Bilkent University

Cs 353

Project Proposal

Social Networking for Readers

Group 12

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1.Introduction

In this report, a social networking application for readers is going to be described. This report consists of a brief description of the project, the reason and method for the usage of a database, the functional and non-functional requirements of the system, constraints, and a conceptual design diagram using the ER Model.

2.Project Description

An online database will be constructed to maintain different requirements of finding new books for readers, discussing books with other readers and purchasing books from writers. The system has three actors. These actors are readers, writers who are grouped as the users, and admin. All users have a unique id, name and hashed password. Admins have additional attributes about forums suchs as forum id and title.

Project will have a login system. Login system will provide two options for users. First option is to sign up as a reader and the other option is to sign up as an author. Also there will be unregistered users. These users will only have access to read reviews and forums. Other functionalities will require registration. Registered users will have access to following functions:

1. Write a review about a book.
2. Rate a book.
3. Create groups and join groups.
4. Browse books according to their areas of interest.
5. Make a list of completed books.
6. Wish list for books.
7. Follow another user or author
    i. If a user is followed, users will be able to see their reviews, lists and their ratings about other books
    ii. If an author is followed, users will be able to see the books that they publish in time.
8. Purchase an ebook.
9. Upvote or downvote a review

i. If a review has %80 downvote ratings, that review will be deleted by the system

10. Can contribute to forum discussions with some limitations that will be mentioned below.
11. Download e-books that they have purchased.
    a. Additionally, Authors will have access to following functions:
12. Publish e-books
13. Withdraw money

Another type of user will be Admins. They will be able to create forum titles and they can also find the most popular books, most hated books. Basically, they can gather information about the system thoroughly.

The system is basically a social network for books. All types of users will be able to search books, with or without filters such as:

- Price
- Book name
- Genre
- Year
- Rating
- Author

3.Why Do We Use a Database

Social network application, which is the subject of the project, has a non-simple structure, and has different entities and their relationships to be hosted. This, therefore, creates an organic system with different entities and various relations. As such, all the data, entities and relations are pieces of information that needs to be kept in an orderly fashion. In addition, this application needs to save data from entities and relationships between entities. Because, aside from transferring the obtained and stored data to the users later, it is needed for the system to improve itself. For these reasons, the seriousness of the use of the database has been understood, and it is important to store and display the data in a regular and sequential manner thanks to the database.

4.How Do We Use a Database

To build, modify, and delete tables, we utilize SQL. Additionally, we'll manage the database using the PostgreSQL DBMS. To grasp the necessary tables and relations in the database, we must first create our E/R diagram. Then, using the required SQL instructions, we construct the correct database tables in our PostgreSQL database. Finally, by sending various SQL statements and queries to our PostgreSQL database, we may edit the database and obtain the necessary data.

5.Requirements

5.1 Functional Requirements

- **Purchasing a book from an author**
  - Registered users can view, follow and buy authors' books from their profiles. Purchased books are saved to the "Purchased Books" section.
- **Browsing and Viewing an Author**
  - Registered users can browse, follow and view authors' profiles. Purchased books are saved to the "Purchased Books" section. They can also like authors' published books.
- **Rating a Review and Book**
  - Registered users can review and comment on books. Registered user comments are saved in the "Reviews" section.
- **Follow a User or Author**
  - Registered users can follow other users and authors. Users can also see other profiles which include liked books etc.
- **Upvote or Downvote a Review**
  - Registered users can upvote or downvote a review which affects the review listing.
- **Create Desired Lists**
  - Registered users can create lists to group different types of books and these lists can be viewed by others.

- **Contribute to forum Discussion**
    - Registered users can contribute to different forum discussions and meet each other interested in similar or different topics. These forums are created by the admins. Forums are saved to the “Forums” section.
- **Write a review**
    - Registered users can write their reviews of books and other users can upvote or downvote their reviews which affects the listing number of the reviews.
- **Publish a Book**
    - Authors can publish their books in order to sell. Published books are saved to the “Published Books” section.

