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Prof Stalvey
CSCI380

Team Members:

1. Alex Tate-Moffo (tatemoffowv@g.cofc.edu)
2. Thomas Marshall (marshalltb@g.cofc.edu)
3. Jaid Basket (basketjl@g.cofc.edu)

Application Name:

Magpie

Would show up in app store menus as “Magpie: Media Collection App”

User Goal:

The user wants to have access to a library of all their print media in an easy to use and customizable form that can also allow them to buy and sell books to other users.

High-Fidelity Prototype:

The UI prototype we are using for this application is [Figma](#). We chose to use Figma because it suits the needs of our group and our application. Figma’s tools allow us to make individual screens and sections of screens that properly demonstrate how we envision the system to work. ([Demo Link](#))

User Personas:



Sara Southerland is a 16-year-old sophomore in high school. On the weekends, she works at a local comic shop. Since she still lives with her parents and is not going to college for a few more years, she saves part of her paycheck and uses the rest as spending money. In particular, she loves to read comics, graphic novels, and manga. She gets the employee discount on the books she buys from her local comic shop, so she has quite a large collection and has trouble remembering which issues and volumes she has already bought. She would like to find a way to catalogue her collection so she can reference it before she buys anything from her work. ([image source](#))



Jack Nguyen is an 18-year-old senior in high school. When he has free time between his homework and studying, he enjoys playing board games and reading fantasy novels. Since he does not have a job, he is unable to buy books that often, aside from Christmas and birthdays. However, he does have a large collection of books he does not plan to read again that he would not mind selling in order to buy new books. Additionally, he would like to find a good way to catalogue his novel collection as he prepares to move to an apartment near the college he got accepted to. ([image source](#))



Ash Thomason is a 21-year-old college student. They love soccer and enjoy reading about the history of the sport as well as the lives of star athletes. The most prized book in their collection is a signed copy of one athlete's memoir. When they have the extra cash after spending their barista paycheck on groceries and other essentials, they enjoy buying non-fiction titles and soccer magazines. Since they're well into their college career, they have a lot of old textbooks lying around that their college bookstore will not buy back or will underpay them for. They would love to sell most of them to make some extra money. ([image source](#))



Elizabeth Delfino is a 25-year-old bank teller that works at Wells Fargo. When she's not busy at the desk, she enjoys reading the classics. As she collects more and more books from her elderly coworker with a massive library, she learns that keeping up with so many books can be difficult. Elizabeth finds herself getting confused between the works of Emily Bronte and Jane Austen and embarrassing herself in front of her coworkers. Elizabeth wants to find a better way to organize her collection. ([image source](#))



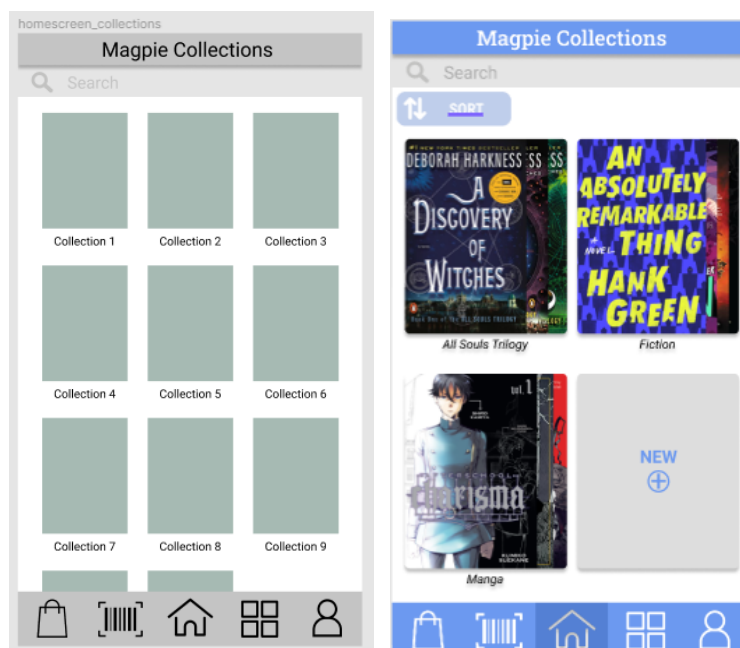
William Black is a 54-year-old that spends most of his time at work. Single and with both of his children grown up, he spends most of his free time building up his comic book collection. He has been working on his collection for about forty years, and he has trouble remembering what he has and what he is still searching for. William needs a way to catalog his current collection, so when he is at the comic book store, he knows if what he is looking at is something he already has. ([image source](#))

User Scenarios:

1. Sara manually adds a book to her library:

Sara heard about Magpie recently and has only just started to use it. She buys a new manga called “Afterschool Charisma” at the comic shop she works at and wants to add it to her Magpie library when she gets home, however she realizes she left the manga at work. ([see video of paper prototype here](#), note that all items are labelled 1-1, 1-2, etc on the back though that wasn’t shown off in the video)

