

# P3 Mid-Fidelity (Wireframe) Prototype

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## Introduction

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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 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 low-fi prototype user feedback has been vital for our team to continue to refine our prototype until it meets user satisfaction. Focusing on such has helped us refine our design in the current prototype. Using research, we were able to create user stories about what needs and wants our app should fulfill. Further expanding user tasks, we created a site map for the layout and expanded on design patterns. Our prototype went through two sessions of user testing with a total of 9 user tests. We use this to evaluate our design and reflect on what can be done differently as we continue to design for students who want to easily buy and sell materials.

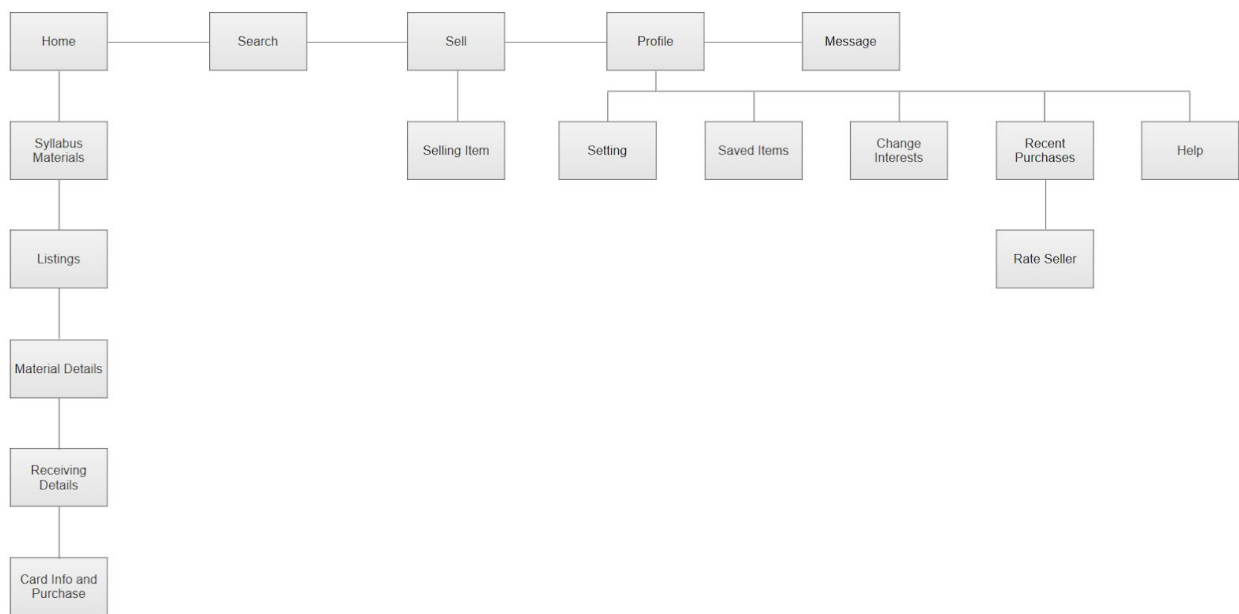
# User Stories

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As a \_\_\_\_\_(Who), I want/need \_\_\_\_\_(What) so that \_\_\_\_\_(Benefit).

- 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.
  - According to our user studies, students made considerable efforts to find the exact material they wanted with proper quality. Getting the right material was one of the most important factors students considered. If students first get the correct material, they do not have to waste their precious time later. In addition, this will allow them to do their homework or do other school tasks correctly.
- As a student, I want to be able to post material listings so that I can sell my used materials.
  - According to user research, many students had leftover school supplies such as notebooks, writing instruments, textbooks, etc. Many have tried to get rid of their old school materials through donations, recycling and sales. The successful solution we derived from this was to allow them to dispose of their old school materials without having to throw them away. Allowing them to post their used materials to the public will help them effectively remove unnecessary materials from their lives.
- As a student, I want to see the cheapest options for school supplies so that I can save money.
  - According to user research, students tend to compare two or more stores or websites to get the cheapest product. Many students have admitted that they can give up quality for price.
- As a student, I want to quickly receive material so that I can have it on time for assignments.
  - In user research, students shared their negative shipping experiences. On-time delivery is closely tied to assignment deadlines, so we wanted to make sure users have their product on the promised date.
- As a student, I want an easy process to purchase materials from my phone so that I can buy materials on the go.
  - According to user studies, convenience was another factor that students considered most buying school materials. We found that they tend to use a website or store that has a simple process.
- As a student, I want to know who I'm purchasing from so that I know everything is legitimate.
  - According to user studies, we have found that students tend to use well-known websites and stores such as Amazon, Walmart and Target. These brands have a good reputation. From there, we learned that purchasing things from a trusted seller is important to them.

# Site Map



This site map displays the organization of our application and the location of the pages. It shows how the different pages we designed interact with each other as well as how users would go through the task flow.

# Design Patterns

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- 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.

# Prototype

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**Prototype public share link:** <https://qavuzu.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.

