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Web Technologies Final Project Report - Library Management System

Our project is a library management system that allows individual users to view and interact with a collection of library books through a web based application. Our project also has an account-based system that requires a user to register their own account and login with their credentials in order to use and interact with our system. Once logged in, each user will be able to see and search through a collection of library books that are stored in our database. Each book listed displays the following information: its title, author, description, genre, page count, number of copies available, and an image of the book. Each user will be able to browse this list and check out up to one copy of each book, with an error message being displayed to any user that tries to check out more than one copy. Users are also able to view a list of all of the books they currently have checked out and from this list they are able to return any of their books.

Our library management system also has special features available exclusively to admin users to help an admin view and modify important information. This page is password protected but can be accessed with the password ‘adminpassword’. One such special feature is a page where an admin user can view every registered user including their username, email, and all of the books they currently have checked out. Admins also have the privilege to delete any user from the system. Each admin is also granted special access to the book database. They are able to

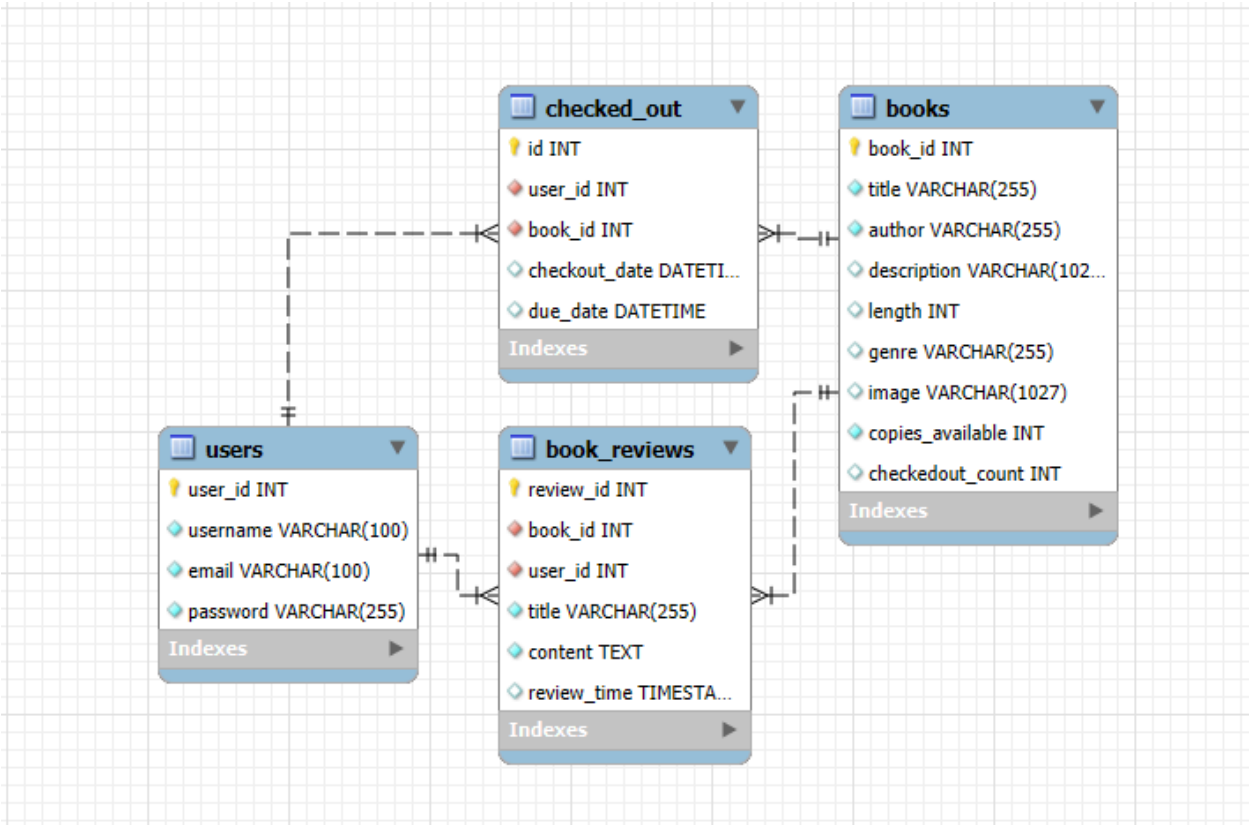
use a special page where they can add or delete books to and from the database or even update the number of copies available for each book. Admins also have the ability to view an analytics page for the system. This displays data from the database for the total number of users, total number of books, and total books checked out. The analytics also include pie charts for the top 5 most checked out books and the percentage of checked out books versus percentage of available books. A useful feature for determining which books users tend to like the most and for getting a good sense of how many books will tend to be checked out at any given time.

The languages we used for this project are PHP, CSS, SCSS, SQL, and JavaScript. PHP was the primary language that was used for the majority of the project, serving as the way to communicate between the SQL database and our web application, and to interact with and to display all of this information to the user in a visually appealing and easy to navigate user interface. CSS was used to help create uniform and appealing styling across our web application. SQL is the language that we used to create, access, and modify the database and all of the tables we needed for our project alongside phpMyAdmin which provided an interface for viewing and interacting with the database outside of our webpage. Lastly, we used JavaScript for some design aspects and to include a captcha code, used when a user registers for an account. We also used tools such as GitHub as a platform to share code and collaborate on the project. This made it easy to keep the project updated and to share new improvements and features with other team members, so we were all able to work fluidly together.

We divided the tasks into three groups. The first group was Artemus and Josh. They worked on the backend code for the functionality of the website ensuring that each part of the website works with the frontend. The second group was Rachana and Xiting who worked on the

styling and CSS of the website. The chosen design was simple and clean using blue and white as the primary color base. The final group was Jamie and Chris who worked on the login/register page, database, and implemented the statistics. This included creating the pie charts that display the most checkout books and the percentage of available books. Although we designated roles for each of these groups, there was a large portion of the project where the team worked together to create the initial concept and design.

Graph of Database Tables:



Project Design Diagram