ISM220 Design Challenge

P4 High-Fidelity Prototype

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Introduction

Every quarter, DePaul students are required to buy textbooks and school supplies for their classes or their own needs. Our user study sought to look into how students buy, rent, and get rid of their textbooks and other school-related materials. The goal of this project is to design an innovative application that will help positively impact the experience of DePaul students when it comes to finding and getting rid of textbooks and school materials. This is important to prevent the waste of books and materials, as some students may throw them out or not use them after only using them once. Wasting school supplies has a negative environmental impact which is why it is important to promote school supply reuse. Students will also be able to save and get money back by purchasing used supplies from other students who would empathize and understand the struggle.

With the insights and design principles from our user study, we were able to define what students would need and want with an application focused on the reuse of school materials. The user feedback throughout the iterations has been vital for our team to continue to refine our prototype to meet user satisfaction. Focusing on such has helped us refine our design going in to the high fidelity prototype. Our early research turned into insights and user stories which became our four user tasks. We continued user testing, making sure our iterations stayed true to our user stories. We made sure features kept the tasks user friendly. We weren't afraid to make necessary changes going into the high fidelity prototype. We made sure users could find materials, create listings, rate sellers, and change course interests with ease. It is important that DePaul students can get their assignments done on time, save money, and not have to worry about the clutter of old materials.

User & Context

Our target users consist of DePaul students who are looking for cheaper alternatives for school materials, as well as students who want to get rid of materials they aren't currently using. From our initial user research, we found that there really isn't one convenient place for students to buy and sell used materials between each other. Students tend to look on major corporate book stores or the DePaul Bookstore for materials. When the cheapest option is usually another student who doesn't use the book or school material anymore. Students sometimes make Facebook posts trying to sell material, but it doesn't always reach the correct audience, and there is confusion of whether it is sold or not, contacting the seller, how they can receive the material, and sometimes even price or condition.

Many students also claimed they have old textbooks sitting at home collecting dust. It was very important for us to take into account all our user research and student needs. To do this we explored common themes when it comes to used materials. We found that pretty much every user is concerned with finding the exact material, the cheapest price, on-time delivery, convenience, and buying from a trusted seller. Once we understood what was most important to all our users, we made sure to apply the proper design patterns and features to our prototype in order to arrive at our solution which would fulfill the user stories and tasks.

Overview of Features

Login with Campus Connect
Users enter in their Campus Connect ID and Password. While this goal has not been explicitly stated throughout the development of this app, a concern we got from users who have tested our application is security. With this feature, we can ensure that only DePaul students would be able to access this application. This reduces the number of sketchy people and enhances the safety of the buyer/seller dynamic.

Search Bar
Users can search for the book or material that they need. This provides convenience for the users because it allows them to easily search for exactly what they need for their classes.

Sort feature
Users can sort the search results by Price: Low to High, Condition, Seller Rating, and Location: LPC-Loop. This feature encourages affordability and quality because it allows students to find a textbook that will get them the best condition and price.

In Person Meet Up
Users can choose to meet up with a seller at a DePaul location. This option keeps in mind the security of DePaul students because it only offers DePaul specific locations. It also addresses the concern of getting students their materials on time. Students who choose this option do not have to wait for a material to ship to them. Instead, they are able to meet up with a seller, and they can get the textbook or material as soon as possible.

Create a Listing
Users can create a marketplace listing on the app. They are able to enter the course it is for, choose if it is a book or a material, enter relevant information (ISBN and price for book, automatically populates the Title and Author), and add pictures of the item. This allows users to get rid of any material they wish to get rid of which was one of the goals of this application. Students can also set any price they wish as long as it is below the price of the original book. This way students are not limited to set prices, and they can therefore make their prices more affordable to other students.

Choose Your Courses
Users are able to choose which school and department they are taking courses from. They are then able to choose the exact course numbers they are taking for that quarter. This information will be added to the home screen. This adds to the convenience of the app because users can see exactly what they need once they open up the application. From there, they can quickly look for what they need.

Rating and Commenting
Users are able to rate the person they bought items from. They are also able to leave comments on their experience. This lets other people know if the seller is reputable or not. This plays upon the idea of safety as users are able to let other people know if their meetup went well and if they got a good quality product for the asking price.

Prototype

Prototype public share link: https://2o65ry.axshare.com

User Testing Script

Hi, thank you again for taking the time to participate in this study. I'll be giving you a task to complete and then ask questions as we go along.

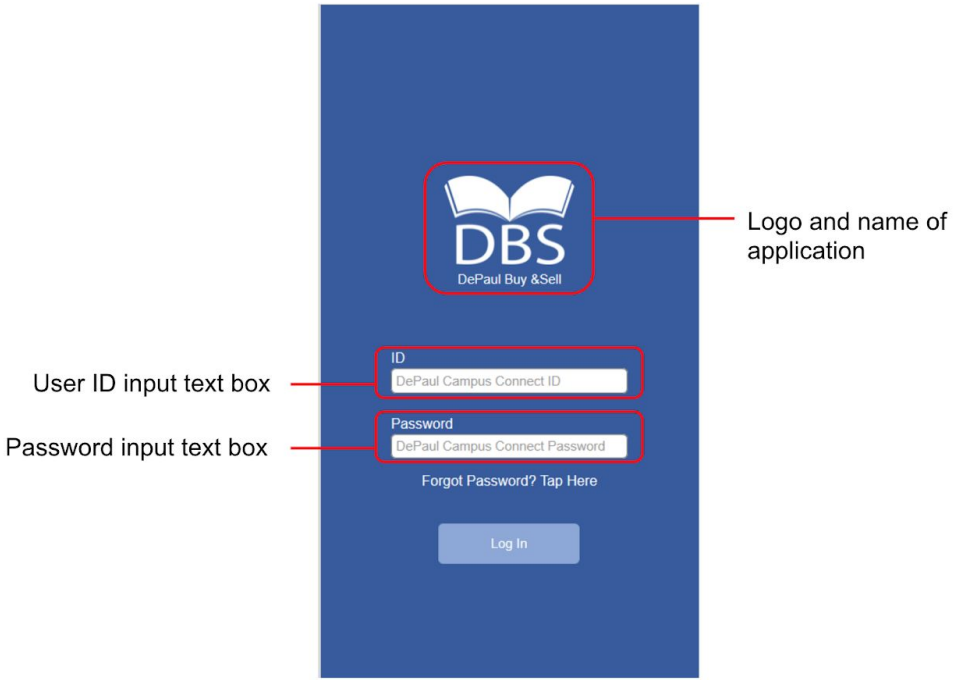
It's really important to know that we are only testing the app, not you. You can't do or say anything wrong here. Please feel free to let me know at any time if there's something you like, dislike, if you're confused. I promise you won't hurt my feelings. Also, I'd like you to "think aloud" as much as possible. By that, I mean that I'd like you to speak your thoughts as often as you can. For example, you may be looking at a page, suddenly see something you didn't see before and want to click on it. In that case, saying something like "this caught my eye so I'm going to see what it is" would be very useful.

