CS 157A Project Proposal

Three-Tier Web Application

Bookie

Cole McKinnon, Jonathan Van, Yu Xiu

Team 4

Advisor: Dr. Mike Wu

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Project Overview

According to the Bureau of Labor Statistics, the cost of attending college has increased by 63% between 2006 and 2016, while the cost of textbooks has increased by 88% from 2006 to 2016. [1] While some professors do not require textbooks for their courses, a good number of them require students to purchase untransferable one-time use textbooks with the online access code. There must be a way or method to reduce costs for students of all majors while they are at university.

We will be creating a system for San Jose State students to buy and sell used textbooks. Users will be able to buy and sell textbooks to other students using a JS web app. When a user has a book they no longer need, they can post it on the system. When a student wants to buy a book, they can search through the available postings by the book title or the course. When the student buyer is interested in a listing, they can communicate with the seller through the app.

If a student wants to sell a textbook, they can do so by creating a new book posting. Creating a new posting will require sellers to fill in a title, course, author, price, condition, and picture. The book title will be used when buyers are searching for books. Buyers will also be able to search for books based on the courses requiring them.

The backend will primarily be a MySQL database that will keep track of postings, namely the textbooks posted by sellers. The database will also be responsible for storing users, sales history, and messages between users. The various tables will be referenced with one another using IDs of the users, the listing ids, and the message ids. These will be accessed by taking user inputs from the front end/client and parsing it into a SQL like format to be used by NodeJS, after it established a connection to the database, to get the data we need to display.

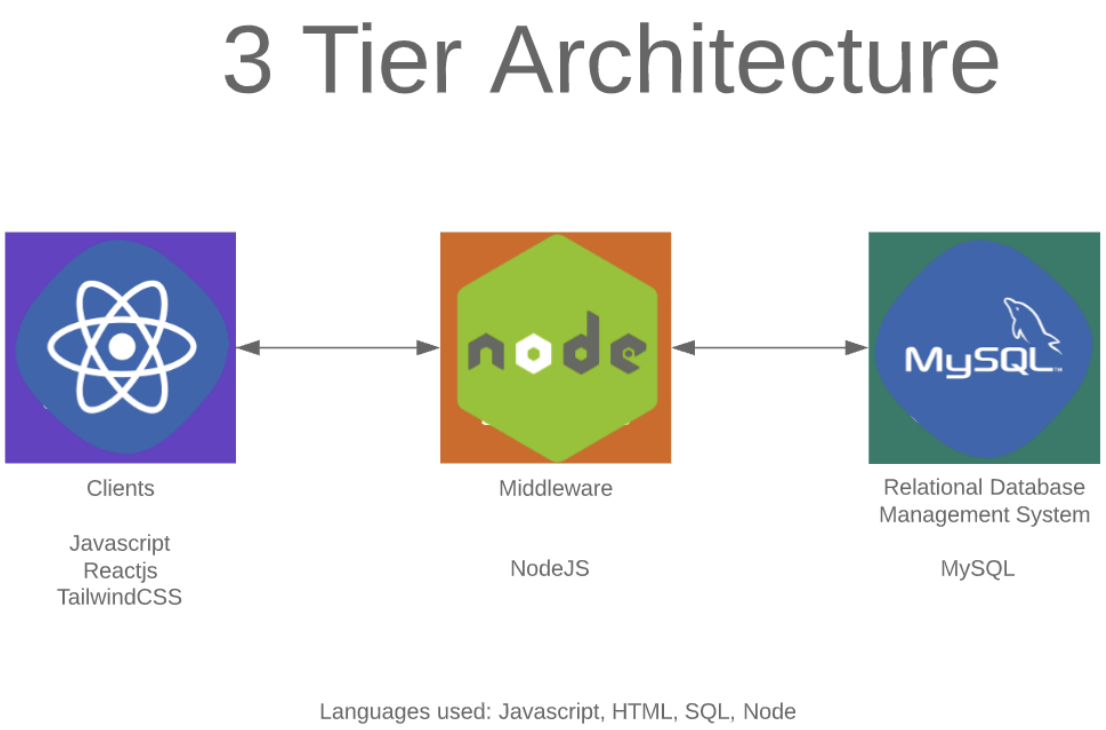
The stakeholders for this application will be students who need textbooks and want to save money, and students who have the textbooks and want to make money. This is important because once a semester ends for a student, they rarely use the textbooks anymore. And nowadays, textbooks are no longer inexpensive, so it is costly for students to buy a required text in order to pass the class. The application is vital as it will connect college students (preferably SJSU) who will pass off the books to one another in order to reduce the costs during their time at university.

