CS5200 Project Final Report - Fanfiction Forum
Fall 2023

Group Info

Group name: ZhuYLiuR
Group members: Ruochen (Vila) Liu, Yiming Zhu

README

To build and run our project, you will need python, pip, and PyMySQL library installed. If you already have these specifications then skip to the next steps “import dump file” in the next paragraph.

Language and Library Installation
The first step is to install python3. This can be done by visiting python.org. Note that to check which version of python you have installed, open the terminal or command line and type “python --version” or “python -V”.

Next you have to install pip. To do so you would type the following in the command line: “sudo apt install python3-pip”. Similarly, to check which version of pip you have installed, use the following command “pip --version”.

Now, you need to install the PyMySQL library. This can be done by either of the following in the command line: “pip install PyMySQL” or “pip install PyMySQL[rsa]”. Note that the latter includes the installation of cryptography which is needed if your MySQL was set up with sha256_password or caching_sha2_password. Then to check if you’ve correctly installed PyMySQL, use the command “pip list”. After running this command there should be a list on the screen. If the list has PyMySQL in it then you have successfully installed the library. Note that to check if you have successfully installed PyMySQL[rsa], the list should include both PyMySQL and cryptography.

Import Dump File
The next step is to import the given self-contained dump file, “Fanfiction_ForumDataDump.sql” . To do this open the dump file with your MySQL connection and then run/execute the whole script. Then to check if you have successfully created the database in your workbench, click the refresh button near Schema and find “fanfiction_forum”.