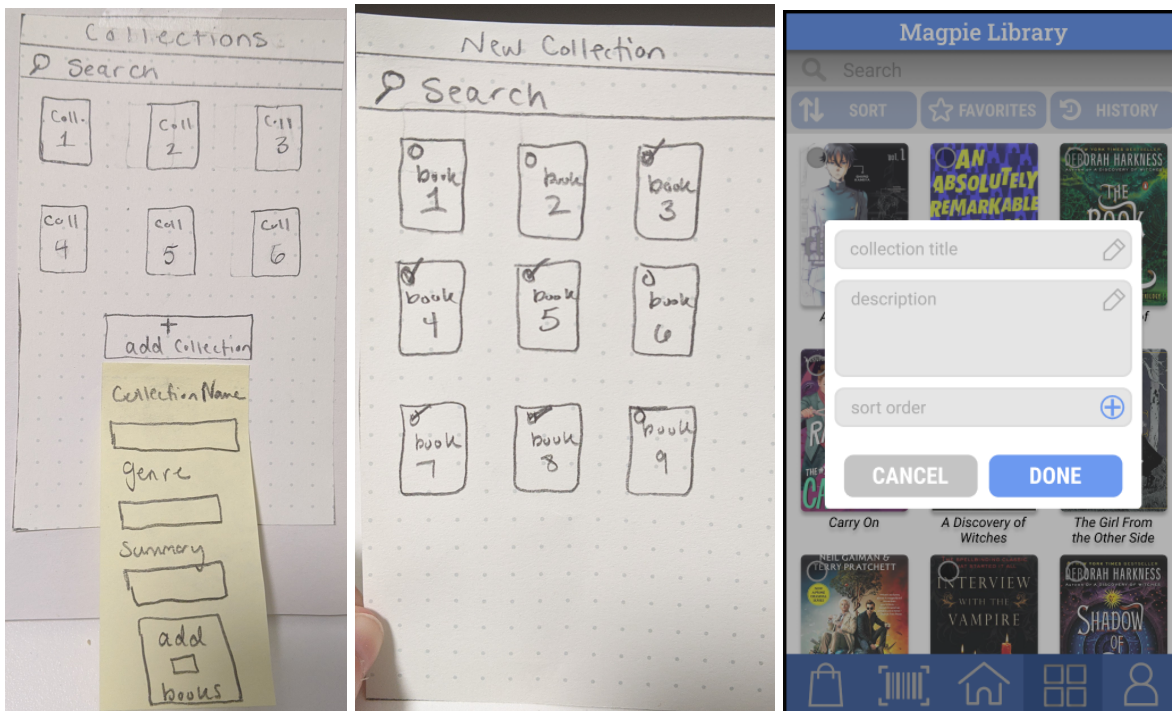
- a. Sara loads up the app, which starts her at the “collections” page.
- b. She taps the second icon from the left at the bottom ribbon that looks like a barcode scanner.
- c. It brings up an “add new item” page, and she taps “add manually” at the bottom since she doesn’t have the manga with her to scan the code.
- d. This brings up a popup window full of blank fill forms for her to input the information.
- e. She types in the title, author, publisher, publication date, summary, and genre tags.
- f. Then she taps on the cover photo and selects one of the images that matches the cover of the one she has.
- g. Since it is a manga, she wants to add the volume number, so she taps the “add section” and selects “volume/issue number” from the dropdown.
- h. Once that section is added, she taps and changes the default descriptor from “book” to “volume.” Then she taps the ending number and changes it to 12 using the dropdown.
- i. Afterward, she taps “done,” which takes her to her library with the thumbnail of the new item temporarily highlighted



2. Elizabeth creates a collection and adds books to it:

Elizabeth has been enjoying using Magpie for a little while, but now that she has a lot of books in her library, she wants to create a collection to better organize them. She has been reading a lot of classics lately, so she thinks that would be a good place to start.

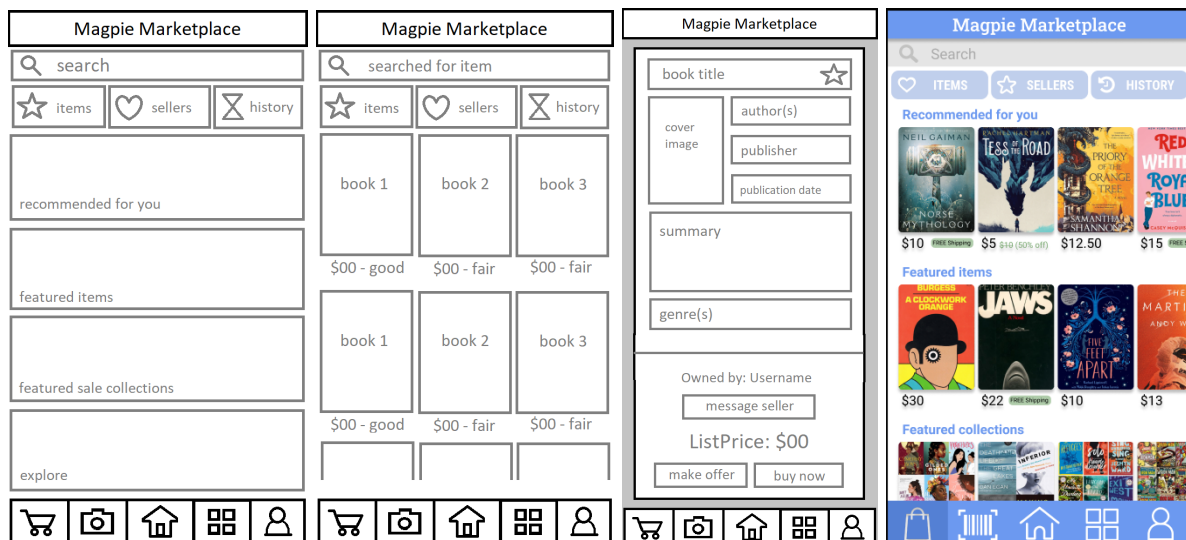
- a. Elizabeth will begin by opening the app and starts on the home page/collections page.
- b. To start a new collection, she will press the “add” button in the center bottom of the page.
- c. Elizabeth will be taken to a view of her library and she will have the ability to select each book in her library denoted by a small circle in the top left of each book.
- d. Once she selects a book, a small check mark will appear signifying her selection.
- e. Once Elizabeth is satisfied with her selection, she will be prompted to give her collection a title, summary and genre tags.
- f. Once she is finished, there will be a button at the end of the selection screen that will show the number of books being added and give her the option to complete the process.
- g. She will then be taken to the new collection.