If at any point you have questions, please don't hesitate to ask. Do you have any questions so far?

Ok, Let's get started.

Related User Stories:

- As a student, I want an easy process to purchase materials from my phone so that I can buy materials on the go.
  Entire Application System: By creating a minimal user interface and therefore an efficient application process, this ensures that users can quickly familiarize themselves and save time with the application



Log-in Screen

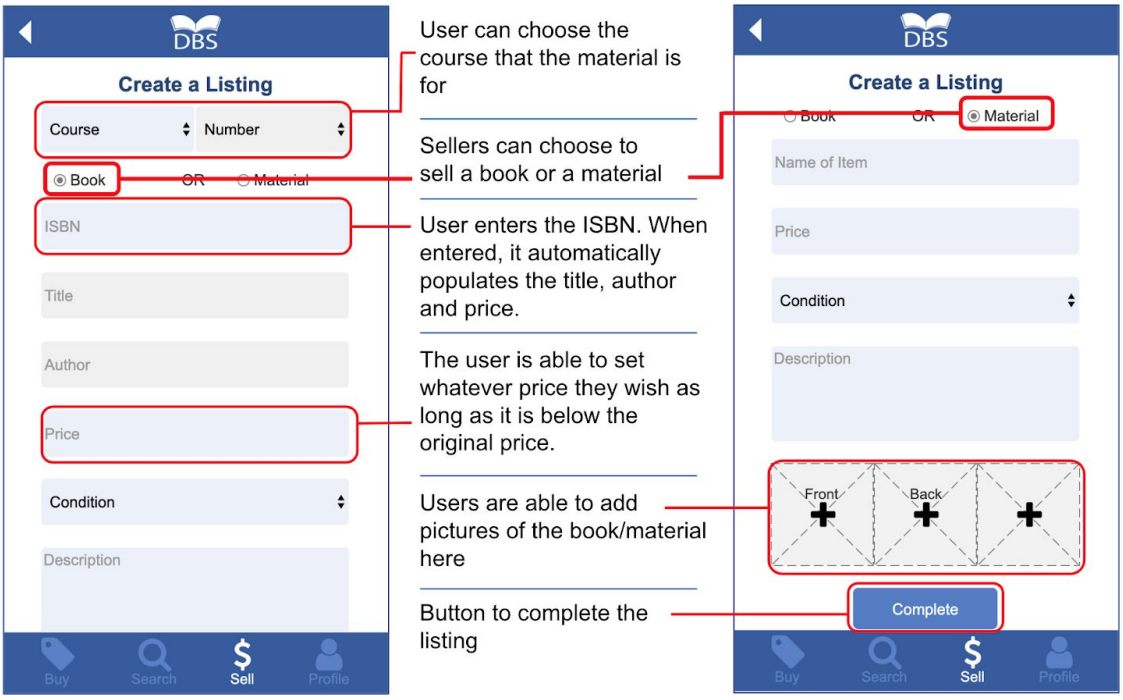
Task 1: The seller posts a material

You are a sophomore, and you have a chemistry textbook called “Chemistry: Structure and Properties” from CHE130. It is in ‘like new’ condition so you think you can get a decent amount of money back for it. You need to make a marketplace listing on the app selling the textbook for $200. Show me how you would begin this process. Textbook ISBN: 9780134293936

Related User Stories:

- ‘As a student, I want to be able to post material listings so that I can sell my used materials.’
  ‘Task 1-1’ & ‘Task 1-2’ : By allowing users to sell their used materials, they can get monetary reimbursement and get rid of their used supplies.

