

Chirag Malhotra
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Project Final Report
README

readit

CS5200 Final Project

How To Run

- Change `user` and `password` field based on your MySQL credentials in `config.json` file

```
'''
```

```
    "user": "",
```

```
    "password": "",
```

```
'''
```

- Go the terminal and go to the python directory.

- On terminal type "python login.py" to run the login python script. -- That is the start point of our application.

- Create a new user by following the instructions.

- Login using the newly created user.

- You will see the main post page with different operations listed.

- To create a post Click on create post and follow the instructions.

- To delete the post, come back to the main page and select on delete the post.

- To upvote a post, you select upvote and vote it. You can also remove your vote from the main page itself.

- To comment on the post, go to Read/Comment option and comment then you have three options, 1.Create
Comment 2.Update a comment

- According to our design decision, a comment can only be deleted when a post is deleted. This would make people
comment only when they mean to say something important.

- To Check the user profile, select the option.

- Now you should see options to delete and update the user profile.

- Finally to log out you have option 10 that closes all the cursors and connections and logs the user out of both the
database and the application.

Everything that we have done:

- Showing profile page

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- Hashing and storing password
- CRUD User
 - Create
 - Read profile page
 - Function to return one profile based on userName
 - Update any fields of user
 - Procedure
 - Delete user --> user can delete itself
 - Procedure
- CRUD Post
 - Create Post
 - Read post
 - Update post
 - Update IS ONLY increasing or decreasing Vote
 - Delete post will delete its comments
- CRUD Comment
 - Create comment and sub comment
 - Read thread of comment of a post
 - Update one comment
 - Delete - TO DO --> Changed
 - only deleting post can delete comments
 - Delete the top-level comment, child comments get deleted
 - Deleting sub-comment, only sub-comment gets deleted

Changes

After successful user creation, user is prompted back to screen asking for login

- In activity diagram, after successful signup, user goes directly to home page with newly signed up username

Extra Credit

- Login with hashed password
- Recursive relationship of comment --> Overly complicated translations from user operations to database operations
- CRUD for 3 entities
 - User
 - Post
 - Comment

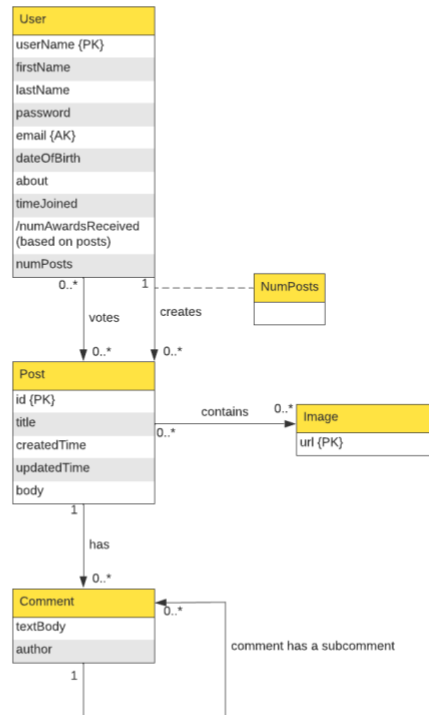
Technical Specifications

Our development team meticulously crafted a Command Line Interface (CLI) for an innovative social media application named Readit, employing the robust capabilities of MySQL and Python. To establish seamless connectivity between the Python application and our database, we integrated the powerful PyMySQL library, facilitating efficient data management and manipulation.