5.2 Non-Functional Requirements

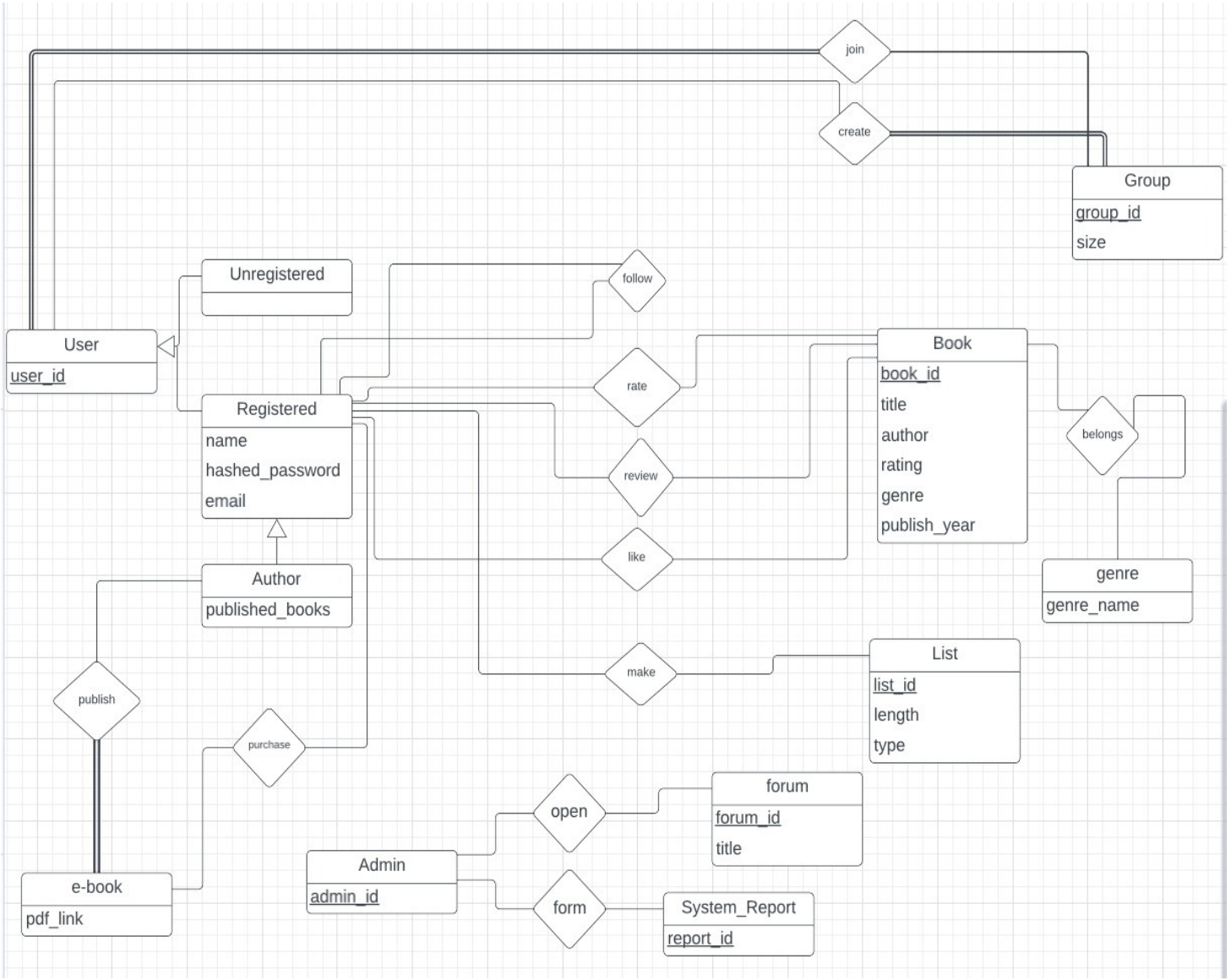
- **Data Retention**
    - The system needs to be able to store considerable information about books, registered users, authors and admins.
    - Data should be retained for as long as necessary and discarded immediately when they need to be deleted. Like delete a review, upvote or downvote.
- **Maintainability**
    - The system must be able to look for a long time with minimal changes
    - To minimize data loss, the system should warn or ask for confirmation from all users when data maintenance will be performed.
    - A fault in the system must be handled without disturbing the core functions or parts of the system that are not affected.
- **Cost**
    - To ensure long-term use, the system must be cost-effective. Because the structure is not very complex, factors such as labor, maintenance and life cycle costs need to be considered. Costs should be adjusted taking into account the small size of the system and should not exceed a certain amount.

- **Scalability**
    - The system should adapt and change according to the changes of the data. For example, the number of people contributing to a forum can be very big or very small or user flow density in the system may vary etc.
- **Performance**
    - System must be reliable and quick to carry out assigned tasks**.**
    - Efficiency is required when carrying out system activities in order to prevent user performance issues.
    - Even when there are too many users online at once the system must be able to function well.

6. Constraints

- Users won't be able to display other users' followers, if they are not already following them.
- Unregistered users won’t be able to
    - Write a review
    - Rate a review and book
    - Make any kind of list
    - Follow another user or author
    - Purchase an ebook
    - Upvote or downvote a review
    - Contribute to forum discussion
- Reader type of users won’t be able to
    - Publish ebook
- Authors won’t be able to publish e-books before at least a month of registration.
- In order to contribute to forum discussions, users should have a specific amount of upvotes in their reviews.
- In order to use our system, all of the users should have an internet connection

7. Conceptual Design Using the ER Model



8. Website

Proposal link: https://github.com/E-Kerem/CS353-Database-Project

9. References

[1] A. Silberschatz, H. F. Korth, and S. Sudarshan, *Database system concepts*. New York, NY: McGraw-Hill, 2020.

[2] "Online Diagram Software & Visual Solution | Lucidchart", Lucidchart, 2018. [Online]. Available: https://www.lucidchart.com. Accessed: 21- Oct-20181