Task 1-1

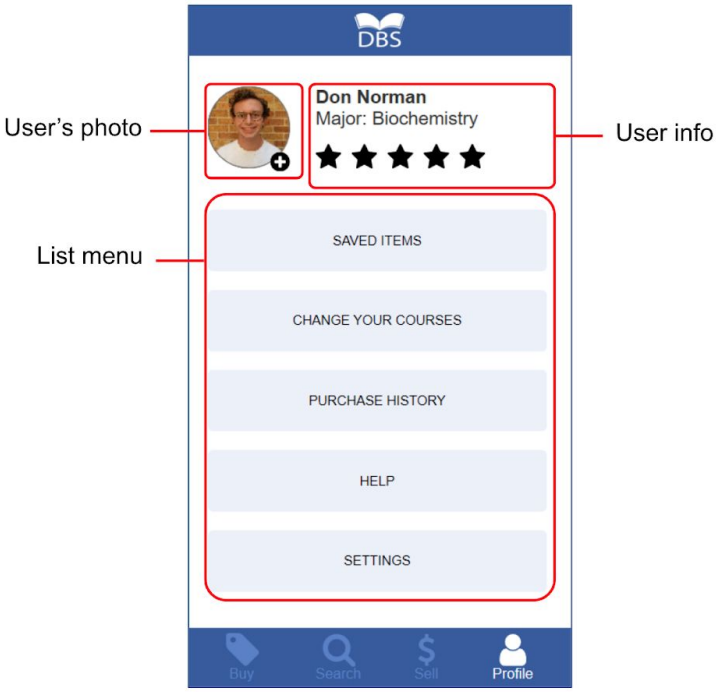


Task 1-2-1

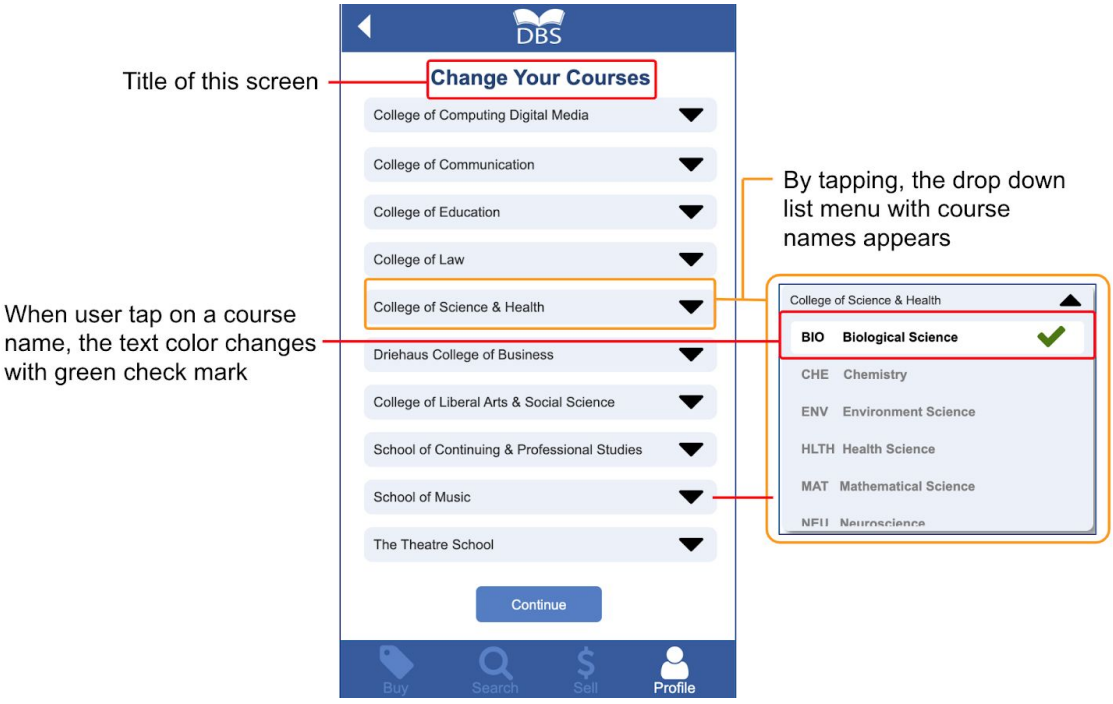
Task 1-2-2

Task 2: The buyer edits course interests

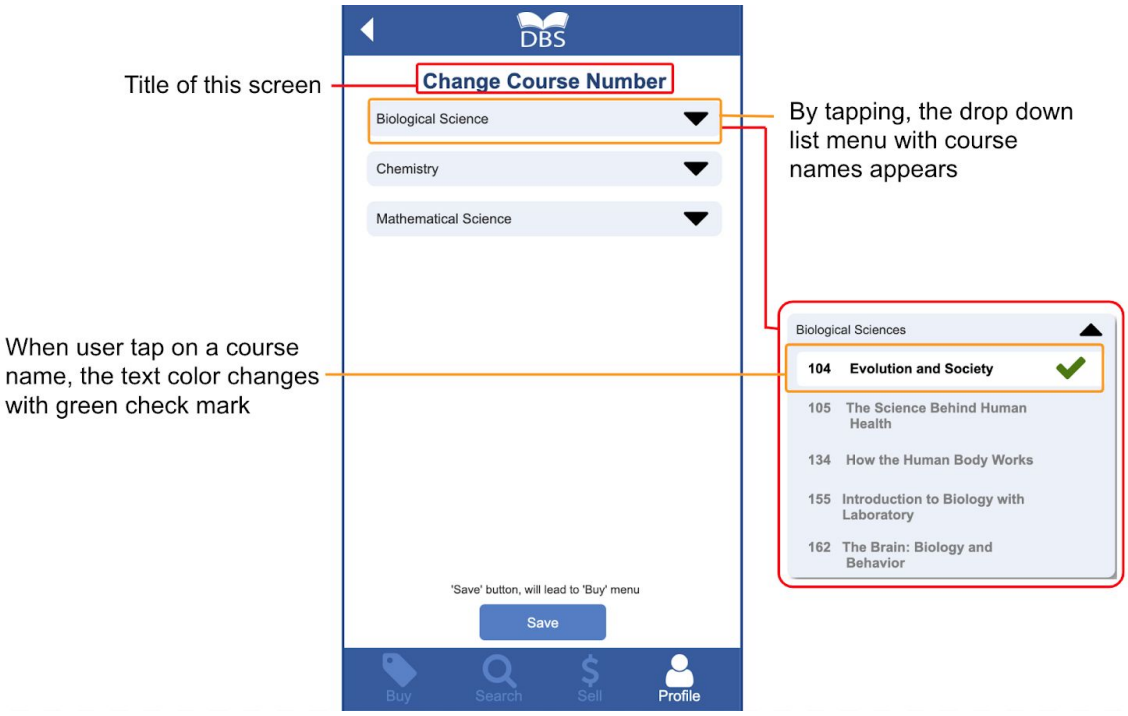
You are a Biochemistry major in the College of Science & Health. This upcoming quarter, you are taking BIO (Biology), CHE (Chemistry), and MAT (mathematics) courses. You will be taking BIO 104, CHE 130 and 131, and MAT 147. Please choose these as your courses.