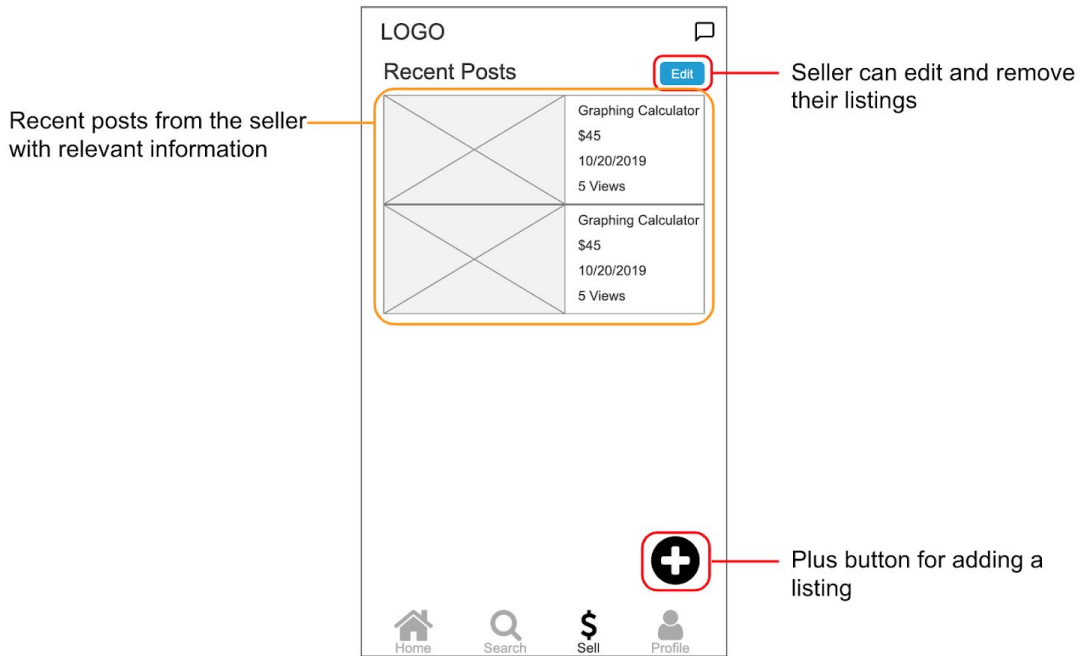
Also, I'd like you to "think aloud" as much as possible. By that, I mean that I'd like you to speak your thoughts as often as you can. For example, you may be looking at a page, suddenly see something you didn't see before and want to click on it. In that case, saying something like "this caught my eye 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?

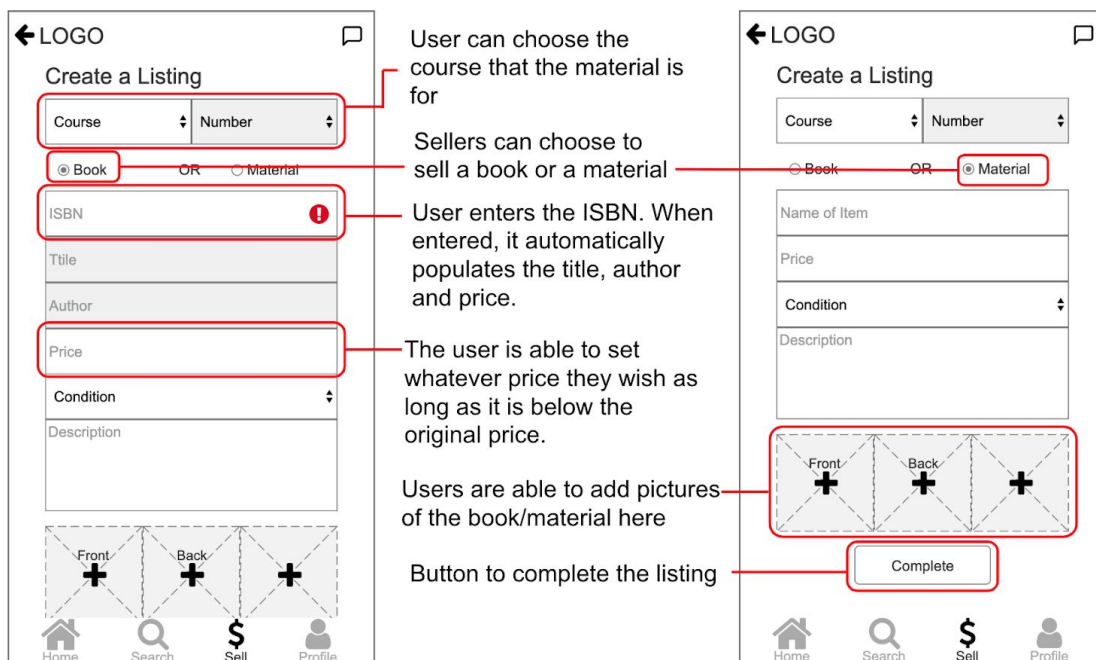
Ok, Let's get started.

