

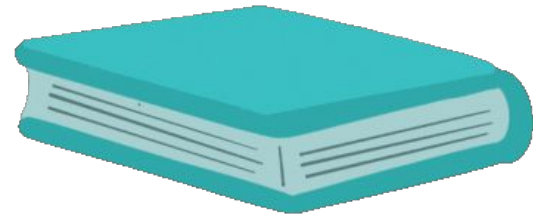
BookCycle Team CSJ SD 2023





► Problem

- ▶ 65% of U.S. college students don't buy required textbooks because they can't afford them¹



Our Goal:

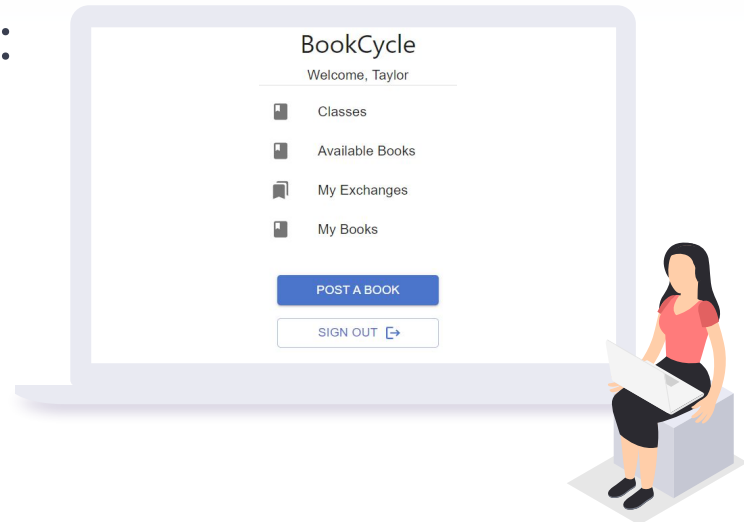


Make education
accessible to everyone!



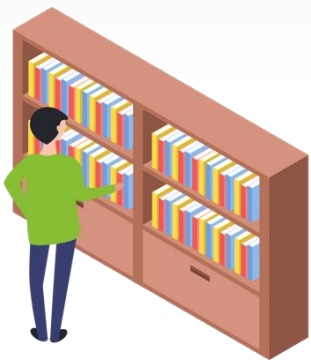
▶ Introducing BookCycle

- ▶ The ultimate online resource for GW students to find affordable textbooks and exchange books
 - ▶ A new way to find textbooks:
 - ▶ Save money
 - ▶ Operate in a trusted zone
 - ▶ Reuse and recycle
 - ▶ Succeed academically

