

Technical Summary - Team CSJ

The technologies used for BookCycle are React for the User Interface, node.js for building the application, Express in node.js to build the web application framework for the backend applications, Material UI for the front-end framework for React, PostgreSQL for the database, TypeORM library to link the database, and AWS for hosting and authentication. What is novel about this project is that it operates on a unique trusted zone within the GW campus and community, which we will be implementing through our web application. It is technically novel that the application and exchange itself will all be based on the Gale-Shapely algorithm, whereas existing platforms will have users manually search for their textbooks.

Our key objectives to be accomplished during this project is to have the user successfully sign up with a GW email account, have the user be able to successfully add a book in the database that they are willing to donate, have the user be matched with a textbook using the algorithm and get a list of textbooks, have the user be able to request an exchange, have the user fill out a form detailing the time and location of the exchange, have the users agree on an arranged meeting with the lister and exchange the textbook, and finally having the user fill out a short survey after the transaction to rate the exchange. The questions we answer include “How will a student be matched with a textbook?” “How will a student's financial need be determined?” and “How will we communicate with other GW systems?”

Other than the existing tools and technologies mentioned earlier, we used APIs to build our project, such as for building the textbook postings, seeing what the available textbooks, the feed page, and signing up for your account with a verified GW login are. We are confident that all of this is doable because we used Trello, Slack, and a Gantt chart and relied on our communication and teamwork skills for this project. We have discussed that if one team member

feels stuck in the technical component they are responsible for, to reach out to the other team members to work together to solve the problem.

The development cost in terms of hardware was free. All team members have a laptop that they will use to develop the project. In terms of software development, all of the software is free and open-source except for AWS, which we have requested for. Pre-design we estimated that this will be about 1000 lines of code for a simple design that primarily focuses on functionality and being user-friendly, then as time permits make it more aesthetically pleasing for the beta release with the addition of more lines of code. The project milestones are to have functioning buttons, a search textbook function, a scale for textbook quality, a post-exchange survey with a user rating, input controls, product/website navigation, containers, informational components about the project and our goal such as a “My Profile” and “About Us/Technology”, and clear icons to be user-friendly and communicate efficiently. The timeline for achieving these milestones is to work to build all of the basic functioning pages by January, then use the remaining months leading up to the beta release to enhance the UI.