## 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 bought the book and you want to make money by selling it to another student who needs it. You need to make a marketplace listing on the app selling the textbook for \$250. Show me how you would begin this process. Textbook ISBN: 9780134293936



Task 1-1

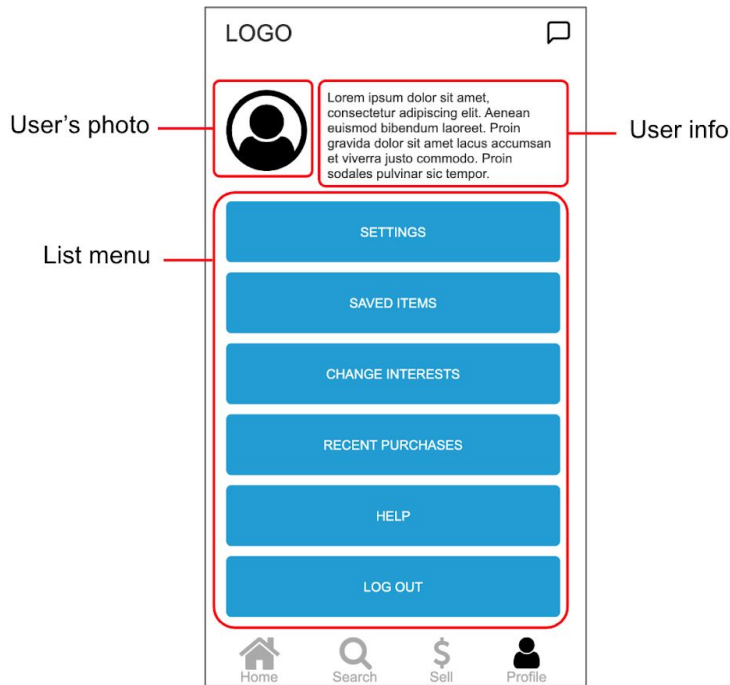


Task 1-2-1

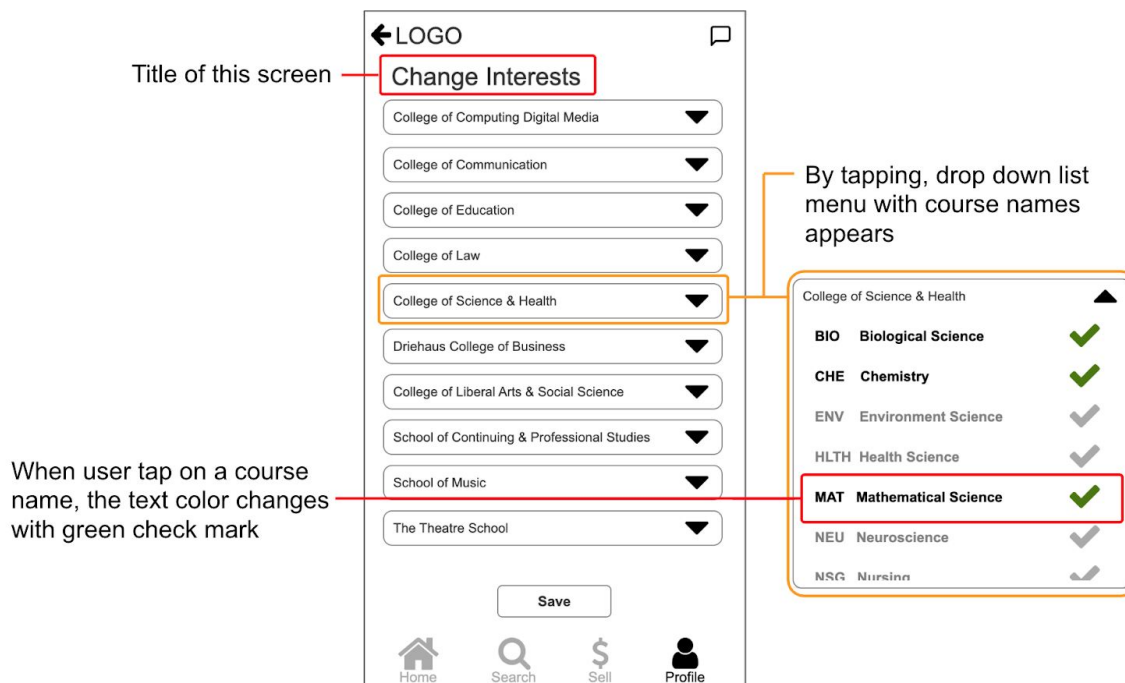
Task 1-2-2

## Task 2: The buyer edits course interests

You are a Biochemistry major which is under College of Science & Health. This upcoming quarter, you are taking BIO (Biology), CHE (Chemistry), MAT (mathematics) courses, please choose these as your interests.