Conceptual Design

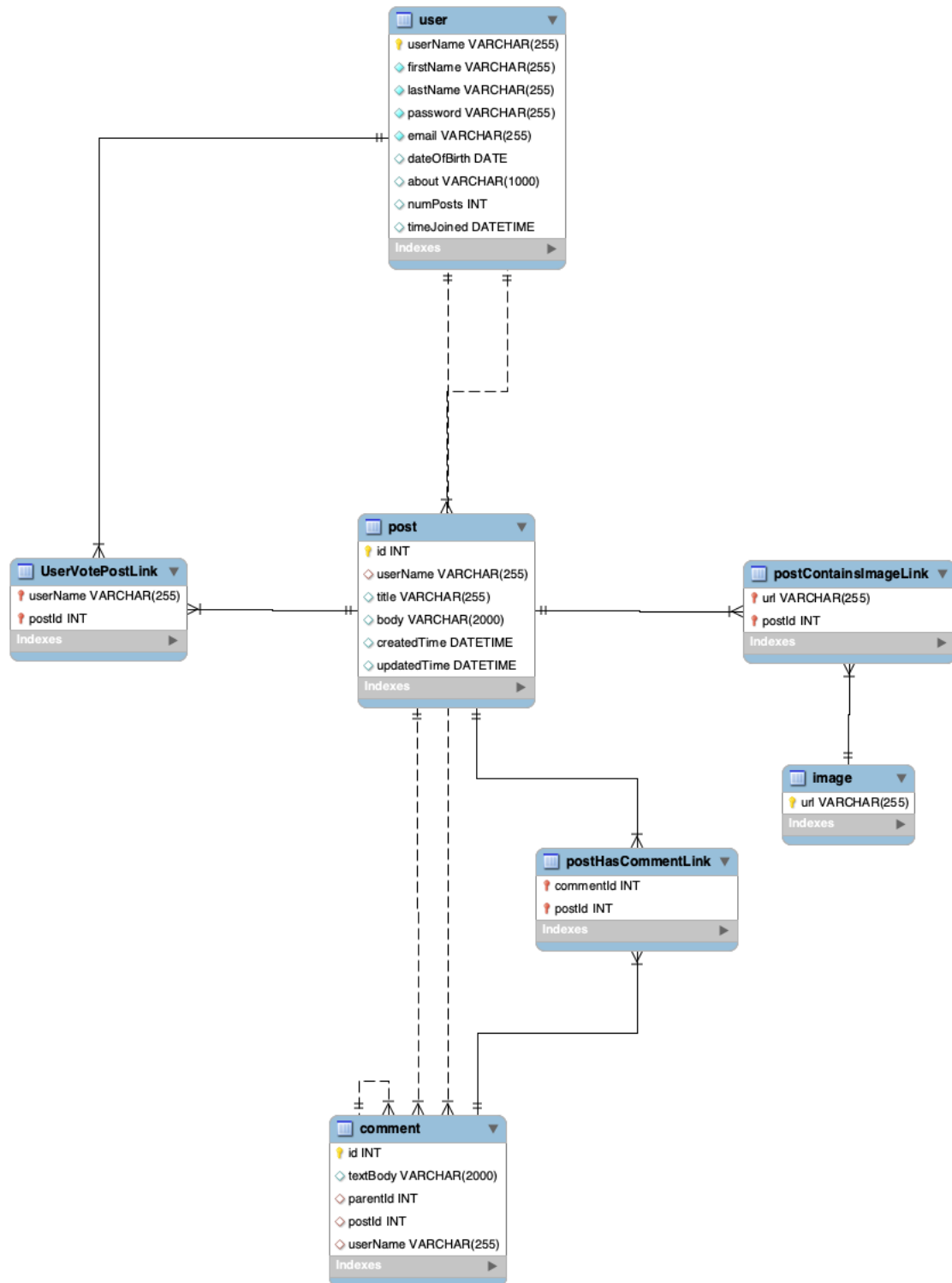
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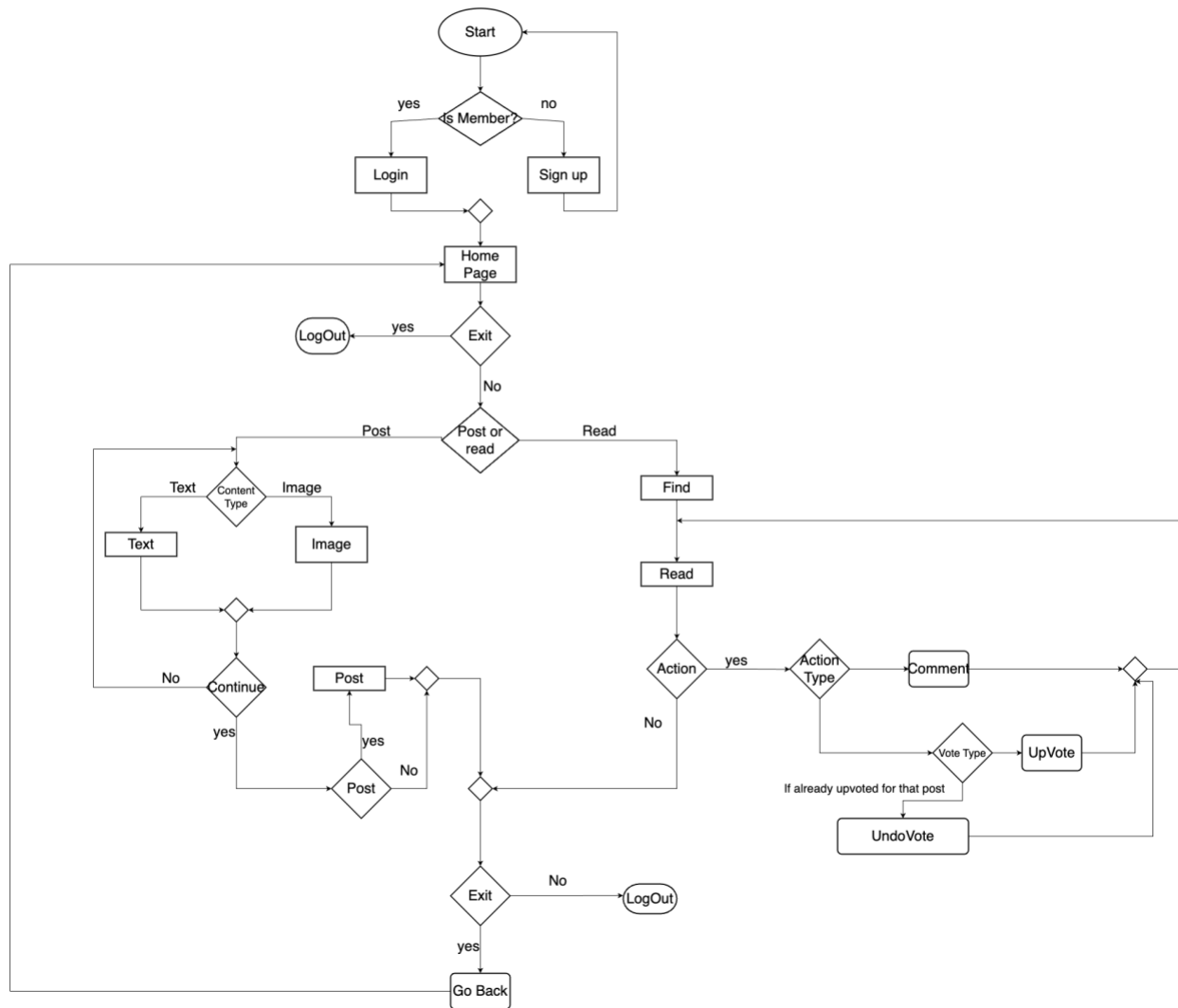


