COMP 440 - Course Project

Fall 2021

Description

Consider the design of the following database system for managing a social network website: each user is registered with the website with a username, password, first name, last name, and an email. Username and email are unique. Each user is associated with a list of hobbies selected from the following list: hiking, swimming, calligraphy, bowling, movie, cooking, and dancing. A user can follow a list of other users and can also be followed by another list of users. See https://steemit.com/ for an example.
Moreover, a user can post a blog, modify the blog, and delete it afterward. Given a blog, another user, and only another user, can give a comment to the blog, modify the comment, or delete the comment afterward. To ensure the quality of the website, each user can post at most 2 blogs a day, and each user can give at most 3 comments in one day. For each blog, the user who posted the blog cannot give any comment (no self-comment), and another user can give at most one comment. Each blog is identified by a blogid, subject, description, and a list of tags for search purposes. Each comment is identified by a commentid, a sentiment (positive or negative), and a description.

For all parts of this project, your system must be application or web-based. Some simple GUI interfaces are required for each functionality. **All functionality must be performed via the interface of your system; direct SQL statement execution via any tools (e.g., MySQL workbench) is not allowed.**

Part 1 – Deadline: Already Done 😊
Use Java/C#/PHP/Python and SQL, implement the following functionality:

1. (5 pts) Implement a user registration and login interface so that only a registered user can login into the system. You have to prevent the SQL injection attack.
2. (5 pts) Sign up for a new user with information such as: username, password, password confirmed, first name, last name, email. Duplicate username, and email should be detected and fail the signup. Unmatching passwords should be detected, as well.
3. (10 pts) Implement a button called **"Initialize Database"**. When a user clicks it, all necessary tables will be created (or recreated) automatically, with each table be populated with at least 10 tuples so that each query below will return some results. All students should use the username "john", and password "pass1234".

How to submit:

1. The source code package. All files (source codes, class files, bat, and txt) should be contained in a war or zip file called comp440_xx_part1.zip for a team whose team name is xx submitted via Canvas.
2. A YouTube video. Use a recorder: https://www.apowersoft.com/free-online-screen-recorder. And upload your video to www.youtube.com. I only need you to record your screen and your voice for the project demo, not your face. You can add the YouTube URL to a readme file inside your project directory. You can create slides for your presentation if that is helpful, Or you can use YouTube for recording your video: https://www.labnol.org/software/create-youtube-screencast/27936/

Part 2: Deadline: ~2 Weeks – Monday 11/22 by midnight

Based on part 1 and after setting up the project database (the .sql file of the project database is provided.), implement the following functionality using your programming language and SQL with necessary GUI interfaces. Part 2 emphasizes the programming of GUI interfaces and design and their integration with database operations.

1. (10 pts) Implement a GUI interface so that a user can insert a blog such as

   Subject: The future of blockchain
   Description: Blockchain is a buzz word nowadays. …
   Tags: blockchain, bitcoin, decentralized

   The ids of the blogs should be generated automatically using the autoincrement feature of MySQL. **Make sure that a user can only insert 2 blogs a day.**
2. (10 pts) Select a blog from the above list; one can write a comment like the following:

   A dropdown menu to choose "Negative" or "positive," and then a description such as "This is a nice blog. I like the comparison between blockchain and the Internet.". Make sure that a user can give at most **3** comments a day and, at most, one comment for each blog and not to his own blog.

How to submit:

1. The source code package. All files (source codes, class files, bat, and txt) should be contained in a war or zip file called comp440_xx_part2.zip for a team whose team name is xx submitted via Canvas.
2. A YouTube video. Use a recorder: https://www.apowersoft.com/free-online-screen-recorder. And upload your video to www.youtube.com. I only need you to record your screen and your voice for the project demo, not your face. You can add the YouTube URL to a readme file inside your project directory. You can create slides for your presentation if that is helpful, Or you can use YouTube for recording your video: https://www.labnol.org/software/create-youtube-screencast/27936/

Part 3: Deadline: 2 weeks – Monday, 12/06 by midnight

Based on part 1 & part 2, implement the following functionality using your selected programming language (Java, Python, C#, and …) and SQL with necessary GUI interfaces. Part 3 emphasizes both the GUI interfaces and their integration with backend database operations.

1. (10 pts) List all the blogs of user X, such that all the comments are positive for these blogs.
2. (10 pts) List the users who posted the most number of blogs on 10/10/2021; if there is a tie, list all the users who have a tie.
3. (10 pts) List the users who are followed by both X and Y. Usernames X and Y are inputs from the user.
4. (10 pts) Display all the users who never posted a blog.
5. (10 pts) Display all the users who posted some comments, but each of them is negative.
6. (10 pts) Display those users such that all the blogs they posted so far never received any negative comments.

How to submit:

1. The source code package. All files (source codes, class files, bat, and txt) should be contained in a war or zip file called comp440_xx_part3.zip for a team whose team name is xx submitted via Canvas.
2. A YouTube video. Use a recorder: https://www.apowersoft.com/free-online-screen-recorder. And upload your video to www.youtube.com. I only need you to record your screen and your voice for the project demo, not your face. You can add the YouTube URL to a readme file inside your project directory. You can create slides for your presentation if that is helpful, Or you can use YouTube for recording your video: https://www.labnol.org/software/create-youtube-screencast/27936/
3. Demo: The students will also run the project in front of the instructor for each problem listed above to demonstrate their work.

The project will be done by three or four students, but each student's contribution needs to be clearly stated in readme.txt.

Start your project early and ask questions if you have doubts. Do not wait until the last minute.

Demo

You will be required to show a demo of your project right after the submission of part 3. You can not improve your code after the submission of part 3. **Each group will have ~30 minutes for the demo of their project. Make sure you always have a working version by archiving so that you avoid last-minute mistakes. Populate your database so that it is ready to answer all the queries in the project. All functionality must be performed via the interface of your system**

(GUI), direct SQL statement execution via any tools (MySQL workbench or phpMyAdmin) is not allowed during the demo.

Examples of previous projects:

- https://www.youtube.com/watch?v=J5rxAaTCcjU&feature=youtu.be
- https://www.youtube.com/watch?v=lNZJQYIQmco
- https://www.youtube.com/watch?v=NEejGx4xk7U