Task 2-1



Task 2-2



Task 2-3

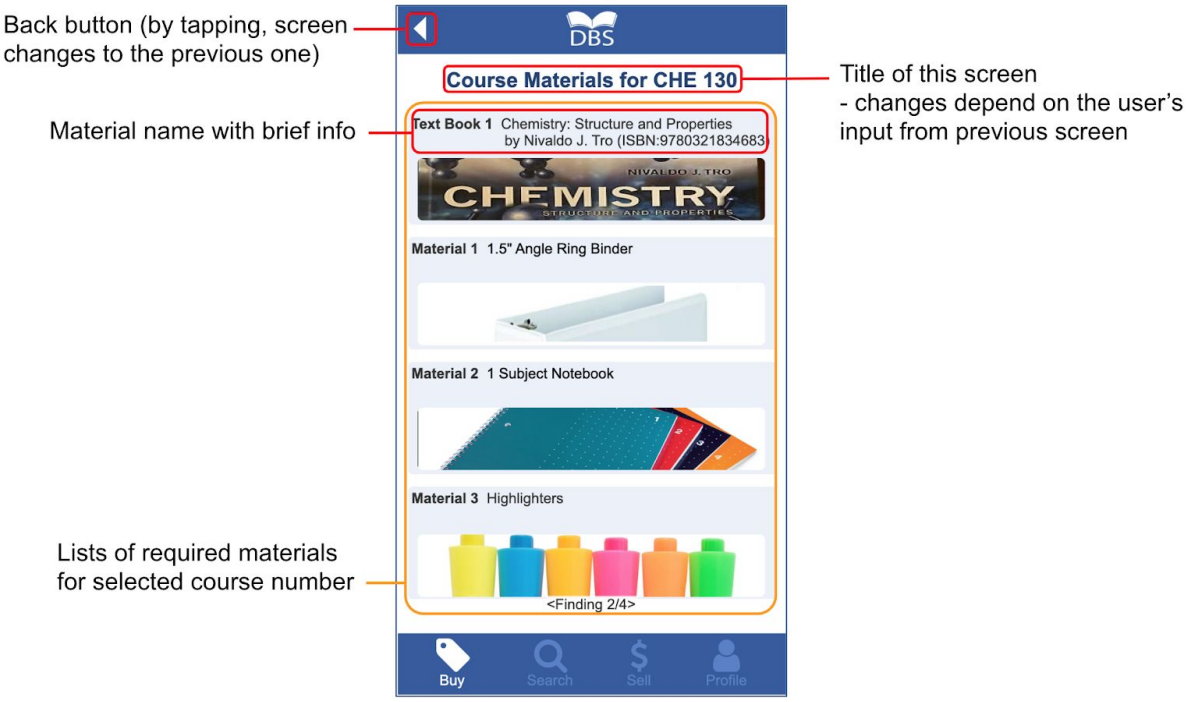
Task 3: The buyer finds the material and purchases

You are taking CHE 130 class this quarter. You need to buy a textbook called 'Chemistry: structure and properties' by Nivaldo J. Tro. You want to buy the cheapest book possible. You need a textbook by November 19, 2019 but you're busy on the weekends. Therefore, you decide to buy the item directly from the seller on November 18th.

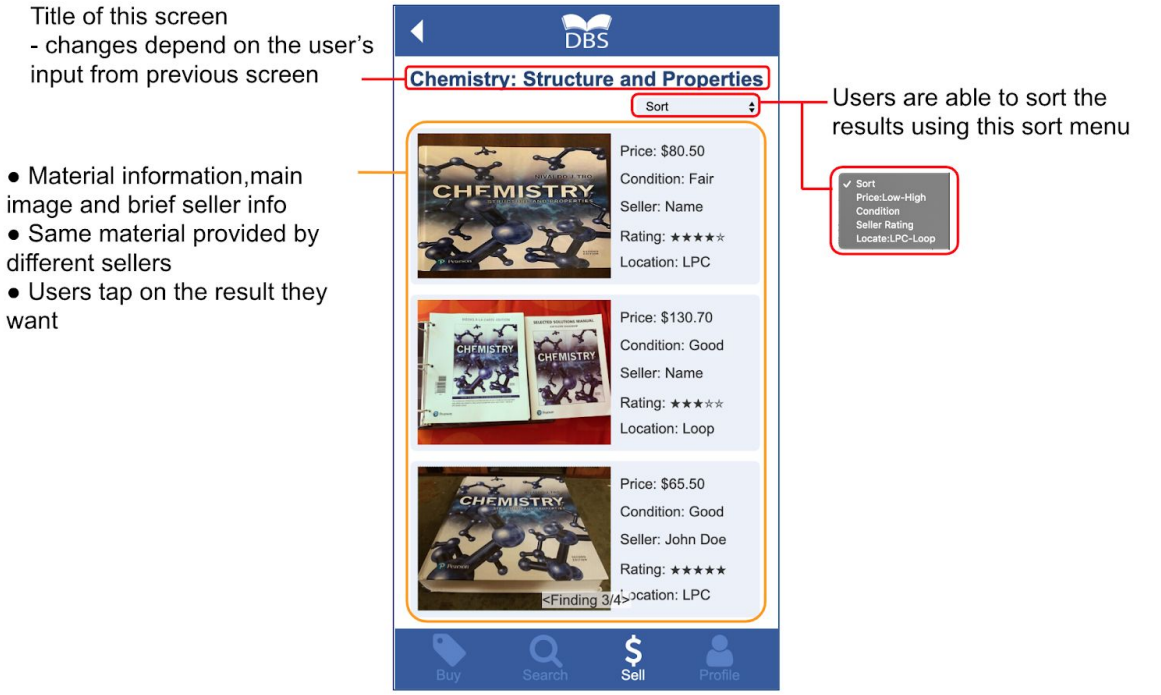
Related User Stories:

- As a student, I need to be able to find the exact materials for my classes so that I can be on top of my assignments.
  'Task 3(1)-1,2,3' & 'Task 3(2)' : By allowing users to search by specific keywords, it will help user to find the exact supplies as they need
- As a student, I want to see the cheapest options for school supplies so that I can save money.
  'Task 3(1)-3' & 'Task 3(2)' : By providing sort button, users can find the cheapest item that.
- As a student, I want to quickly receive material so that I can have it on time for assignments.
  'Task 3-4' & 'Task 3-5' : By providing users the 'In person meet-up' option, users can receive materials faster.