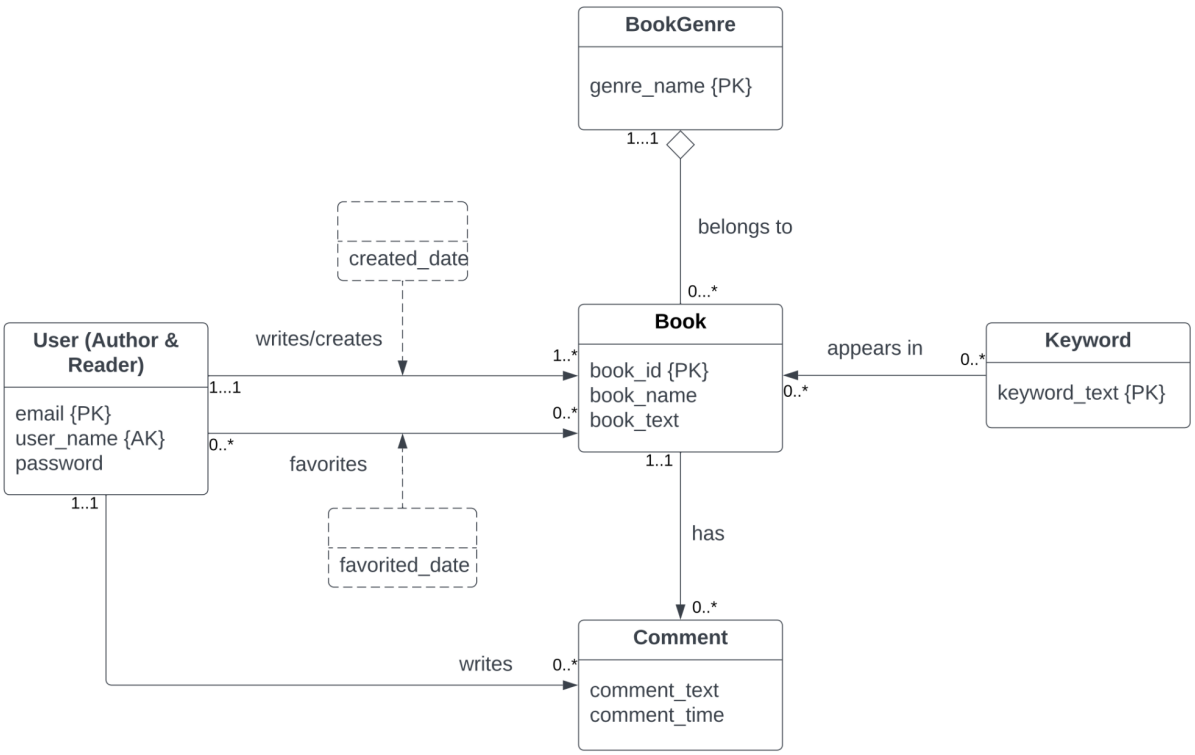
Run Application Code

The last step would be to run the application code. The application code can be run either using the command line or a python ide of your choice. If you are using the command line make sure you are in the directory where our python application file, “ZhuYLiuR_App_Code.py” , is. Note to navigate to the correct directory use the “cd” change directory command. Once you are in the correct directory, simply type “python ZhuYLiuR_App_Code.py” or “python3 ZhuYLiuR_App_Code.py” depending on which version of python you have. To start, make sure you have our sql file runned and get your username and password ready for your sql root account.