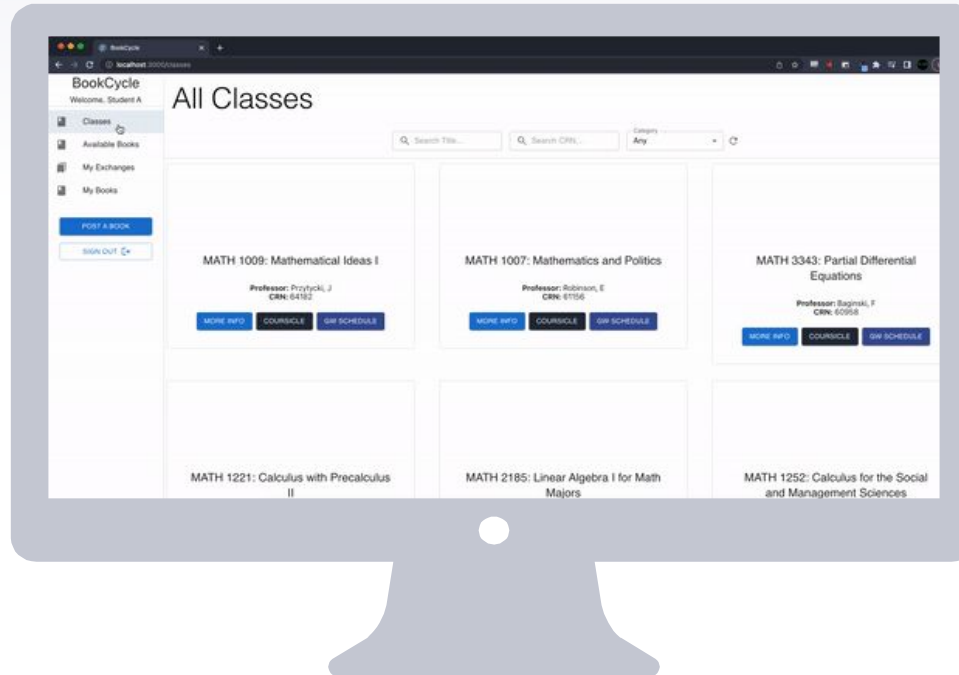


▶ Using Our Platform Is Easy!

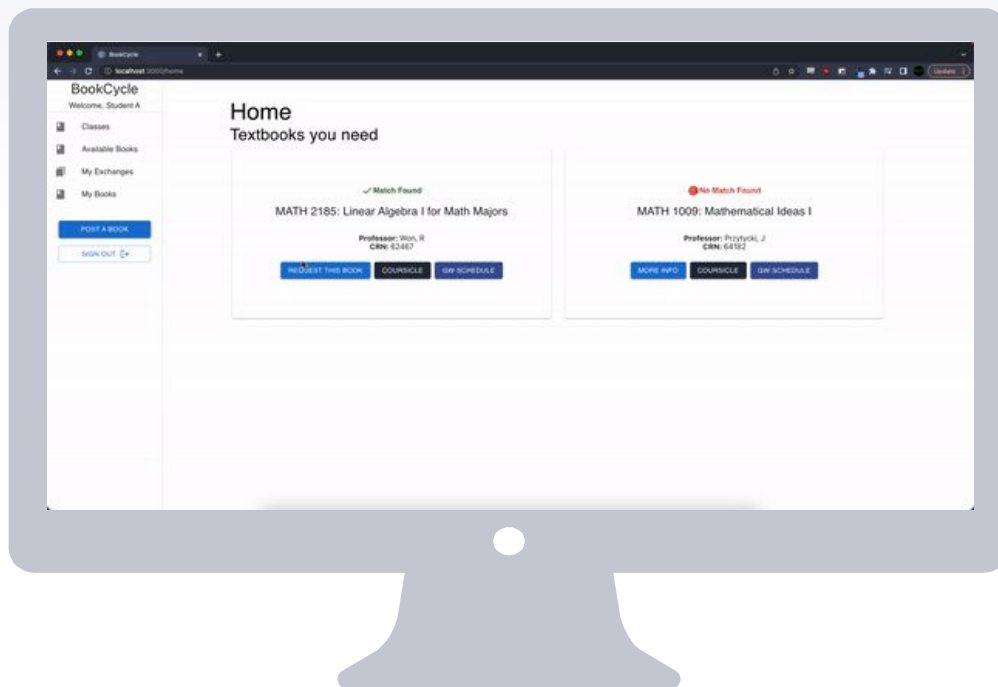
1. Sign up using your verified GWU email
2. Report your financial aid information
3. Donate any old textbooks you have
4. Select classes and request textbooks
5. Get matched by our algorithm
6. Find more information on textbooks