Task 3(1)-1

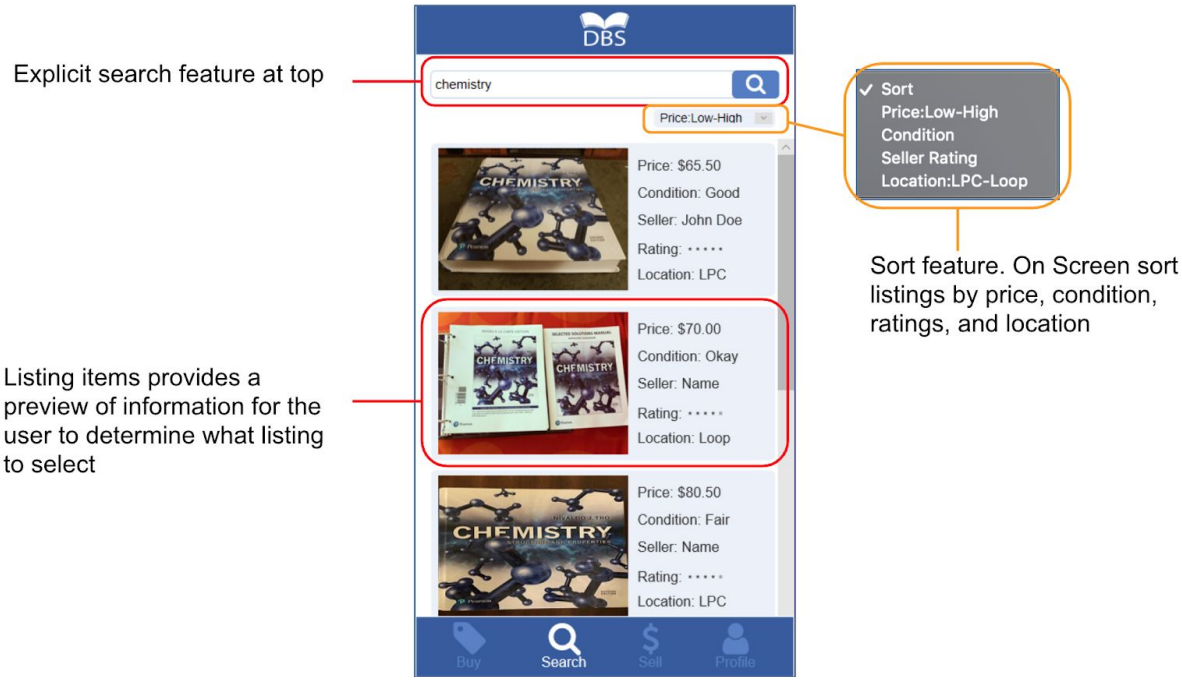


Task 3(1)-2

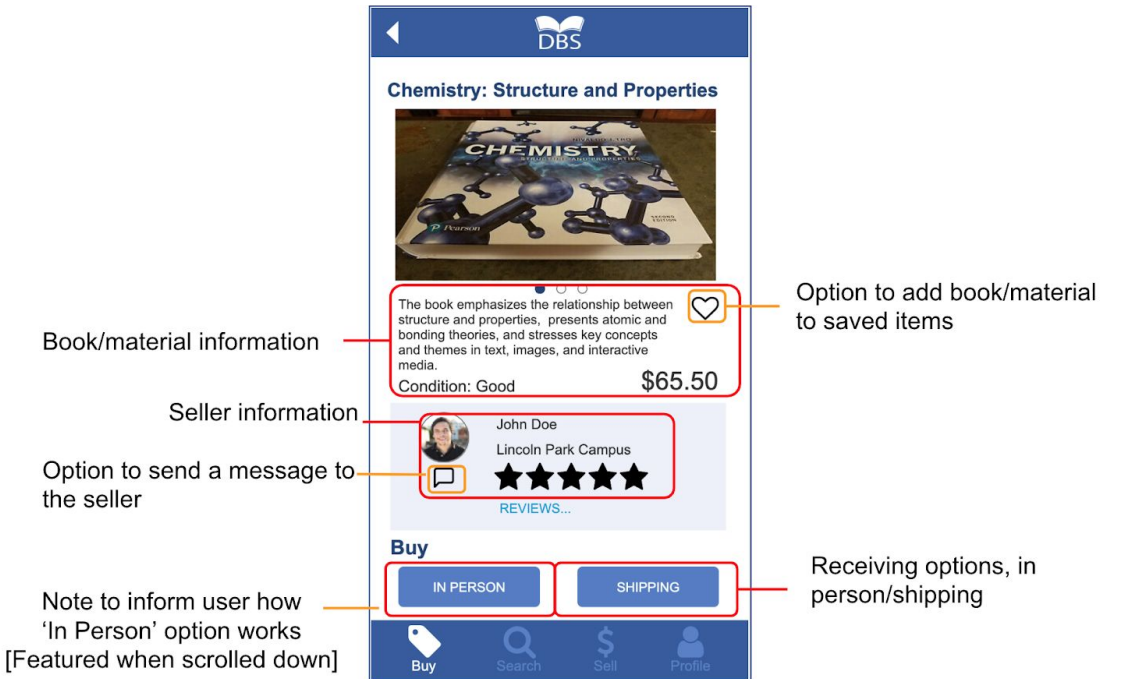


Task 3(1)-3

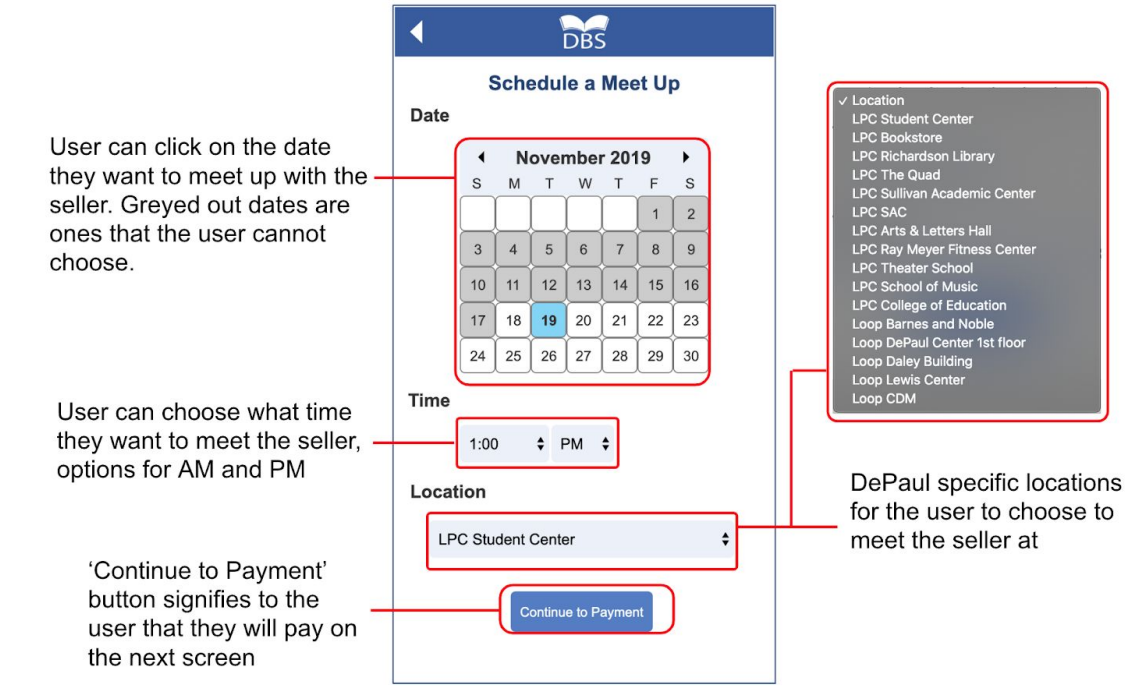
Or



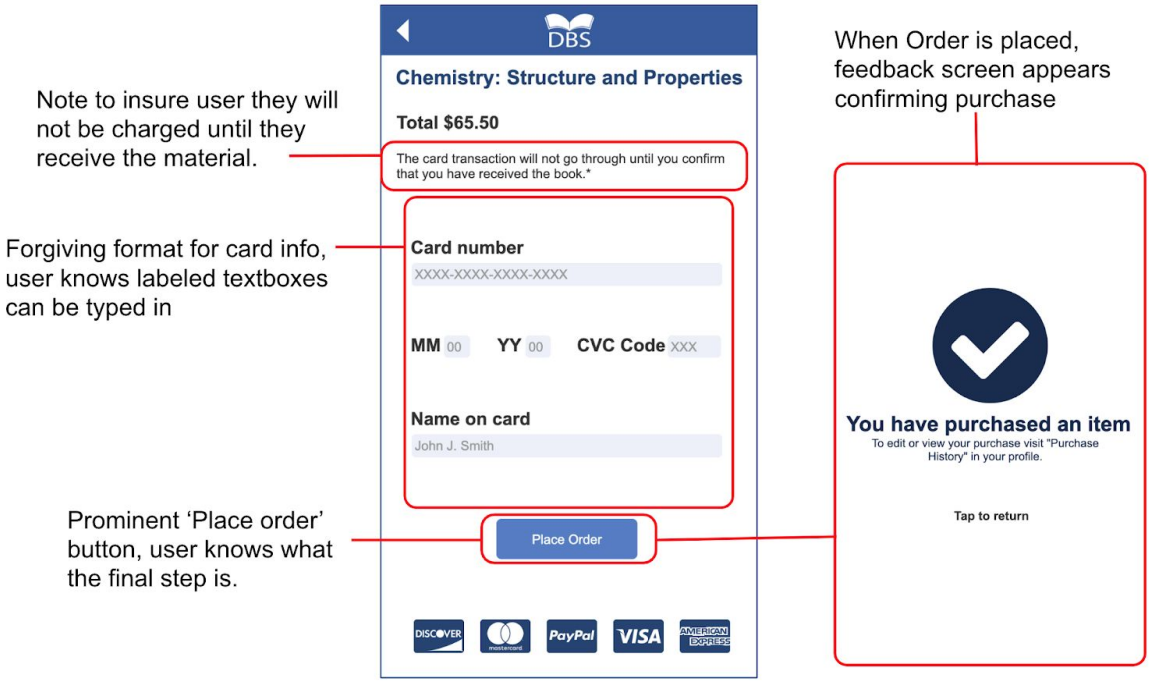
Task 3(2)



Task 3-4



Task 3-5



