Lastly, we were not able to add a section where users can share their recipes, which was believed to be a healthy lifestyle-promoting method.

3. Changes of the Data

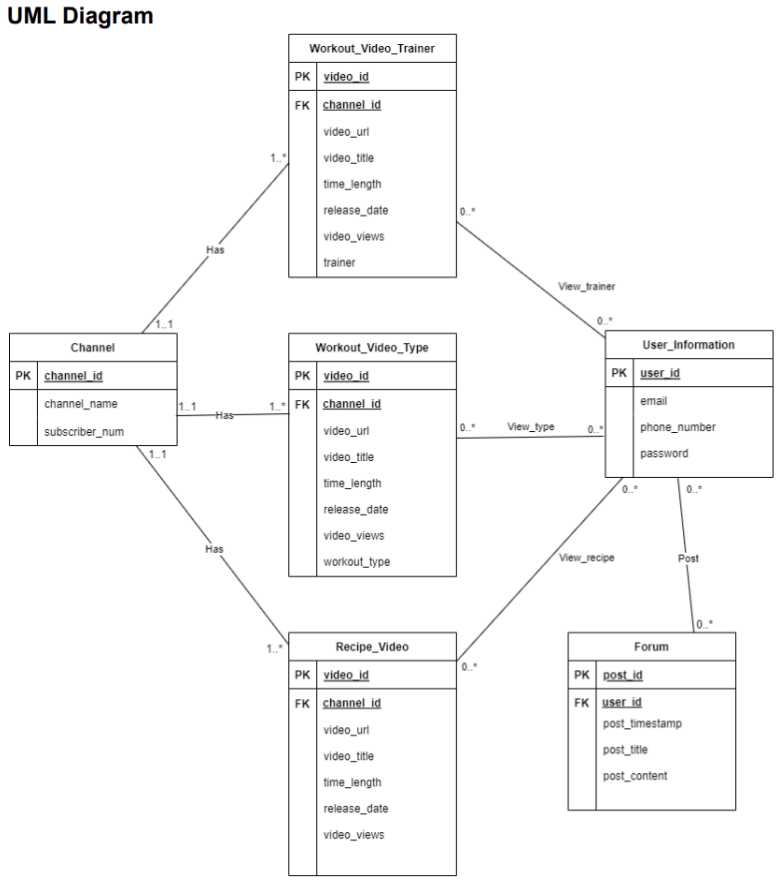
We did not change the source of the data, and we used the Youtube API to scrape video information as we originally planned. But we changed the data schema, which is discussed in the next section.

4. Changes of Table Implementations

Figure 1 shows the original schema, and we changed the schema by adding variables to some tables. Specifically, we added (1) the view count and (2) the video count to the Channel table. We also added (1) iframe and (2) like count to the tables Workout_Video_Trainer, Workout_Video_Type, and Recipe_Video.

Generally, we added these variables because it provides more conditions and choices for us to conduct queries, which provide more information to users. For example, adding the variable iframe to the tables Workout_Video_Trainer, Workout_Video_Type, and Recipe_Video allows us to display the original videos in grids on our web pages. With the addition of the like count of videos, users can also have more video information along with the video view count. The updated design is more suitable because, as mentioned, users can search for more information and enrich their experience using this application.

Figure 1. The Original Schema



5. Changes of Functionalities

Originally, we planned to include a function for users to search both **workout** and **recipe** videos based on keywords of video titles or use the filters to find videos they are interested in.

Compared to the original plan, there is no big difference in our application. Users can conduct keyword searches on the home page, searching for workouts or recipe video information. They can also use the four filters for workout types (HIIT & Crossfit, Yoga & Pilates, Aerobic & Cardio, Stretching & Balance) and twelve filters for workout trainers to get relevant video information. Also, for each workout type and each trainer, users can use four filters to find (1) the popular videos, (2) the latest videos, (3) videos before 2020, and (4) videos after 2020.

