



TeXDBook

`Team Mr. Brown, I don't feel so good...`

Members: Khyber Sen, Adam Abbas, Naotaka Kinoshita, Vivien Lee

Improved textbook check out system

Possibly also a platform for buying and selling used textbooks

The Idea: Improved Textbook Checkout System,

Possibly Also a Platform for Buying and Selling Used Textbooks

We want to build a more sophisticated, reliable, and robust system for keeping track of textbooks as they are checked out by students. A database of all the textbooks will be maintained, which will include their unique barcode as well as other metadata about the book, including the ISBN, in addition to other data like the book's condition.

Users, including students and administrators (teachers) will be able to create accounts that allow them to lend out and own/borrow textbooks. Normal users will be almost identical to administrators, except admins will start out with all the books in a school, and then will be able to lend them out to the students. All users will be able to clearly view all the textbooks they currently own and have lent out, and will be able to search, sort, and group by various fields like subject, author, title, etc., including looking up extra information online using the ISBN (a Google API will be used for this).

Two users can both agree to exchange textbooks, either for free (like a teacher lending one to a student), for money, i.e. buying the textbook, or for another textbook. This will be done by both users logging into their accounts and the lender entering the barcode of the textbook to be lent and the borrower accepting. In order to facilitate checking out many books quickly, teachers will also be able to quickly login and accept on behalf of their students using their OSIS or other ID. We won't deal with the hardware process of scanning any barcodes or IDs, but a barcode scanner can be easily set up to enter the barcode into a form on the website, and we will take it from there.

Features:

- Users, including teachers, can easily see what textbooks they have and have lent
- Check out and return textbooks easily
- Exchange textbooks with other users in the systems, for free, for money, or for another textbook
- Suited for both teachers giving textbooks to students and for students selling textbooks to each other

Roles:

Project Manager: Khyber Sen

Lowly Minions: Adam Abbas, Vivien Lee, Naotaka Kinoshita

Tasks:**Set up and manage the database:**

- Naotaka

Initiate the user system:

- Adam
- Khyber

Work on book exchanges:

- Adam
- Vivien
- Khyber

Frontend:

- Vivien
- Adam
- Khyber

Component Map:

Login → Database Verification → Account Page

Account Page → View Own Textbooks → Database Query → Display Textbooks (queryable)

Account Page → Enter Barcode, Other User's ID, and Possible Payment → Database Check → Other User Accepts Offer → Textbooks Exchanged in Database, Users Updated

Site Map: Single Page Application

You login, view your account and textbooks, and exchange textbooks all on the same page.

Database Schema:

Will use MongoDB for our database. This is the interface for our schema:

```
interface TextBook {

    barcode: string;
    isbn: string;

    ... other fields about book like title, author, etc.
    ... other fields about how book is stored, like department,
location, etc.

    price: number;
    owner: User; // user who currently owns book
    lender: User; // user who last lent the book
    origin: User; // user who originally owned book

}

interface User {

    username: string;
    password: string;
    ownedTextBooks: TextBook[]; // TBs owned by user
    lentTextBooks: TextBook[]; // TBs lent by user
    originalTextBooks: TextBook[]; // TBs originally owned by user
    balance: number;

}

// Admins are the same as Users, but they start out with all the
books (in the school, and can lend them out)
interface Admin extends User {}
```