Task 2-1

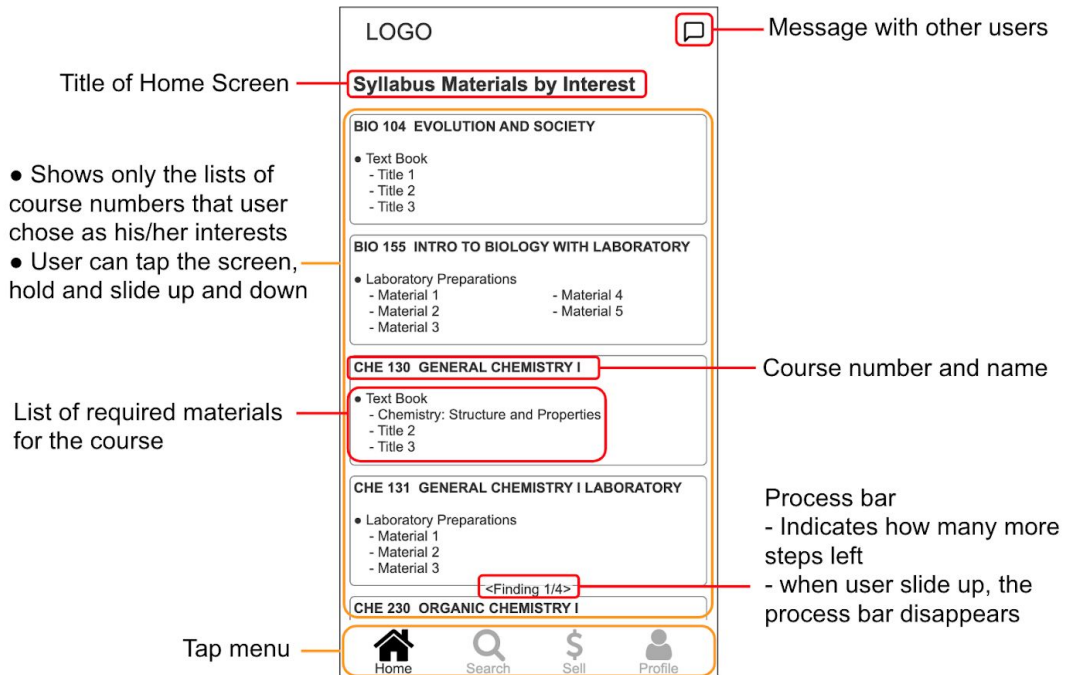


Task 2-2

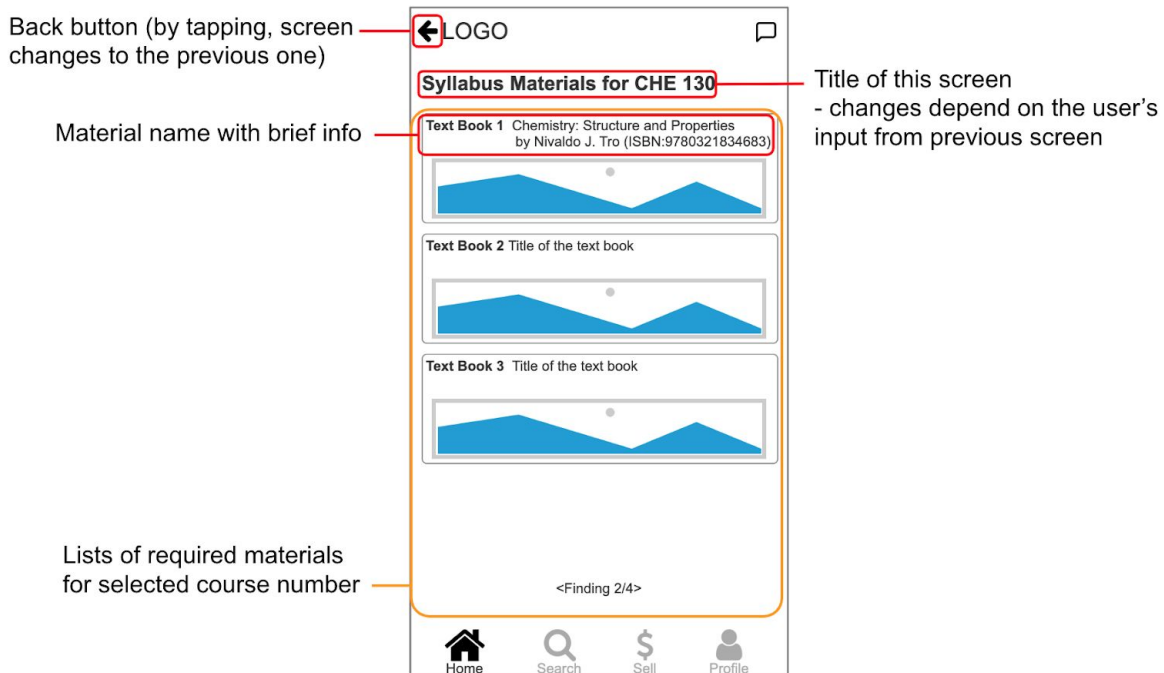


### Task 3: The buyer finds the material and purchases

You are taking CHE 130 class this quarter. You need to buy a textbook called 'Chemistry: structure and properties' by Nivaldo J. Tro. Since you want to buy the cheapest item, you decided to sort the items by price (in descending order). You need a textbook by November 5, 2019 but you're busy on the weekends. Therefore, you decide to buy the item directly from the seller on November 4th.



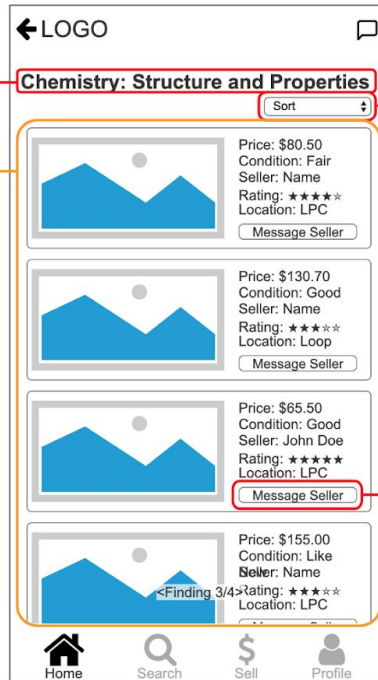
#### Task 3-1



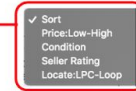
#### Task 3-2

Title of this screen  
- changes depend on the user's  
input from previous screen