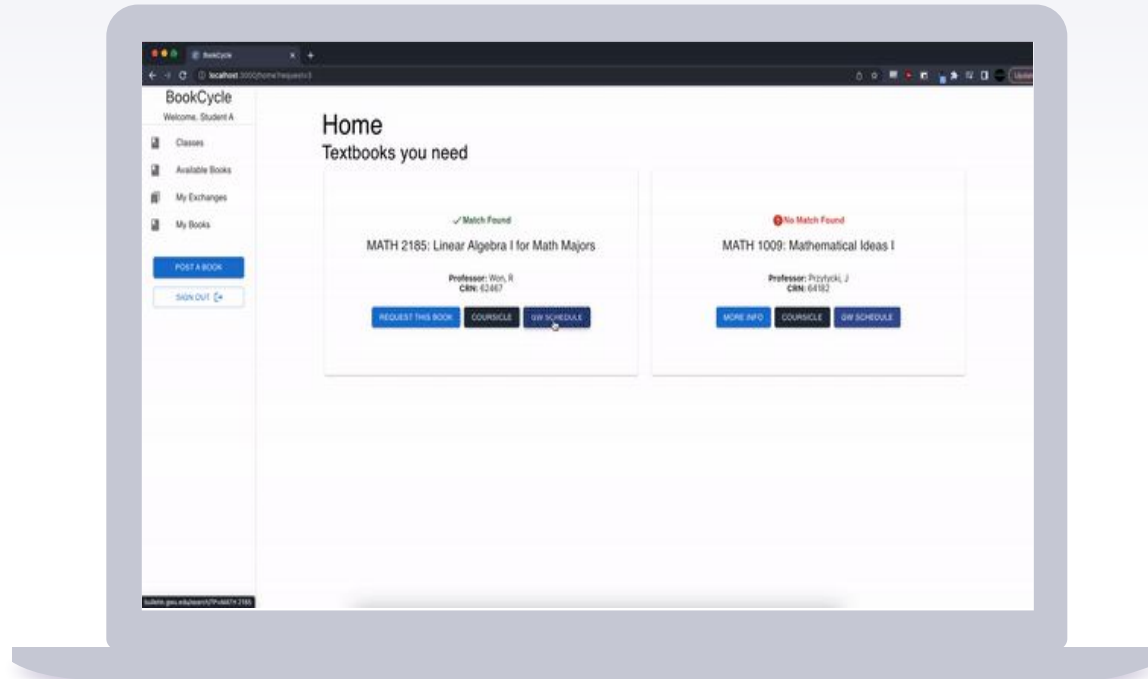
Sign-In, Courses, Your Exchanges and Books



