Complex Systems - Project

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I wanted to create a simple and user-friendly internet application to borrow books in the library. To do it I used React technology because I know it well. Then I decided to use Node.js to build the backend of my application, and MongoDB to store my data. In the database there 4 tables: books, genres, rentals, and users. In users, I store name, email, hashed password, and the information if a user is an admin or a boss. Admin is able to delete rows in the books table, where I store the title, author, the number in stock, daily rental rate, and genre. Moreover, the admin and boss can put or post some rows to the books table. Every user can borrow some book (of course if the number in stock is not equal to zero) and then I append the information about a user (name, id) and book (title, author, daily rental rate, id) to the rentals table. Then every user can look into his borrowed book. Admin and boss are able to see all of the rentals and they can choose one user to see his rentals. In the database, there is a genre table that contains information about genres. To make my app safe I used JSON Web Tokens to authorize users.

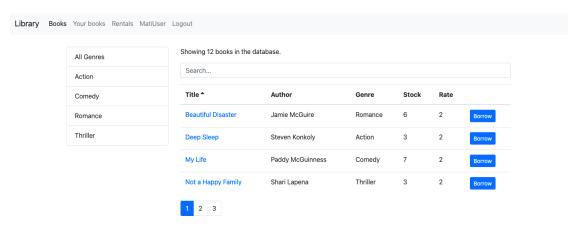


Figure 1: All users can borrow books. It is possible to sort it or search something or select some genre.

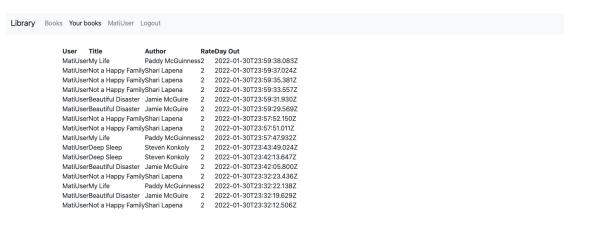


Figure 2: All users can see they rentals.

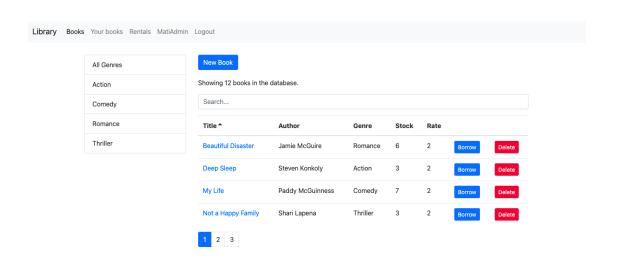


Figure 3: Admin can delete books and append some new book to the database.

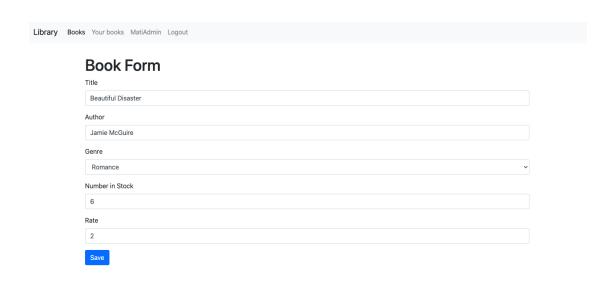


Figure 4: Book form unable for admin and boss.

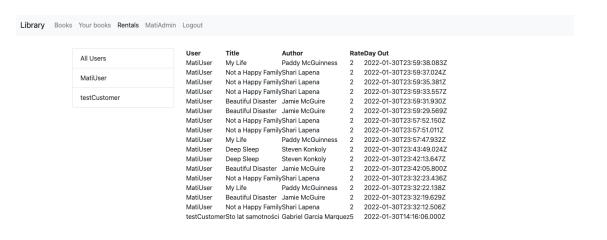


Figure 5: Admin and boss can see all the rentals and choose only one user to see his rentals.