- Material information, main image and brief seller info
- Same material provided by different sellers
- Users tap on the result they want



Users are able to sort the results using this sort menu



Option to send a message to the seller

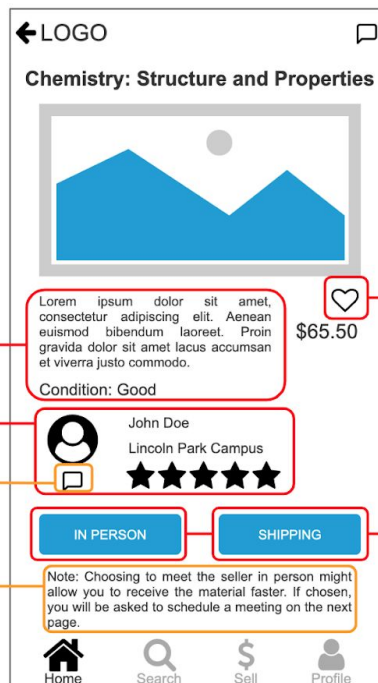
Task 3-3

Book/material information

Seller information

Option to send a message to the seller

Note to inform user how 'In Person' option works



Option to add book/material to saved items

Receiving options, in person/shipping

Task 3-4

User can click on the date they want to meet up with the seller

User can choose what time they want to meet the seller, options for AM and PM

The screenshot shows a mobile app interface for placing an order. At the top, there is a back arrow and the title "Place Order". Below the title, the "Date" section features a calendar for November 2019. The "Time" section has a dropdown menu set to "12:00" and a radio button for "AM". The "Location" section has a dropdown menu with "Location" as the placeholder text. A blue "CONTINUE" button is at the bottom.

- ✓ Location
- LPC Student Center
- LPC Richardson Library
- LPC The Quad
- LPC Sullivan Academic Center
- LPC SAC
- LPC Arts & Letters Hall
- LPC Ray Meyer Fitness Center
- LPC Theater School
- LPC School of Music
- LPC College of Education
- Loop DePaul Center 1st floor
- Loop Daley Building
- Loop Lewis Center
- Loop CDM

DePaul specific locations for the user to choose to meet the seller at

### Task 3-5

Forgiving format for card info, user knows labeled textboxes can be typed in

Prominent 'Place order' button, user knows what the final step is.

The screenshot shows the payment section of the "Place Order" screen. It includes a title "Chemistry: Structure and Properties" with a paragraph of placeholder text below it. The total price is listed as "Total \$65.50". Below this are input fields for "Card number", "MM" (month), "YY" (year), "CVC Code", and "Name on card". A prominent blue "Place Order" button is centered at the bottom. At the very bottom, there is a navigation bar with icons for Home, Search, Sell, and Profile.

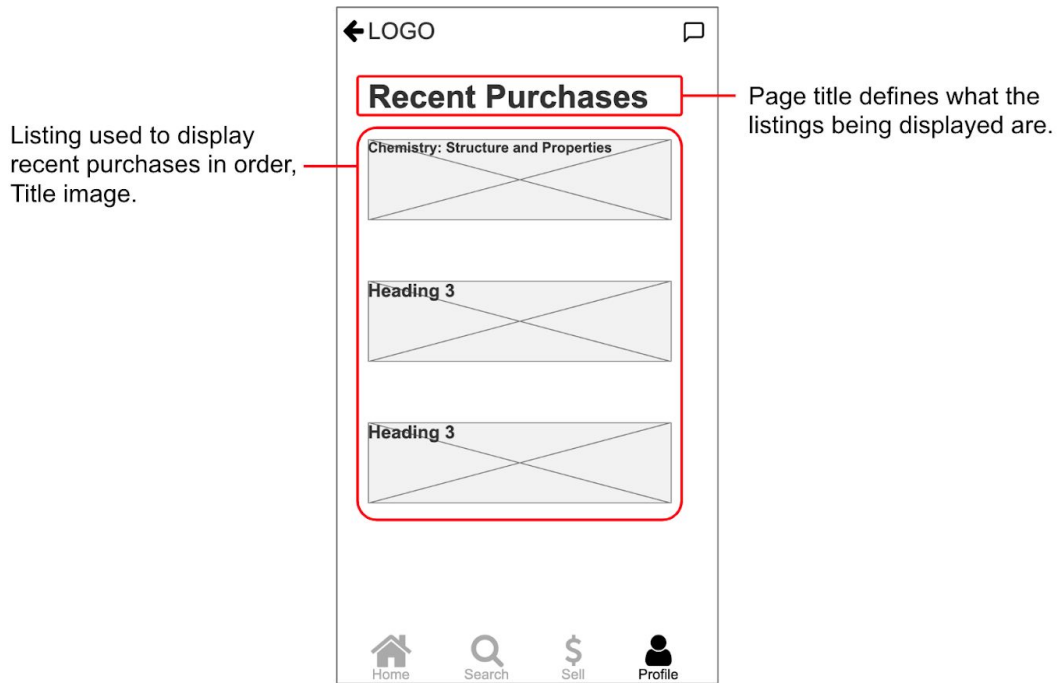
When Order is placed, feedback screen appears confirming purchase

The screenshot shows the confirmation screen after the order is placed. It features a large checkmark icon in a dark circle. Below the icon, the text reads "You have purchased an item" followed by "To edit or view your purchase visit 'Recent Purchases' in your profile." The navigation bar at the bottom is identical to the previous screen.