We also originally planned to include the function that allows users to (1) make new posts on each sub-community of the forum, (2) modify their posts, (3) delete their posts, and (4) search posts written by other users, but due to the limited time, we did not create different communities for users to share posts based on different topics. We also removed the last function to search posts.

6. Advanced Database Program

In the original design, we proposed that for the read functionality of our website, users can "search workout videos based on keywords of video titles, or use the filters to find videos they are interested in". Searching workout videos and recipe videos based on keywords of video titles is achieved by using simple SQL queries. In order to improve user experience, for easier navigation and more efficient filtering on channels, we used stored procedures to set up the recommendation functionality so that users can search for keywords as well as set view count (which indicates popularity among viewers) and subscriber count (which signifies the popularity of the channel and workout trends). The result gives the users the channel title, subscriber count, and matched video count so that it will be easier for users to navigate to the homepages of channels that make the type of videos users are interested in. To ensure the civility of our community, we incorporated a trigger when setting up the forum, where if bad words (e.g. the "f" word) are detected on the posts, the trigger will be stroked and the bad words will be replaced by "****". It helps us, developers, to preserve public order online and also ensures that the mood of our users will not be disrupted when they enjoy our website.

7. Technical Challenges

We encountered different technical challenges during the project. At stage 5, Ander Liu found it too slow to load a large number of videos to our web pages using iframe. The reason might be that each iframe uses a specific link to render, and it will take too long to render a large number of videos. That is why we finally decided to use tables to display video information instead of videos in grids with their thumbnails.

At stage 4, Ella Zhang did not find a way to execute SQL queries in the Django framework at first, and we encountered many problems in executing the queries, such as syntax errors. We first successfully implemented the queries by using Object-relational Mappers

(ORMs). Then we referred to many online resources to figure out how to execute the original SQL queries. A key to solving this problem is to add escape characters (\).

Also at stage 4, Tianhong Yin was stuck in the setup process of the Django framework and had several problems, such as using pip instead of pip3 in installing packages, and it took a long time to successfully installed the framework on her laptop. People might face issues with different versions of Python when using different versions of computers, and we need to figure out which version and the corresponding code to use.

Nanxi Shan had difficulty accessing the SQL workbench at stage 1. This issue was not figured out, but she could be able to connect the GCP using the Django framework.

8. Other changes

No. All the changes in directions, functionalities and design, if there are any, have already been covered in the questions above.

9. Future Improvements

To make improvements, we can include a comment section under each video information so that users can get a sense of whether a video is useful for their workout routine. We can also use the transaction function to prevent dirty read in the forum section. In this way, when a user is editing his/her post, other users cannot see the post or the not-yet-updated/unsaved content by the user editing the posts. Also, we can provide more filters for users to search for workout and recipe videos. For example, we can add more sections on the recipe pages by providing different receipt types. In addition, we can add a user report for each user on their profile page, showing their view history to help them analyze their workout habits. Lastly, we might want to create a user report for all users to analyze the distribution of their gender, ethnicity, region, etc. This would require more columns added to our database tables when users need to add information on their profile pages. For this purpose, we can apply NoSql, which enables us to update the user information without the need to modify the table schema in SQL database.

10. Project Work Distribution

Our division of work is as follows:

- Data collection and labeling: Ander Liu(anderdl2), Tianhong Yin(tyin7), Ella Zhang(yimuz2)
- Demo and Report: Tianhong Yin(tyin7), Ella Zhang(yimuz2), Ander Liu(anderdl2)
- Web Page Design: Tianhong Yin(tyin7), Ella Zhang(yimuz2)
- Frontend (HTML+CSS): Ander Liu(anderdl2), Nanxi Shan(nanxis2)
- Backend systems:
    - Django: Ander Liu(anderdl2)

    - SQL syntax: Tianhong Yin(tyin7), Ella Zhang(yimuz2)
- Creative component(visualization): Ander Liu(anderdl2)

The overall teamwork distribution and experience is great, despite some unequal distribution of teamwork as shown above.