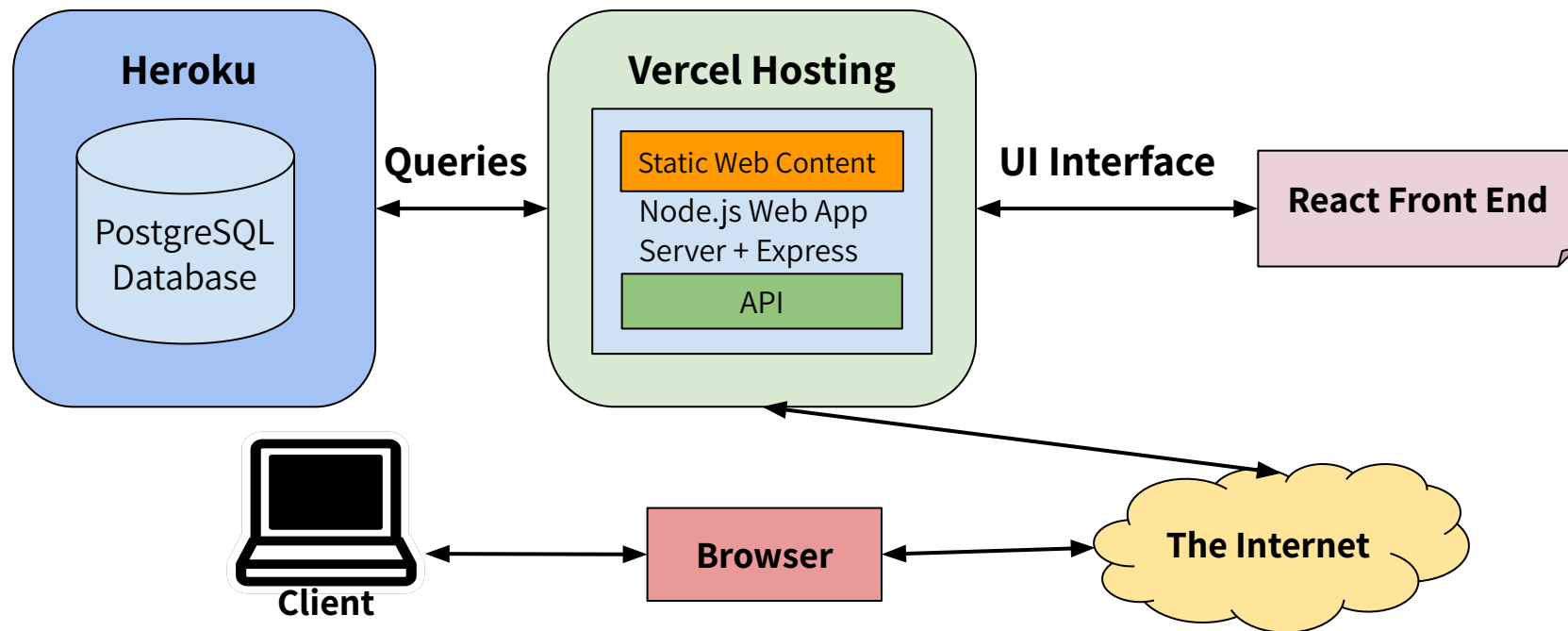
► Request a Textbook



More Info, Ratings, Forum

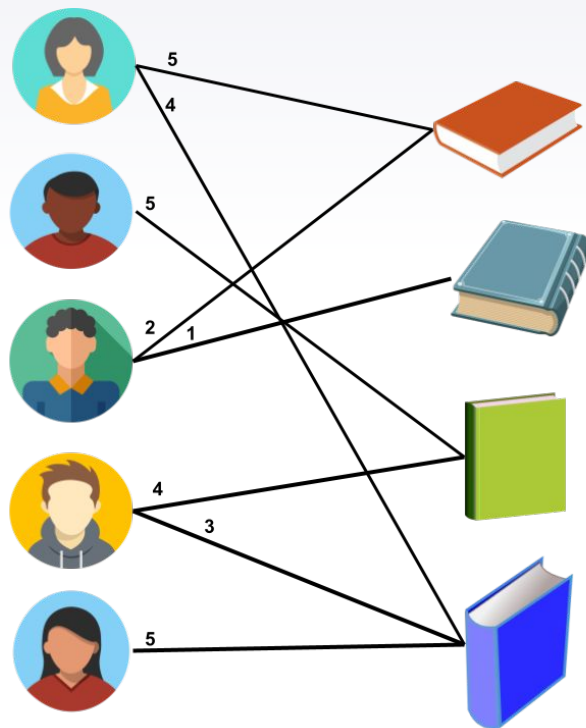


System Architecture Diagram



▶ Matching Algorithm

- ▶ The Weighted Bipartite Matching
 - ▶ Bipartite graph with two sets
 - ▶ Student set
 - ▶ Textbook set
- ▶ Construct edges between students and books they need



▶ Matching Algorithm Cont.

- ▶ Incorporate constraints to calculate the cost matrix values/edge weights based on following:
 - ▶ Consider the amount textbooks a person has already received
 - ▶ Consider the financial need of each person
- ▶ Each column (Textbook) is assigned to the row (Student) with the lowest cost
- ▶ Edge weights are altered after a student is assigned a book



UX/UI Design and Front-end

- ▶ React - Frontend JavaScript framework
- ▶ Axios - JavaScript library to make HTTP requests to the API
- ▶ Material UI - framework for React



BookCycle

Welcome, Taylor



Classes



Available Books



My Exchanges



My Books

POST A BOOK

SIGN OUT 

► Backend/API

- ▶ Node.js - JavaScript runtime environment
- ▶ Express - Framework to build REST API
- ▶ PostgreSQL - Relational Database
- ▶ TypeORM - Connect Node and Postgre







Sign up for BookCycle!

Your wallet (and GPA) will thank you!



Thank you!
Questions?