3. Ash searches for a good price and quality on a used textbook

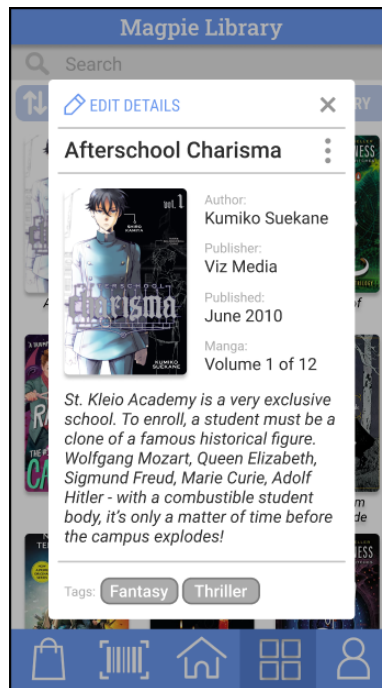
Ash downloaded Magpie the other day to compare the prices of textbooks for the upcoming semester. They are looking for the specific book listed on one of their course syllabi and are hoping they can find someone willing to sell it for less than their school bookstore's price. (see prototype sketches below)

- Ash boots up the app which opens on the home "collections" page
- Ash selects the button on the far left of the bottom ribbon that is shaped like a shopping cart. This goes to the marketplace.
- By clicking on the search bar, Ash can then type the name of the book to search the marketplace for listings on the book in question.
- Ash can then select from the available listings of the book for one with a good price while still being in a good condition.
- Upon finding and selecting a choice, Ash is brought to the book's page that lists the author, publisher, cover, publication date, summary, and genre tags. The current owner is also listed at the bottom and an option to either pay the set price or make an offer at a lower price.
- From there, Ash can message the owner to ensure the condition of the book, or if Ash wishes to compare multiple listings, Ash can favorite multiple listings of the book by clicking on the star next to the book title, near the top right of the screen.

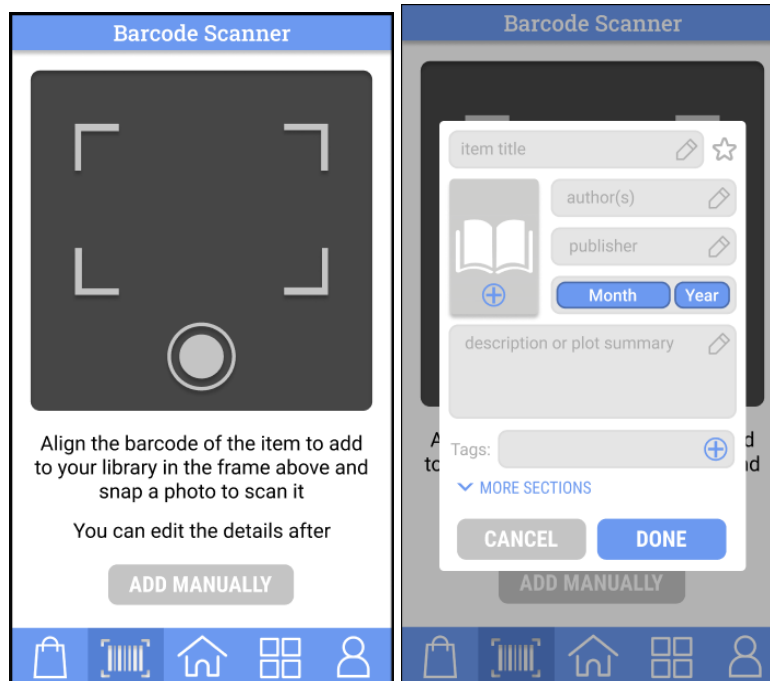


User Tasks:

1. Viewing an item in their library

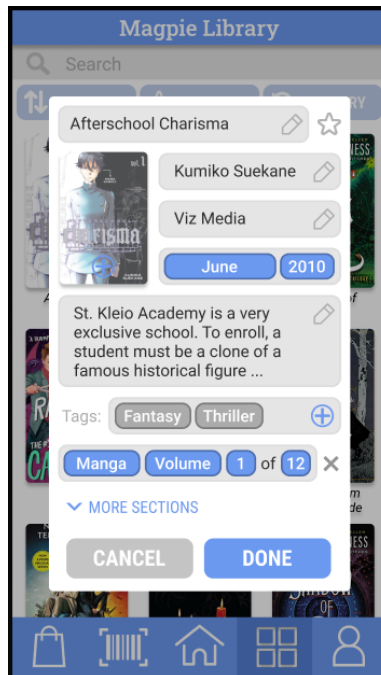


2. Adding a new item to their library. (Bar code or Manually)

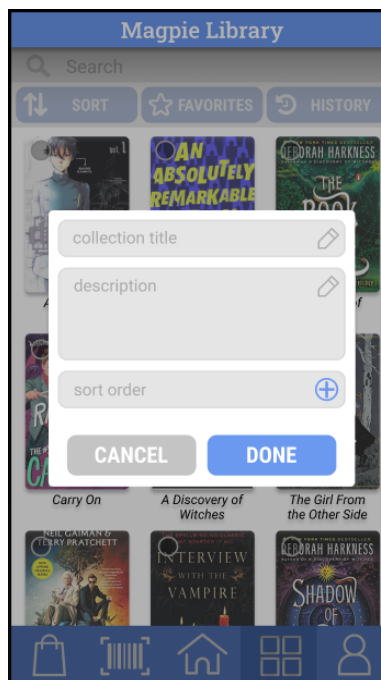


- 3.

4. Editing an item's details (e.g. adding notes about where they bought it, if it's signed, the publication year, etc)

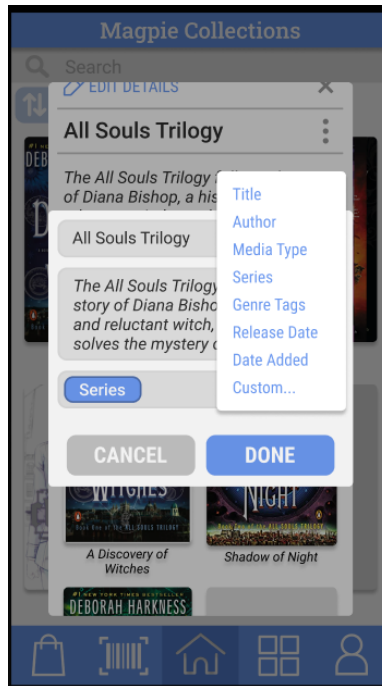


5. Creating a new collection of items



- 6.

7. Sorting/re-arranging items within a collection (i.e. alphabetically, by genre tags, etc)

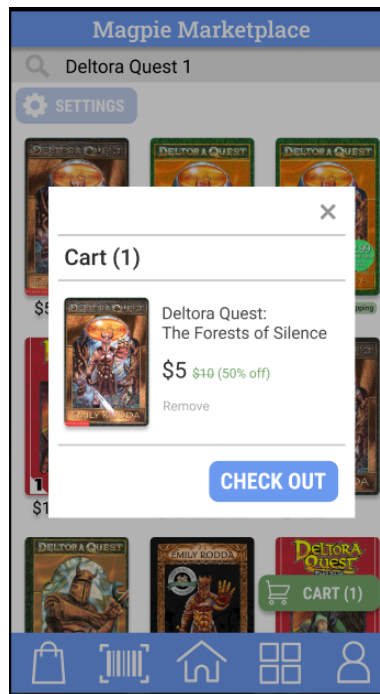


8. Searching to see if an item is in their library

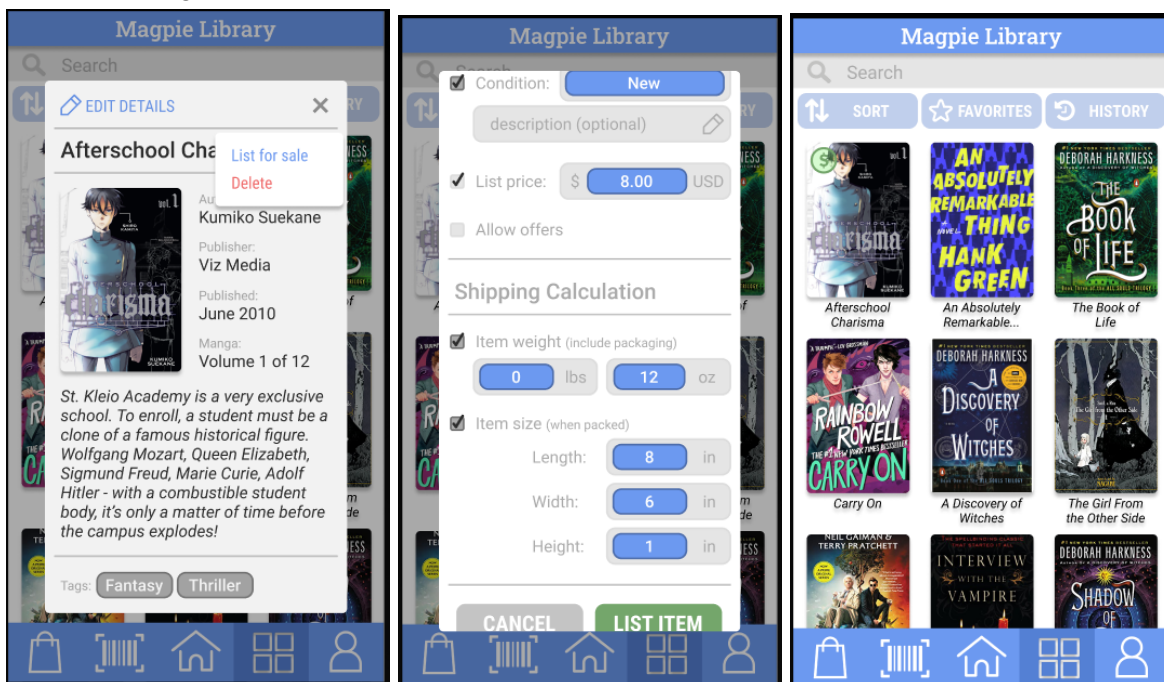


- 9.