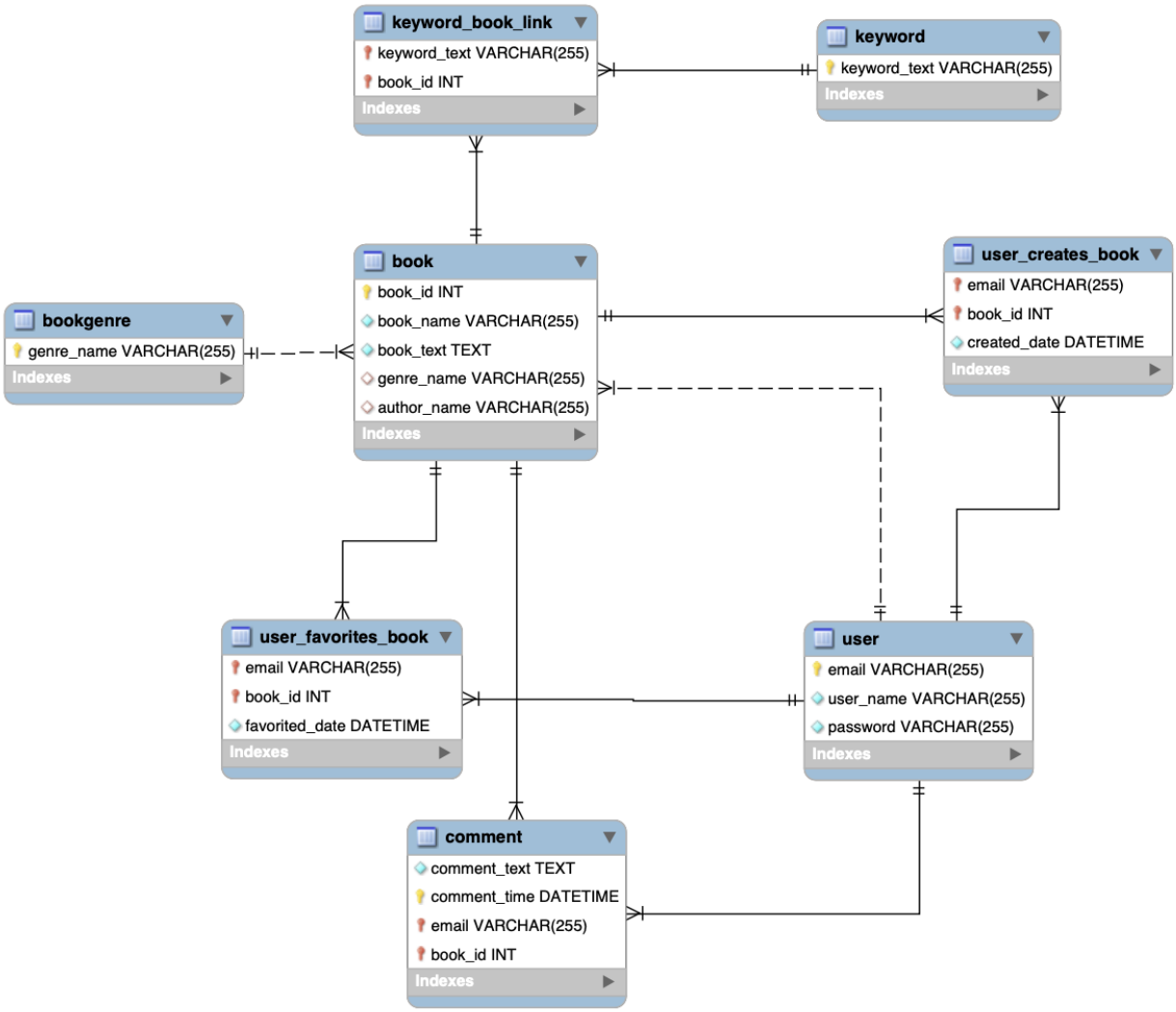
Technical Specifications

For this project, we used SQL and MySQL workbench to create and manage a database. For the front end client application we used python. More specifically, we used the PyMySQL connector library to connect our application to the database. Our project has no known machine restriction.

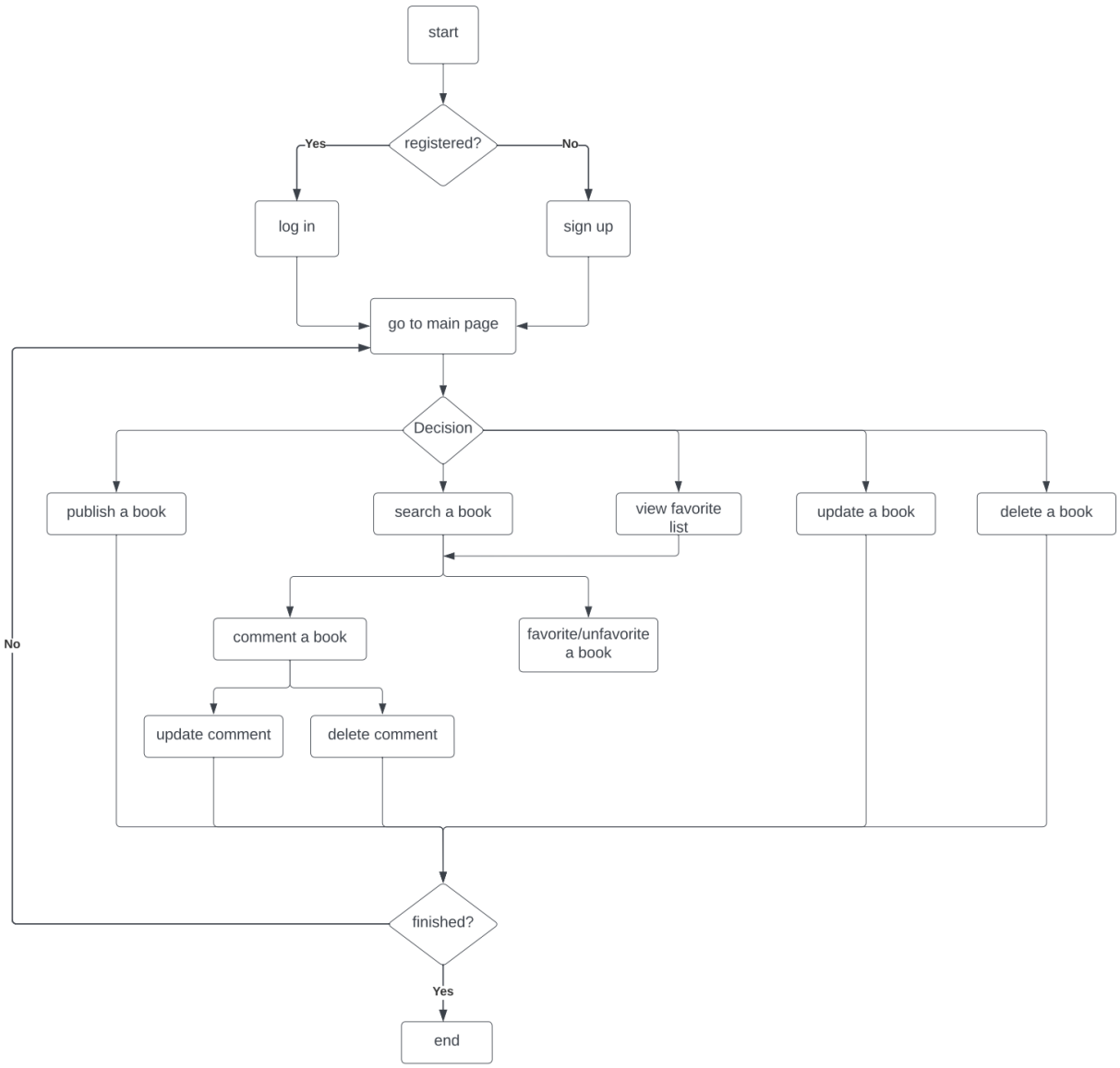
Current Conceptual Design (UML)