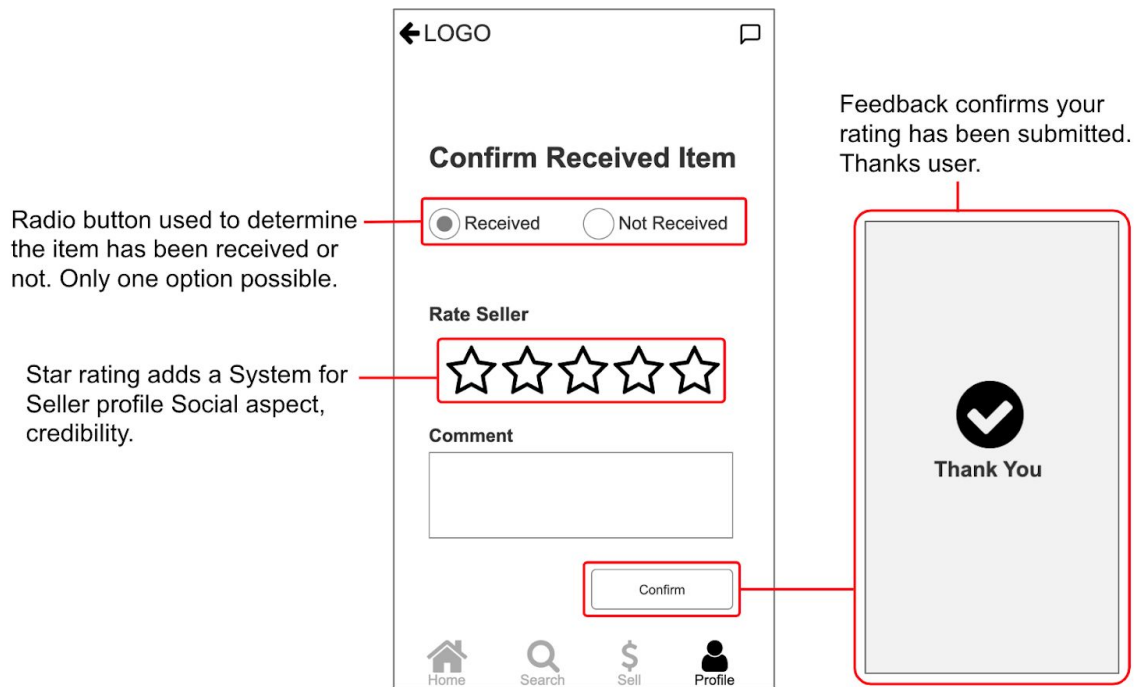
### Task 3-6

#### 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.



Task 4-1



Task 4-2

# Evaluation

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## User Testing - Outside of Classroom

<b>User 1</b>	<p><b>Task 1</b> The user did not like the look of the homepage. She did not know what “Syllabus Materials by Interest” meant. She easily navigated to the “Sell” icon, and clicked on the plus sign to create a post. After inputting course information and choosing the book option, she was confused about the exclamation point by the ISBN. After inputting the ISBN, she thought she was done and tried to click continue. She couldn’t because she hadn’t chosen the condition. She thought that, because the other information was populated, the condition would also be populated even though she realized this wouldn’t make much sense. After adding the condition, she then added pictures and clicked continue to complete the task.</p> <p><b>Task 2</b> She clicked on the profile to add interests. When she went to change her interests, she though they were already added because there was a checkmark next to them. However, after she clicked on one of them, she realized that they got checked off after it turned green.</p> <p><b>Task 3</b> She first questioned how the user would get their personal classes onto the homepage. She thought that sorting through all of the classes would be difficult for the user because there are so many of them. She asked how the app would know which classes the user is taking simply based off of their interests. To complete the task, the user first went for the search icon. When she realized she couldn’t interact with it, she wondered why there was a search icon on the navigation bar if the materials are already displayed on the homepage. She was confused as to where to go at first from the homepage. She thought the layout was confusing as well. She did end up clicking on CHE 130 as she was supposed to, but it took her some time. She didn’t think the way it was set up was easily explained, and she didn’t think she would be able to buy things from there. While on the sort screen, she clicked on the “send message” button and thought that it would take her to send a message to the seller. She said that she wouldn’t want to send a message to the seller in the first place. She didn’t like the open space on the details page. She thought that the message icon under the profile should be more in line with the star ratings. She completed the rest of the task easily and liked the feedback.</p> <p><b>Task 4</b> The user had no trouble completing this task. She enjoyed the feedback.</p>
<b>User 2</b>	<p><b>Task 1</b> The user thought that the first page was the items for sale. She easily completed the task, but she said that she didn’t know what the add pictures were until she clicked on them.</p> <p><b>Task 2</b> She went through this task with ease, and she did not have many comments on it.</p> <p><b>Task 3</b></p>