10. Purchasing an item from the marketplace

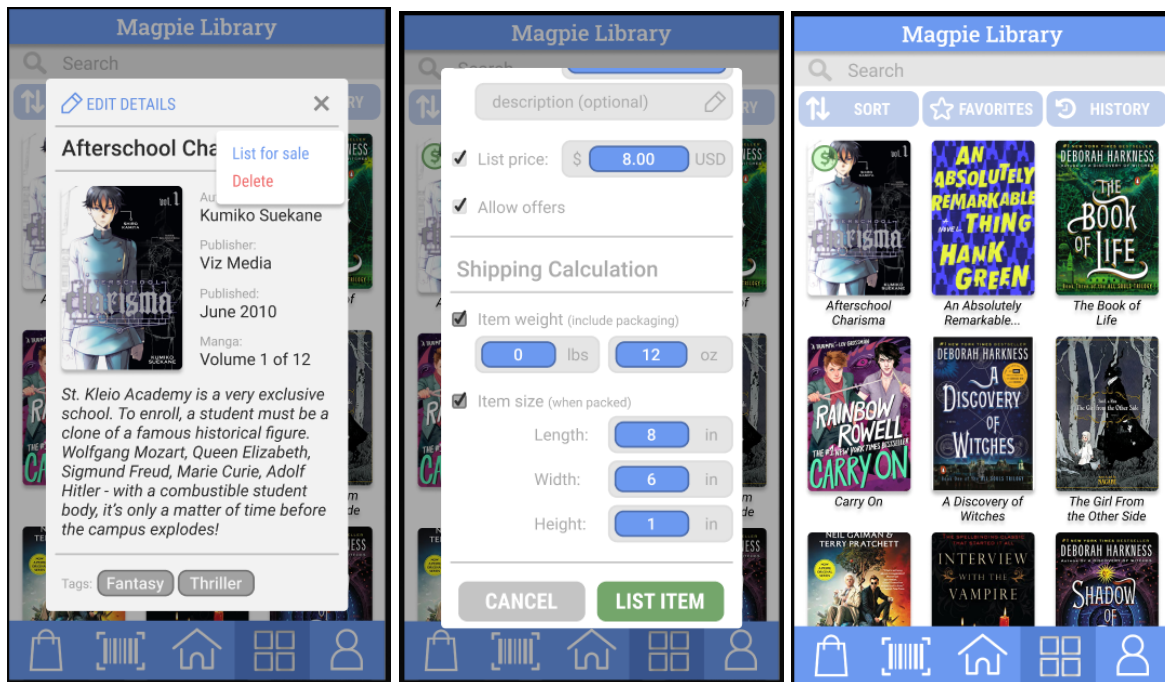


11. Listing an item in their collection for sale



12.

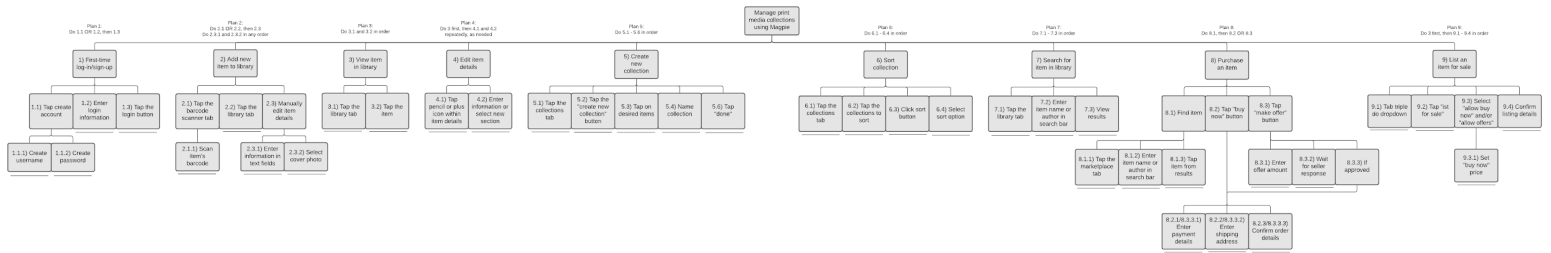
13. Listing an item in their collection as accepting price offers



Evaluation Heuristics:

- *Easy to learn*
 - How easily can you navigate through the application to find the books you need?
 - 1 - Difficult to find what I need
 - 7 - Easily find what I need
- *Easy to remember*
 - How easily can you recall the steps needed to find certain items and collections?
 - 1 - Very difficult to remember what to do
 - 7 - Very easy to remember what to do
- *Effective*
 - Do collections allow you to more easily find books?
 - 1 - Collections do not help at all
 - 7 - Collections make finding books very convenient
- *Efficient*
 - How satisfied are you with the time it takes to add a new book to your library?
 - 1 - Not satisfied, it takes too long or is too complicated
 - 7 - Very satisfied, it is quick and easy
- *Safe*
 - How comfortable are you giving this app your personal and financial information?
 - 1- I do not feel comfortable at all
 - 7- I feel very comfortable that information is secure
- *Functional*
 - Did all of this app's features work as you expected them to?
 - 1 - None of them completed the desired task
 - 7 - All of them completed the desired task