Task 3-6

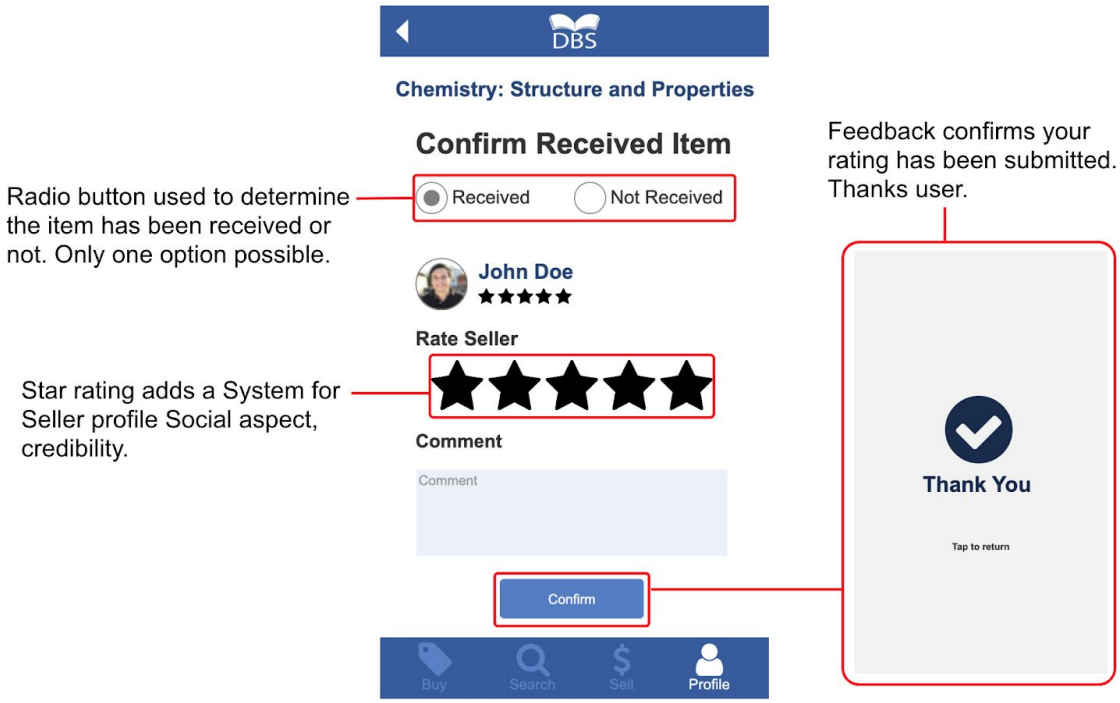
Task 4: The buyer rates the seller

You purchased a chemistry textbook. And you had a good experience with receiving the item. You want to find your recent purchases and rate the seller 5 stars.