Logical Design

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Activity Diagram



Lesson Learned

Technical Expertise Gained

As the project progressed, our team acquired valuable hands-on experience with advanced database techniques, including procedures, functions, and triggers. We employed procedures to handle all Create, Read, Update, and Delete (CRUD) operations, while leveraging functions for operations that returned a single value to be utilized by our application code. Triggers played a crucial role in managing image deletions, ensuring data consistency and integrity. Furthermore, we adopted sophisticated Object-Oriented Design (OOD) concepts, such as the SOLID principle, to enhance the readability, accessibility, and maintainability of our codebase. Through this process, we also recognized the significance of committing each step in order to safeguard against the loss of progress.

In-Depth Insights and Challenges

By reverse engineering Reddit, our team gained a profound understanding of the intricate database structure and complexity underlying this immensely popular platform. The multifaceted nature of the project necessitated exceptional time management skills, as it involved numerous components and presented a highly complex problem to solve. While our team did not possess the resources or expertise to analyze Reddit's actual data, we ingeniously utilized the CLI to generate and test data for our project. However, despite our best efforts, we encountered an SQL exception issue when executing the code for updating posts within the application.

Alternative Approaches and Considerations

During the project, we identified two alternative approaches that could have potentially enhanced the implementation. Firstly, adopting a NoSQL database could have accommodated the diverse and substantial data by storing information within individual posts, thereby eliminating the need for regularization, and offering greater flexibility. Secondly, incorporating a moderator role within the application design could have facilitated the filtering and deletion of offensive content, fostering a safer and more inclusive environment for users.

Future Work and Expansion

As we look to the future, our team envisions several exciting developments for our project. These include the addition of new database tables, such as Awards, Award Types, and Moderator (User type), to enrich the application's features and user experience. Furthermore, we aim to transform our CLI implementation into a full-fledged web application, enhancing its accessibility and reach. The introduction of an Awards feature will enable users to grant and retract awards on posts, fostering community engagement and recognition. Lastly, we plan to employ advanced LSTM sentiment analysis techniques to proactively detect and block harmful content, thereby ensuring a safe and supportive environment for users on the platform.

Project Video

<https://www.loom.com/share/48db54bd1bb04e7d92ba0ce0c1b474b4>