Hierarchical Task Analysis (HTA):



(see larger, cropped sections below)

Plan 1:
Do 1.1 OR 1.2, then 1.3

1) First-time
log-in/sign-up

1.1) Tap create
account

1.2) Enter
login
information

1.3) Tap the
login button

1.1.1) Create
username

1.1.2) Create
password

Plan 2:
Do 2.1 OR 2.2, then 2.3
Do 2.3.1 and 2.3.2 in any order

2) Add new
item to library

2.1) Tap the
barcode
scanner tab

2.2) Tap the
library tab

2.3) Manually
edit item
details

2.1.1) Scan
item's
barcode

2.3.1) Enter
information in
text fields

2.3.2) Select
cover photo

Plan 3:
Do 3.1 and 3.2 in order

3) View item
in library

3.1) Tap the
library tab

3.2) Tap the
item

Plan 4:
Do 3 first, then 4.1 and 4.2
repeatedly, as needed

4) Edit item
details

4.1) Tap
pencil or plus
icon within
item details

4.2) Enter
information or
select new
section

Plan 5:
Do 5.1 - 5.6 in order

5) Create
new
collection

5.1) Tap lthe
collections
tab

5.2) Tap the
"create new
collection"
button

5.3) Tap on
desired items

5.4) Name
collection

5.6) Tap
"done"

Plan 6:
Do 6.1 - 6.4 in order

6) Sort
collection

6.1) Tap the
collections
tab

6.2) Tap the
collections to
sort

6.3) Click sort
button

6.4) Select
sort option

Plan 7:
Do 7.1 - 7.3 in order

7) Search for
item in library

7.1) Tap the
library tab

7.2) Enter
item name or
author in
search bar

7.3) View
results

Plan 8:
Do 8.1, then 8.2 OR 8.3

8) Purchase
an item

8.1) Find item

8.2) Tap "buy
now" button

8.3) Tap
"make offer"
button

8.1.1) Tap the
marketplace
tab

8.1.2) Enter
item name or
author in
search bar

8.1.3) Tap
item from
results

8.3.1) Enter
offer amount

8.3.2) Wait
for seller
response

8.3.3) If
approved

8.2.1/8.3.3.1)
Enter
payment
details

8.2.2/8.3.3.2)
Enter
shipping
address

8.2.3/8.3.3.3)
Confirm order
details

Plan 9:
Do 3 first, then 9.1 - 9.4 in order

9) List an
item for sale

9.1) Tab triple
do dropdown

9.2) Tap "ist
for sale"

9.3) Select
"allow buy
now" and/or
"allow offers"

9.4) Confirm
listing details

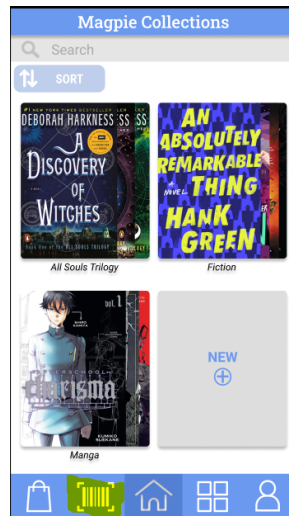
9.3.1) Set
"buy now"
price

Figma Demo of User Tasks:

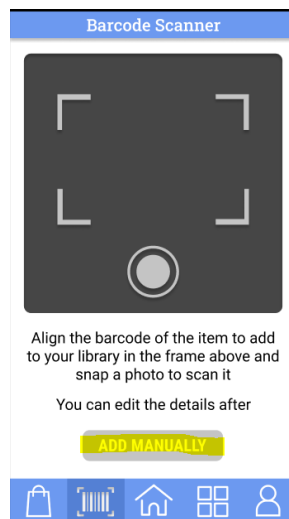
Note: The shop was omitted from this section because the express purpose of this app is to catalogue the user's collection. While the shop is a part of the app, it is not the primary focus.

1. Manually adding After-School Charisma to the library (Starting at the home page):

- Tap the second icon from the left at the bottom ribbon.



- Tap "add manually" at the bottom.



- c. Type in the title, author, publisher, publication date, summary, and genre tags.

The screenshot shows the 'Barcode Scanner' app interface. At the top, there's a title bar 'Barcode Scanner'. Below it, a form for adding a new item. The form has fields for 'item title', 'author(s)', 'publisher', 'Month', 'Year', and 'description or plot summary'. There's a 'Tags:' field with a plus icon. Below the form, there's a 'MORE SECTIONS' link, 'CANCEL' and 'DONE' buttons, and an 'ADD MANUALLY' button. At the bottom, there's a navigation bar with icons for a shopping bag, barcode, home, grid, and user profile.

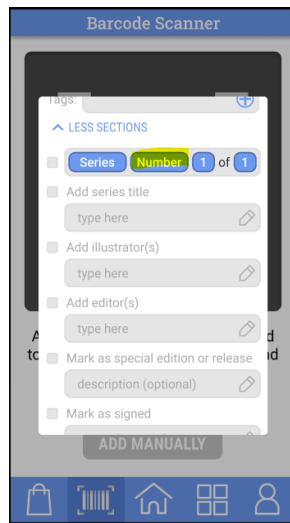
- d. Press add a cover photo and select an image.

