

Part 1: Revise requirements based on feedback:

CSC324 Project Milestone 1: Pioneer Mart

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Key:

Red represents the added feedback in Sprint 1

Product description with User Roles

We plan to build a mobile application that provides a campus-based online platform for buying and selling second-hand products, as well as requesting and providing services, within the Grinnell community. With this app, Grinnellians will be able to easily exchange second-hand products and services, such as textbooks, dorm supplies, transportation, and haircuts. The target users of the app will be the Grinnell College community.

Notable competitors include [Etsy](#), [Facebook Marketplace](#), and [Poshmark](#). Etsy is an online marketplace that allows users to buy and sell handmade items with an emphasis on arts & crafts. Poshmark is also an online marketplace that allows users to buy and sell clothing, home goods, beauty products and more. While platforms like Etsy and Poshmark serve as notable competitors, our app differentiates itself by being exclusively accessible to individuals with a Grinnell College email address. This ensures a secure, college-focused marketplace tailored specifically to the needs of Grinnellians. The common user will be Grinnell College students, faculty, and staff.

User Personas

- **Hyeon (He/Him) [Power User]:** Hyeon plans to use this app for selling/donating some of the things that he owns in Grinnell to get rid of the things before graduating this semester. In addition, he suffers from mild astigmatism, so may require some adjustments from the application.
- **John (He/Him) [Regular User]:** John plans to use this app for buying and selling required products (at a reasonable price). He suffers from dyslexia and bad eyesight. He is also vegetarian.
- **Muhammad (He/Him) [Regular User]:** Muhammad lives off-campus at Grinnell which is why he spends most of his time at home near the Bear which is far away from downtown and walmart. He also doesn't have a car which means that when he needs to go shopping, he has to wait for the local shuttle which makes things very inconvenient. Muhammad needs a more convenient way to buy things especially clothes and electronics. Additionally, Muhammad hasn't had good experiences with facebook marketplace, where he usually buys things from. Therefore he wants a place to buy things from people that seem more trustworthy and live in his immediate community.
- **Alan (He/Him)[Power User]:** Alan is a graduating student who plans to sell some of his items before leaving Grinnell. He also wants to collect some unique items from the software. At the sametime, Alan doesn't have a car. He values privacy.
- **Lydia (She/Her)[Regular User]:** Lydia likes shopping, especially for cute and aesthetic items such as clothes, accessories and dorm decorations. However, many of these items become unnecessary after a while. She thinks sustainability is important, so she wants

to resell the products she no longer needs to reduce waste. While shopping, she is not very patient and doesn't like waiting for long shipping times, so she prefers to pick up items locally.

- **Joyce (She/Her) [Regular User]:** Joyce is a Grinnell College student preparing to move off-campus and looking for affordable ways to furnish her new apartment. She is resourceful and entrepreneurial, looking to offer ride-sharing services to fellow students to earn extra income. While she values independence, she also seeks support for tasks, like carrying groceries upstairs or cutting her hair. Joyce wants an intuitive, user-friendly technology that will allow her to save money, receive help for certain tasks, and earn money.

User Stories

1. As Joyce, I want to find affordable household items because I am moving off-campus and I want to furnish my new apartment without breaking my budget.
2. As Joyce, I want to offer ride-sharing services to other students because I have a car and I want to earn some extra money.
3. As Joyce, I want to find an affordable hairdresser because I am not very good at cutting my own hair.
4. As Joyce, I want to find help carrying groceries up stairs because I have limited physical strength.
5. As Joyce, I want an intuitive interface so that I can easily access all features without feeling overwhelmed because I am not very tech-savvy.
6. As Muhammad, I want to be able to save items so that if i see something I like but am not sure about whether I want to buy it, I should be able to find the product
7. As Muhammad, I want frequent rides to des moines because I want to request rides from whoever wants to make some extra money on the side
8. As Muhammad, I want to see the categories of different items so that if I know what I need but want to see other options as well, I should have that information on one screen
9. As Muhammad, I want to be able to negotiate with the seller and see if I can bring the price down because I'm price conscious and feel like I have good negotiating skills
10. As Muhammad, I want to be able to find a place that is convenient for me to meet the seller
11. As Lydia, I want to sell dorm supplies and decorations because she had bought too much similar stuff.
12. As Lydia, I want to be able to upload multiple items easily and quickly so that I can sell my items effortlessly without spending too much time.
13. As Lydia, I want to track how many items I have bought and sold so I feel good about my action toward sustainability.
14. As Lydia, I want to pick up my items on campus so that the process is fast and easy.
15. As Lydia, I want recommendations so that I can discover new products I might like.
16. As Alan, I need to sell some of my collectible items so that I can declutter before graduating and find good homes for them.
17. As Alan, I need an efficient way to securely communicate with buyers in-app so that I can protect my privacy while coordinating transactions.