This application is necessary since there exists no dedicated application to selling books or items between students. Current technologies are Craiglist and SJSU's Sammy. However, the former is not affiliated with San Jose State University, therefore its integrity is questionable and the latter is inefficient for selling books as there is no optimal search function and is a primarily scrolling text-based application. The format that SJSU Sammy has is not ideal for creating, listing, presenting, and searching for sales posts.

The overall goal of our project is to reduce the costs of anything possible while at San Jose State University by connecting past students of courses with new students to courses for them to sell, buy or trade books with one another.

System Environment

Bookie Three-Tier Architecture Diagram:



In the diagram above, our client will be run on any browser that has an up to date javascript version. Bookie will be displayed using javascript running with Reactjs. The CSS will be implemented via TailwindCSS. NodeJS will act as the middleware to connect the client to the database, that way any action the user takes, such as signing up, logging in, creating posts or buying books, will have a request and then a response to or from the RDBMS. Our RDBMS will be hosted on a MySQL server that will have SQL queries requesting data from it.

Functional Requirement

Users

- Our clients are SJSU students
- Students go to web application
- Search through postings
- Create a new posting
- Remove Posting
- Sign/Login
- View Previous Postings/Purchases
- Rate other users after the purchase
- Messaging Between other users

User Registration

For security purposes, students will be required to create user accounts to use Bookie. Creating an account will be fairly straight forward, and will require an SJSU email address, password, and photo. Allowing only registered users to make transactions through the system will prevent scamming and ensure only legitimate orders go through. When a user wants to use Bookie, they first must be signed on.

User Login

A user with a valid account will be able to login with the correct credentials. This will allow them to have access to features that only users are able to do, like message, comment, buy and sell books. This adds another level of validity to ensure the user is real or a student of San Jose State.

Buying

Users who want to buy a book will have to option to search through the available postings by book title and/or courses and subjects. Searching for a textbook by title will display a grid of postings returned from the database, displaying a title, price, and photograph. When a user is interested in one of the postings, they can click on it and will be brought to a page displaying more details about the posting. Here, the user can view other qualities of the listing, namely the quality of the book and information on the user selling the book. If more information is desired, buyers can direct message the seller from this page.

Selling

Users wishing to sell a textbook will be directed to the selling page by clicking the “Sell Book” button. Here, users will be prompted to input required and non-required fields about the book they want to sell. Book title, condition, and price will all be required fields when selling. Photographs of the book will be highly encouraged, as they make book listings more accessible to buyers. When all required fields have been inputted, sellers will then have the option to make

the posting public, writing it to the database and allowing buyers to see it. Postings can be canceled by the seller at any time, and some fields in the post can be edited as well. Major changes, like an increase in price, will require users to remove and re-list their posting.

Ratings
To promote fair usage of the system, all users can be rated for a limited time after a transaction occurs. For example: a buyer can rate a seller highly if they feel the book they received matched the description and condition listed on the posting. These ratings are displayed publicly and can help ensure both buyers and sellers have effective and easy transactions.

Messaging
To communicate with sellers/buyers of the books, there will be a messaging system in place to allow the users to communicate with one another. The application will save all messages between the users and will be only accessible by the users who are involved in the conversation.

Non-Functional Issues

Security
One customer cannot access to other customers' posts. Each customer manages his or her own posts to protect the security and privacy of the customers. Online transaction is secure. Bookie web application makes it safe to make transactions online when they sell books. Our data is logged in our relational database management system.

Types of Graphical Interface
The Graphical Interface of Bookie is a Web Application. Software tools to build Graphical Bookie web application Interface are Javascript, Reactjs, and tailwindCSS.

Access Control
Each customer only access to the page that contains his or her own postings, and the users would not be able to see our database.

References

[1]:https://www.vox.com/the-goods/2019/3/6/18252322/college-textbooks-cost-expensive-pearson-cengage-mcgraw-hill

Document Contributions

Cover page: Yu Xiu
Project Overview: Cole Mckinnon, Jonathan Van
System Environment: Jonathan Van
Functional Requirement: Cole Mckinnon, Jonathan Van
Non-Functional Requirement: Yu Xiu
Bookie Three-Tier Web Application Design: Cole Mckinnon, Jonathan Van, Yu Xiu