Two side-by-side screenshots of the 'Barcode Scanner' app. The left screenshot shows the 'item title' field with a yellow highlight and a plus icon. The right screenshot shows the 'cover photo' field with a yellow highlight and a camera icon.

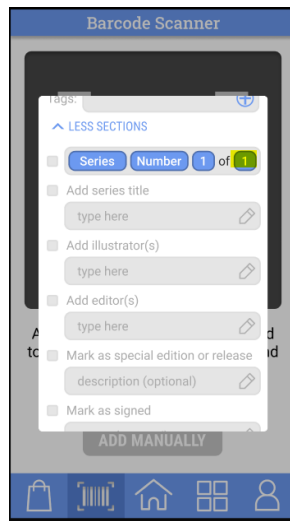
- e. Add the volume number, by tapping the “more sections” and selecting “volume/issue number” from the dropdown.

The screenshot shows the 'Barcode Scanner' app interface. The 'MORE SECTIONS' link is highlighted in yellow. Below it, a dropdown menu is open, showing options: 'Series', 'Number', and '1 of 1'. The 'Number' option is selected. Below the dropdown, there are checkboxes for 'Add series title', 'Add illustrator(s)', 'Add editor(s)', 'Mark as special edition or release', and 'Mark as signed'. Each checkbox has a corresponding text input field. At the bottom, there's an 'ADD MANUALLY' button and a navigation bar with icons for a shopping bag, barcode, home, grid, and user profile.

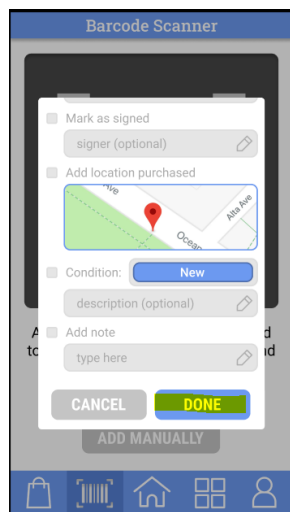
- f. Change the default descriptor from “book” to “volume.”



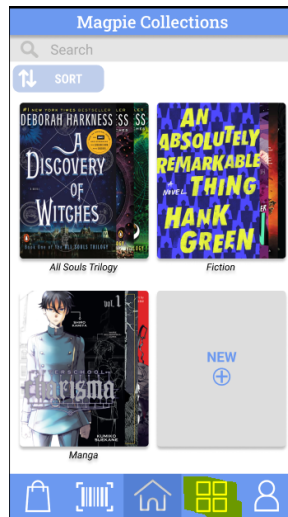
- g. Tap the ending number and change it using the dropdown.



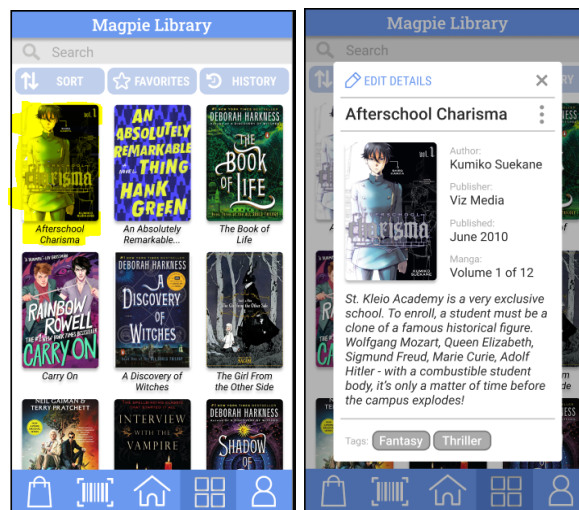
- h. Tap “done.”



3. View the details of *Afterschool Charisma* (Starting at the home page):
- Tap the second icon from the right at the bottom ribbon.

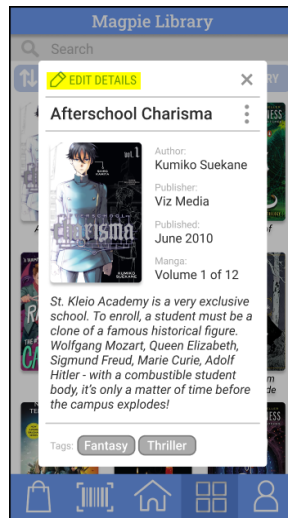


- Tap the image of *Afterschool Charisma*.

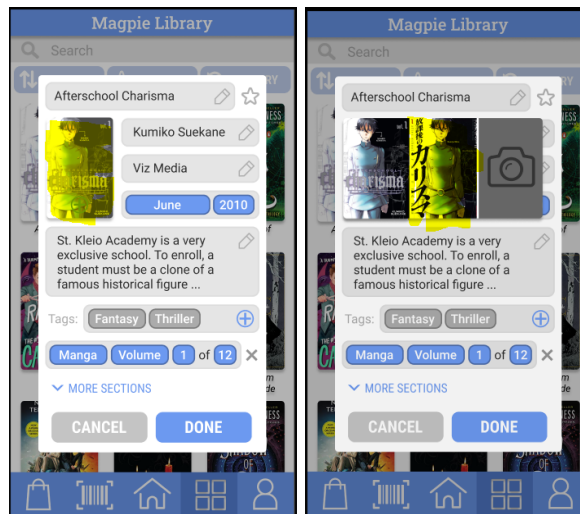


4. *Editing Afterschool Charisma's details to change the image to a different cover and edit the condition to "like new" (Starting at the item's view page):*

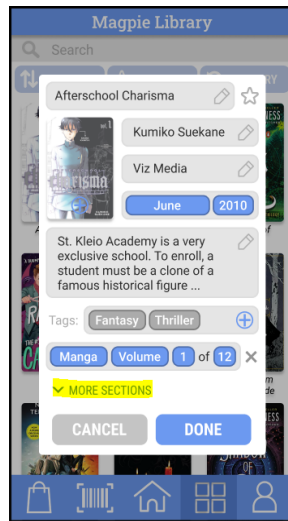
a. Tap the "EDIT DETAILS" button.