	<p>The user first went to try the search icon before clicking on CHE 130 on the homepage. She clicked on message seller, but that does not bring her to message the seller. This created confusion within the user. She didn't know she was buying the textbook when she clicked on "In Person" until it got to card details. She wanted an option for the DePaul bookstore under "Location".</p> <p><b>Task 4</b> The user went through this task easily as well, but did not click on "Received" when reviewing the seller.</p>
<b>User 3</b>	<p><b>Task 1</b> User figured it out fairly easily, but user would like to see the visual icon or some short description saying this textbox should be filled out. User wondered what is the default price for. He wants to see the new post as 'new' or 'recent' sign.</p> <p><b>Task 2</b> User had a hard time finding a button for change interest. User tried under home screen firstly, and profile-setting secondly. User would like to have a 'Change Interest' button on the home screen, too, so users can have more flexibility. Save button is hidden when the drop menus appears. He would like to see the confirmation screen or sign.</p> <p><b>Task 3</b> Confused where user should go to purchase the item. User initially tried search (bottom) menu first. User would like to search the material directly from the search menu. User also wanted to have a search bar on the home screen so users can type the book name directly. When user tried to schedule in-person, he was confused why more than two dates are selectable. When he tapped the 'In person' button, he would like to see the description saying, 'single day preference or multiple day preference.' User wants to have an addition option for other location so users can manually type. He would like to see all the reviews (lists: stars and description) of the seller so he can see if the seller is reliable or not.</p> <p><b>Task 4</b> He directly tried 'Profile' menu to rate sellers. He confused by the term 'recent purchase.' He suggested 'Purchase History' or 'Reward' instead. The cursor in the text box usually start from top left.</p>
<b>User 4</b>	<p><b>Task 1</b> User first tried 'Edit' button to post new. User said the Edit button seems to let User to post new. User did not notice the plus button at first sight. User found adding process very easy.</p> <p><b>Task 2</b> User had difficulty finding 'Change Interest' button. User first tried to tap the message Icon in home screen to change interest. Then user tried setting button under the profile screen to change interest. On the Change Interest screen, user would like to have a 'Done' button for each college menus or something that can give user clear confirmation of her selection (let the selected course appear on top of the screen).</p> <p><b>Task 3</b> User would directly tried search bottom menu to find the textbook name. She would</p>

	<p>like to have a search bar on the home screen. Other than that, she followed the process very easily.</p> <p><b>Task 4</b> She wanted to see the seller's info (seller's name and number) on recent purchase menu.</p>
<b>User 5</b>	<p><b>Task 1</b> User asked if they actually needed to type in whole ISBN, thought it would be easier to type in the title. Forgot to set custom price. Besides setting price user was able to complete task with ease.</p> <p><b>Task 2</b> Looked around home screen for change interest. Said 'It says interests up on the top, but I don't see a way to change it.' Eventually clicked through tabs to find it in profile, did not like it was hard to find, especially with so many buttons in profile page.</p> <p><b>Task 3</b> Clicked on CHE 130 on homepage. Was confused about in person if they had to select one time or what days they were available. Thought it was a bit unusual they could select times in the middle of the night for in person meet ups. Asked how do I know where in the building to meet. Asked about contacting seller.</p> <p><b>Task 4</b> User found recent purchases under profile. Found the fill out very simplistic liked the feedback. Left the page on thank you instead of clicking again.</p>
<b>User 6</b>	<p><b>Task 1</b> Tried clicking edit before '+' button, besides that they thought it was nice, it auto filled information, and things could be edited. Straightforward, took a couple seconds to see new post.</p> <p><b>Task 2</b> Went to profile, found interests tab. Liked the green check marks. Went back to see if interest saved green checkmark, was not positive if it was saved.</p> <p><b>Task 3</b> Tried to click on search at first, but realized the class was already displayed on the page. User had no problem with filters and entering information. Liked the feedback at the end.</p> <p><b>Task 4</b> User had no trouble finding the recent purchases, and then rated it. They did comment maybe they would need more information about the seller to remind them of who they're rating.</p>

Before we tested our prototype, we had to get users to test it 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. After we gathered our users, we began testing our prototype first by assigning and rotating two 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 several problems that the user had while trying to go through the three tasks.

#### Biggest Issues with the Prototype

- Users clicked on the search icon in the navigation bar to look for their course materials instead of from the homepage
- Users were confused about the contents of the first homepage
- Users had trouble locating the place to change their interests
- Users clicked on the “send message” button on the sort results page and had the intent to send a message to the
- Users were confused about scheduling an in person meeting with the seller
- Unclear error messages on the selling item page



## Reflection

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We reviewed P1 and P2 to derive our user stories, and we decided to start with our five design principles. We tried to create user stories that met the requirements of the design principles. However, there were only five design principles. We had to create one more user story to complete six user stories. We thought that the sixth user story should be related to the seller's reputation because we found in our user research that students tend to use trusted websites and stores. It was a significantly important part for the students.

After the user stories, we tried to come up with user tasks that demonstrated the user stories. We came up with the Task 1 that satisfies the user story: *As a student, I want to be able to post material listings so that I can sell my used materials*, Task 2 that matches up with the user story: *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 that covers the user stories: *As a student, I want to see the cheapest options for school supplies so that I can save money / As a student, I want to quickly receive material so that I can have it on time for assignments*, and Task 4 that correspond with the user story: *As a student, I want to know who I'm purchasing from so that I know everything is legitimate*. Finally, all the tasks satisfy the user story: *As a student, I want an easy process to purchase materials from my phone so that I can buy materials on the go*.