Related User Stories:

- As a student, I want to know who I'm purchasing from so that I know everything is legitimate.
  'Task 4-2' : By allowing users to rate sellers, this helps ensures the security of the transaction. As a result, other users can get a sense of the seller's legitimacy and reliability.

Task 4-1



Task 4-2

Prototype Video:
https://docs.google.com/file/d/1XDHswN6Dz1ntyk_1dTjIYpIIUBSwPIbK/preview

Evaluation

Before we tested our prototype, we had to get people that matched our target user audience. We made sure we got DePaul students who want access to cheaper school materials and wish to make money back from materials they have been unsuccessful in selling in the past. We asked students a few screening questions before testing to determine their eligibility. We decided to use the Axure share link to test our prototype on the user's phones because we assumed that would give us a more accurate sense of how the app would function as the real thing. After we gathered our users, we began testing our prototype by first assigning, then rotating roles: the facilitator and the observer. The facilitator read the user the testing script and told them the tasks they would have to perform with the paper prototype. They encouraged the users to speak their thoughts out loud. They would also help the user if they seemed totally stuck on a particular part of the prototype. The observer took notes on what the users said and did while they interacted with the prototype. Each team member took turns being one of the two roles until everyone had tested the appropriate amount of users.

Overall, the users we tested provided very useful feedback on how to change and update our prototype. We observed a few problems that the user had while trying to go through the three tasks.

Problems we found:

- People didn't know what the name of the application was
- "Syllabus materials by interest" was a confusing title for the Buy page
- User concern for sellers taking their money and not giving them the item they ordered
- Users confused about how the app knows which specific courses they are taking
- Issues with sizing of app screen
    - Messages and buttons covered by the navigation bar
    - Phone keyboard covered part of the screen and pushed up the navigation bar
- "Save button will lead to buy menu" message above Save button was confusing
- The error message for the condition doesn't appear when creating a listing unless the user has inputted the ISBN

Changes we made to the prototype:

- Added the complete name of the application to the login screen "DePaul Buy and Sell"
- Changed wording of "syllabus materials by interest" to "Your Courses"
- Unified feedback messages
- Added a message describing how card transactions work through the application
- Added options for paypal and other credit cards
- Changed search so the user only had to look up "chemistry" to find the book
- Added another page under change courses that allows users to edit what courses they are taking

Future changes to make to the prototype:

- Add adaptive views
- Modify placement of certain buttons (i.e. create listing button)
- On the home screen, change "ID" to "User ID"
- Remove "Save button will lead to buy menu" message above Save button under courses

- Fix the error messages while creating a listing
- Let the user know that the autofilled price is the original price of the book
- Change wording on task 1 from ‘Material’ → ’Supply’, from ‘Price’ → ’Set price’, ‘Recent post’ → ‘Recent Listings’
- Add an indication for when an item has been sold on the Sell page
- Change wording on task 2 from ‘Change Courses’ → Update Courses’
- Add a way for users to unselect pre chosen courses
- Add an option for users to pay with cash
- Unify the font size
- Add a message icon somewhere for the users to check their messages

Lessons learned based on prototype evaluation

- It is important to test and retest your design
    - Catches design mistakes, code errors, layout errors, incorrect button placement
- Test with people who would need to use an application like this
- Have a testing process
    - It is important to be prepared for testing so the users are clear on what they should do
- Important to use words that do not list the features of the app when testing the prototype so the users are able to walk through the tasks themselves
    - This gives us better feedback and catches more errors that we might not have seen before
- It’s important to see the application through the eyes of other people
    - Enables empathy towards the user
    - More understanding of user struggles with the application

Conclusion

Our app, DePaul Buy & Sell gives DePaul students the opportunity to save and make back money, help the environment, get course materials on time, and reduce clutter. All within a convenient and usable application. This app represents a solution for selling school materials back to peers with everything the student needs all in one place, reducing the hassle of finding a buyer and sharing the information with them. This apps improves the overall experience of students looking to buy and sell school materials. Features such as market place listings, ratings, search and sort functions, as well as calendar pickers for meet ups and shipping all make the app user friendly and convenient. This app creates a meaningful user experience solution to the issue of finding affordable school materials and reducing clutter of old and unused materials for DePaul Students.

Appendix1: Design Patterns

- **Design Pattern Name**
  - Pages they're used on | Importance and use

- **Activity stream**
  - Sell, Recent Purchases | Shows the users actions which have been taken in clear order for orders and sales postings.
- **Autocomplete**
  - Material Details | When typing in an ISBN it will autocomplete book name, price, and author. This gets rid of the hassle and assures the correct textbook is being added.
- **Calendar Picker**
  - Receiving Details | Straightforward way for user to pick a date that will work for them instead of typing it in.
- **Carousel**
  - Listings, Material Listing | Ability to swipe through photos or listings easily.
- **Dropdown chooser**
  - Receiving Details, Selling Item | Best way to select for complicated course names or locations, user might not know what to choose, prevents errors.
- **Explicit search**
  - Search | Gives user ability to quickly find items by typing keywords, important for finding certain materials.
- **Forgiving format**
  - Card info & Purchase | User is able to freely type card number and dates how they see it.
- **List inlay**
  - Home, Syllabus Materials, Listings, Recent Purchases, Saved items | Lists are one of the best ways to show listings, which can be sorted so top of the list would be the best search result.
- **Onscreen sort**
  - Search, Selling | Ability to sort for specific prices or conditions, moves lists on screen. Important for being able to find what user is looking for, for example the cheapest product.
- **Prominent done button**
  - Rate Seller, Card info & purchases | User can be positive they have finished an action by a different color, save or done button. Ensures the actions they have done are over with and will be saved.
- **Profiles**
  - Profile | Users have a profile which they use for buying and selling, ability to message users for meet up/ material related questions.
- **Rate Content**
  - Rate Seller | Users have the ability to rate users for satisfaction, keeps credibility in check.
- **Responsive enabling**

    - Selling Item | User has to click what they're selling before they can fill out information about it. This is so the user can not jump ahead, and it is best for making sure the info is correct and in order.
- **Tab menu**
    - All screens, navigation bar | User has easy access to the home screen and search sell profile where they can easily access necessary pages.
- **Thumbnail grid**
    - Recent Purchases | It's easy to better understand what a material/ the condition is when displayed with an image and title.