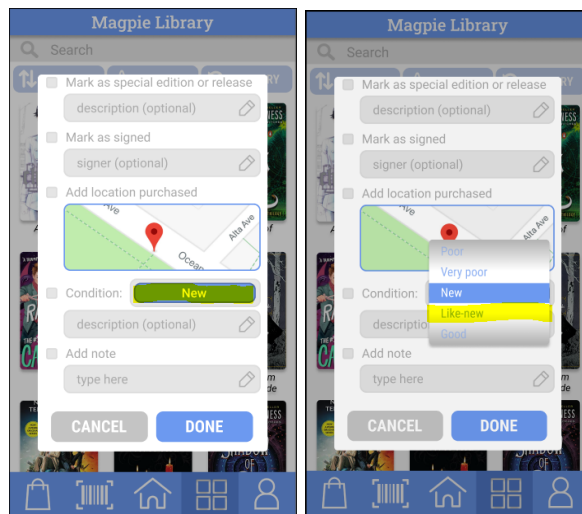
b. Tap the image and select the alternate cover.



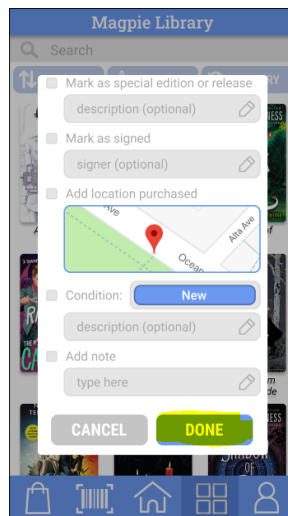
- c. Tap “more sections.”



- d. Scroll to the condition tab and change it from “new” to “like new.”



- e. Scroll to the bottom and press done.



Keystroke-Level Model:

Note: Since all operations take place on a smartphone app, we are equating a screen tap to a keystroke and ignoring mouse presses and homing hands.

Operator	Description	Time (seconds)
K	Keystroke – press button/key	.28
T(n)	Type a sequence of n characters	$n \cdot .28$
P	Point with mouse to a target on display	1.1
B	Press or release a mouse button	.1
BB	Click mouse button	.2
H	Home hands to keyboard or mouse	.4
M	Mental act of routine thinking	1.2
W(t)	Waiting for system to respond	t

1. *Manually adding Afterschool Charisma to the library (Starting at the home page):*

- Tap the second icon from the left at the bottom ribbon. K
- Tap “add manually” at the bottom. K
- Type in the title ($T(n = \text{After-School Charisma})$), author ($T(n = \text{Kumiko Suekane})$), publisher ($T(n = \text{Viz Media})$), publication date (4K), summary ($T(n = (\text{I’m not typing the whole thing here. It’s 278 characters}))$), and genre tags (3K).
- Press add a cover photo and select an image. 2K
- Add the volume number, by tapping the “more sections” (K) and selecting “volume/issue number” ($K + T(n = 1 + \text{enter})$) from the dropdown.
- Change the default descriptor from “book” to “volume.” 2K
- Tap the ending number and change it using the dropdown $K + T(12 + \text{enter})$.
- Tap “done.” K
- Total = $K + K + (T(21) + T(14) + T(9) + T(278)) + 7K + 2K + K + (K + T(2)) + 2K + (K + T(3)) + K + W(t) = 17K + T(327) + W(t) = (17 \cdot .28) + (327 \cdot .28) + W(t) = 4.26 + 91.56 + W(t) = \mathbf{95.82 + t \text{ seconds}}$
- The time of this task seems fairly long, but that is mainly because the summary of the item takes a long time. The summary, alone, takes 91.56 seconds. We are not sure if the task can be simplified more than it is except for omitting optional sections of information.

2. *View the details of Afterschool Charisma (Starting at the home page):*

- Tap the second icon from the right at the bottom ribbon. K
- Tap the image of After-School Charisma. K
- Total = $K + K + W(t) = 2K + W(t) = 2 \cdot .28 + t = \mathbf{0.56 + t \text{ seconds}}$
- This task is very important but very short. We see no way of simplifying this task more than it already is.

3. *Editing Afterschool Charisma's details to change the image to a different cover and edit the condition to "like new" (Starting at the item's view page):*
 - a. Tap the "EDIT DETAILS" button. K
 - b. Tap the image (K) and select the alternate cover (K).
 - c. Tap "more sections." K
 - d. Scroll to the condition tab (K) and change it from "new" to "like new." (2K)
 - e. Scroll to the bottom (K) and press done (K).
 - f. $\text{Total} = K + (K + K) + K + (K + 2K) + (K + K) + W(t) = 11K + W(t) = 9 * .28 + W(t)$
= 2.52 + t seconds
 - g. This task's length is dependent on the number of changes the user wishes to make. These tasks are fairly streamlined and there is not much that can be done to simplify them further.