Current Logical Design (Reverse Engineer of final schema)



Final Activity Diagram (User Flow)



Lesson Learned

While working on this project, we solidified and furthered our knowledge of Database Management Systems as we built the entire Fanfiction Forum database from scratch. We carefully considered the necessary tables and also developed procedures, functions, and triggers. Furthermore, we learned how to connect our database to our front end user application using pymysql. This project provided us with a valuable opportunity to understand the real-world

significance of database management systems, and it was rewarding to be able to apply the knowledge we gained in a course to a problem of our interest.

We began working on this project as soon as we received feedback on our project proposal. It is worth mentioning that Professor Durant gave us valuable feedback including removing redundant attributes, combining user roles to make entities clean, and transfer from Java and Spring boot to a simpler user interface due to time limit. Our first step was to create the necessary tables and develop our database schema. We started working every day after our third exam and divided tasks among ourselves, while regularly checking in with each other after reaching important milestones. Overall, we are pleased with our time management and approach to this task.

Currently, we are using the command line as our client-side interface, and it's working well. However, given more time, we would like to take this project to the next level and develop a user-friendly web application with a clear graphical user interface (GUI). With this, we could enhance the project by adding more procedures and improving CRUD operations.
Lastly, we would like to mention that all our code works as expected so we do not have any code that's not working.

Future Work

The "Fanfiction Forum" database, as currently structured, offers a solid foundation for a dynamic and interactive fan fiction platform.

1. Planned Uses of the Database:
   - ❖ Content Curation and Recommendation: Utilizing user interaction data (likes, comments) to develop personalized content recommendations. For instance, applying machine learning algorithms to suggest fan fiction stories based on user preferences and reading history.
   - ❖ Advanced Search Capabilities: Implementing full-text search functionality to allow users to efficiently search through fan fiction stories based on keywords, genres, and author names.
   - ❖ Community Engagement Features: Enhancing user engagement by introducing features like user polls, story rating systems, and author-follow functionalities.

2. Potential Areas for Added Functionality:
   - ❖ Social Integration: Incorporating social features such as user profiles, friend systems, and sharing capabilities to social media platforms.
   - ❖ Analytics Dashboard: Developing an analytics module for authors to track the popularity and readership of their stories.
   - ❖ Mobile Application Development: Expanding the platform's accessibility by creating a mobile app, thereby increasing user engagement through push notifications and a mobile-friendly interface.

3. Justification for Limited Future Work:
   - ❖ Should there be a decision to limit future developments, the justification could be based on maintaining a niche community focus, where the platform aims to cater specifically to a dedicated group of fan fiction enthusiasts without over-complicating the user experience. Additionally, budget constraints or strategic decisions to focus on content quality over feature quantity could also be valid reasons for limiting future expansions.

Overall, while the current implementation serves the essential functions, these future enhancements could significantly elevate the user experience and engagement on the platform. Some of the functionalities that we originally planned to implement have been left for the future because of the time limitation for this project. As mentioned in the section above, given more time we would integrate more of the SQL user defined procedures, functions, and triggers that we have written into the application code and provide more functionalities for the user.