We assigned the simpler tasks(1, 2, 4) to each one of us and broke down the longest task (task 3) to create from Axure. As we created the mid-fi prototype, we realized that the more we tried to simplify the functionality of a regular app, the more invisible settings it needed. We used a lot of dynamic panels with different states, and hide/show functions. We sometimes created dynamic panels inside of dynamic panels. In order to make the sort function work, we used a repeater function and linked it to sort button. We added conditions, such as 'IF,' to hide and show certain items. We also set variable values in some text boxes and drop down menus so that they can be edited under specific conditions. This experience allowed us to experiment with many of the functions of Axure.

## Prototype changes from P2

- P2 Task 1 (P3 Task 3)
  - Removed search bar on the top of the home screen
  - Added a more descriptive title for the home screen, "Syllabus materials by interest"
  - Removed the pictures on the home screen and opted for a list of syllabus materials to reduce clutter
  - Added a progress bar on the bottom of the home screen, "finding 1/4"
  - Added navigation bar icons, "home, search, sell, profile"
  - Changed the "distance" option under sort to "Location:LPC-Loop"
  - Added a message seller option under sort and material details
  - Removed rental option
  - Option to add material to user's saved items
  - Moved "In Person" and "Shipping" to material details page
  - Added a note to inform users about the "In Person" receiving option
  - Changed meet up location options to DePaul specific locations only
  - Created a more appropriate confirmation feedback after a user places their order in the form of a checkmark
- P2 Task 2 (P3 Task 1)
  - Changed the location of the plus button to the bottom of the "Recent posts" page
  - Changed the type of information shown on the posts on the "Recent posts" page (Name of item, price, date posted, number of views)
  - Added an edit button
  - Changed title of page from "selling item" to "create a listing"
  - Changed how the user selects a course
  - Added an option for users to choose to post a book or a material
  - If the user enters the ISBN of a book, it automatically populates the screen with the title and author of the book as well as the original price
  - Added more descriptive words ('front' and 'back') and a plus button signifier for photos
  - Sellers can now upload more than two photos
- P3 Task 2
  - Added an option to change course interests from profile screen
- Overall prototype
  - Added two new tasks and new screens corresponding to those tasks

During our ISM 220 class, we tested three individuals who helped us refine the first version of our mid-fi prototype. We only had tasks 1, 2, and 4 done at the time. These are the following changes we made as a result of this testing.

- Created error messages for task 1 that would provide emphasis on necessary fields
- Added variables so the user is not able to click continue for task 1 unless they have inputted the necessary information
- Moved the interests to the profile page
- Added a "save" button on the interests page
- Created a bigger text field for the comment section under task 4

## What we would do differently next time

- Task screen number
  - What we would do differently next time | why
- Task 1-1
  - Have edit button inside of each list item | Confuse users with post new button
- Task 1-2-1
  - Instead exclamation point, we can add star(\*) symbol with red color for ISBN and condition? | Users have no idea why it is there. Start symbol is more commonly used.
  - Next to the default price (have it with gray color) add some description like 'original price. Change it to custom price you want to sell' | Users do not clearly understand what it is for. Users easily forgets to edit the price
- Task 1-3
  - 'New' or 'recent' sign for recent post | As a feedback
- Task 2-1
  - Reword 'setting' to something like 'edit personal info' | Confuse users
- Task 2-2
  - Add course numbers under course name | Users wants to choose more specific course number
  - Give user more clear feedback when user taps the course name | Users are not sure if it is saved or not
  - Resize the drop down menu so users can easily access 'save' button | Users complained because it was hidden by drop down menu
- Task 3-1
  - Rewording the title of the home screen | Confuse users
  - Add Search bar on top of the home screen | Users want to have it. Also it give users flexibility
  - Remove message icon | Confuse users, also unnecessary
  - Add 'Change interest' button | Users expect this button on the home screen
- Task 3-2
  - Remove message icon | Confuse users, also unnecessary
- Task 3-3
  - Remove message icon | Confuse users, also unnecessary
- Task 3-4
  - Place message icon with star ratings | Users find it easier to understand there
  - Let user to see seller's review history. (lists of review with stars and description) | User wants to see seller's reviews to check if the seller is reliable.
- Task 3-5
  - Past date should be gray out. Provide seller's available date and time to buyer? | So that users can check seller's schedule first.
  - Have another option saying 'other' and let user type the location manually | To give users more flexibility.
- Task 4-1
  - Reword 'recent purchase' to 'purchase history' or 'reward' | Confuse users

- Task 4-2
  - Give sellers info | Users want to see to be reminded who they are rating
  - Preselect one option so the user cannot skip choosing an option
  - Change the placement of the cursor in the comment text box | Users' expectation
  - On confirmation screen, have a short description saying like 'To escape, Tap the screen again' | Users want to escape but not clear how
- Others
  - Rewording the home menu and search button in the navigation bar? | Confuses users
  - Make search icon work and place it on the home screen? | Most users tried that menu first!

# Group Contributions

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## All

- Came up with user stories
- Came up with tasks
- Creating Mid- fidelity Prototype (task 3)
- Prototype annotating

## Ross

- Introduction
- Design Patterns
- Created Mid-fidelity Prototype (task 4)

## Jiyoun

- User Stories Descriptions: how they relate to our research
- Created Mid-fidelity Prototype (task 2)
- Design annotation
- Reflection

## Bridgit

- Site map
- Created Mid-fidelity Prototype (task 1)
- Evaluation
- Part of reflection: Prototype change from P2

# Behind the Scenes