Appendix 2: Reflection

Our application successfully accomplished what we set out to do because it ultimately provides users with an easy time buying cheaper textbooks and materials and satisfies our design principles. Students who have items sitting around their rooms now have an outlet for getting rid of them. The bookstore and amazon can be expensive, and not everyone has a facebook nor want to use facebook to buy and sell textbooks and other school materials. Our application provides a solution to these problems.

However, there were some difficulties that our group encountered while developing our prototype. The first struggle we had was with affinity diagramming. When we first started that process, we realized what we were not affinity diagramming correctly. We ultimately had to redo the diagram with user quotes dictating our clusters instead of ideas or summaries. Our team had to rethink the process and focus on principles instead of features so we could more accurately address user struggles. Our group also struggled with our second research area, competitive analysis. None of us had done one before so it was unfamiliar territory. If we were to go about this process differently from the beginning, we would create a chart or table that has comparison elements in the row and the websites in the column so that people can easily compare the websites we chose.

Despite these struggles, it was interesting to use the affinity diagram to sort through our collected research and data. That data, when sorted, can be turned in to groups, principles, stories, and tasks which ultimately created the basis for our design. It was interesting to reiterate design and concept ideas with our paper prototypes. We found that being able to change or throw out ideas and keep moving forward with our prototype was a process that took some getting used to, but it was effective overall. As a whole, we learned a lot about interactive design and the importance of design patterns. We made sure our design was human centered through our design testing, and we learned about where people look for certain types of tasks or what they expect from an interaction. For example, people looked to change courses in their profile, or people expected a certain type of feedback after hitting a button. That shows the importance of interactive design in improving usability.

We also learned more about Axure and how to work its various features. We now are familiar with how to use dynamic panels which helped a lot with changing screen content such as giving feedback or selecting options. We also learned about and used masters to make our top and bottom navigation bars uniform. This also allowed us to easily edit them. Variables and conditionals are also something super helpful we learned and used. For example, if the user searches for certain keywords, then the screen will display the listings for the keyword.

Our team met every Wednesday. These regular meetings helped us manage our time and evenly split up group work. During the meetings, we discussed how we should research, design, and refine our application. We learned that communication is a crucial part when working as a team. We helped each other, gave advice to each other, and shared information. We valued each of our strengths and encouraged each other to apply them to our projects.

Appendix 3: Group Contributions

All

- Creating and Modifying High-fidelity Prototype
- Brainstorm the name of app and logo
- Documenting P4: Introduction
- Documenting P4: Appendix 1: Design Patterns
- Documenting P4: Appendix 2: Reflection
- Creating Prototype Video
- Creating Final Presentation Slides

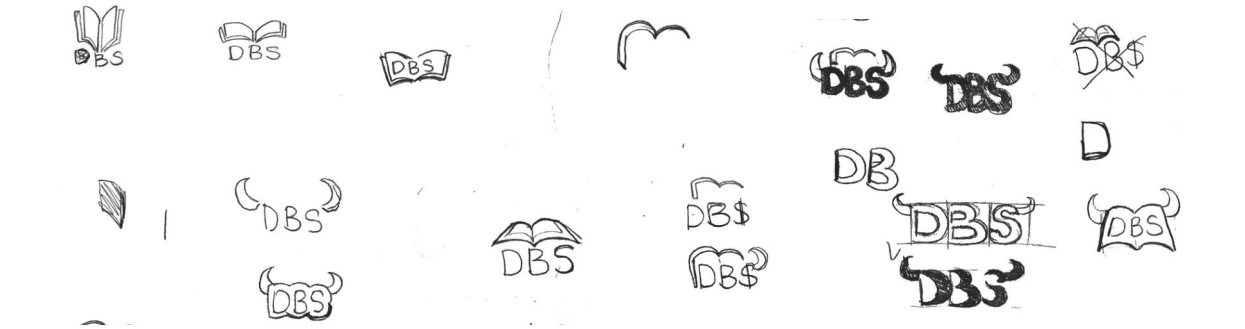
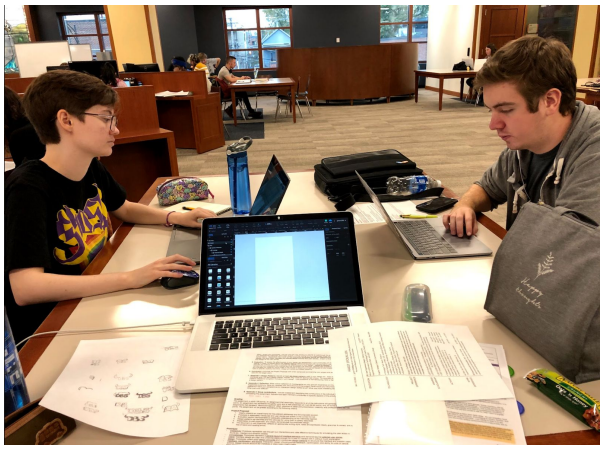
Ross

- Documenting P4: Users and Context
- Documenting P4: Conclusion

Jiyoun

- Documenting P4: Prototype
    - Annotations
- Filming & Editing Video
- Drew Logo using Illustrator

Bridgit

- Documenting P4: Overview of Features
- Documenting P4: Evaluation
- Voice over for prototyping video

Behind the Scenes