18. As Alan, I need a way to compare similar collectible items listed on the app so that I can better understand their market value.
19. As Alan, I need images of the item from sellers so that I can better evaluate its overall condition.
20. As Alan, I need to schedule an airport ride in advance so that I can ensure timely transportation before my flight.
21. As John, I want the prices to be reasonable as otherwise I will rather buy from the local markets as a brand new product or cheaper service
22. As John, I want magnified text as standard texts are too small for my eyesight.
23. As Hyeon, I need to be able to know what kind of transaction will happen at the place beforehand as I need to be able to withdraw cash if the method is by cash.
24. As Hyeon, I need to be able to find a person who wants some of the materials I am donating as I want to donate or sell my extra dorm decorations, posters, and storage bins before he leaves.
25. As Hyeon, I need to be able to change the font style as I suffer from astigmatism.
26. As John, I need to be able to create an item list intuitively (with less texts) as I have dyslexia and it will be difficult for me to understand long texts.
27. As John, I need to be able to know if any of the food products have non-vegetarian substances.
28. As Hyeon, I need to be able to label any allergens of the foods that I will be selling as otherwise it may harm some of the people who are not non-vegetarians.
29. As Sarah, I want to clearly see what information I must fill in when I upload a new item that I want to sell so that I can fill in the form more efficiently.
30. As Sarah, I want to be able to set the minimum and maximum price for the item that I am selling so that I have more flexibility to negotiate with the potential buyers.
31. As Rhys, I want an easy and fast registration process so that I can easily start using the app.
32. As Areeha, I want to filter different types of items on the app so that I can easily find the items that I'm interested in.

Watchout cases

- Selling course material
- Alcohol
- Past Exams (Academic Honesty)
- Illegal matters

Non-functional Requirements

1. Grinnell Login through email
To ensure that Pioneer Mart is accessible exclusively to Grinnell College students, authentication will be enforced using the official Grinnell College email login system. This requirement serves multiple purposes, primarily focused on security, privacy, and controlled access.
2. Scalability

Pioneer Mart should be designed to handle an increasing number of users and listings without significant performance degradation. The system architecture should support efficient data retrieval, optimized search functionality, and smooth user interactions even as the platform grows. Additionally, the infrastructure should allow for potential future expansions, such as integration with other student services, mobile app development, or external authentication methods if needed. **If deployed and people actually use it, the app should be able to handle lots of traffic during the end of the semester b/c people will likely be looking to get rid of a lot of stuff.**

3. Security & Privacy

The app should not disclose any personal information of the users without permission, including transaction history, financial information, contact details, or any other sensitive data. All data transmissions must be securely encrypted to prevent unauthorized access. Additionally, user privacy settings should be customizable, allowing individuals to control what information is visible to others on the platform.

4. Terms & Conditions:

The app should have some sort of Terms & Conditions that each user must agree to. While we will do our best to implement moderation features, security settings, and reporting users, once the users are connected and exchanged their contact information or started chatting about the listing, we would not be responsible for scams etc.

External Requirements

1. The app should be robust towards the errors that can be expected to occur during the use cases such as uploading and displaying items on app, email authentication, etc.
2. The scope of our project will match the resources we have and will be restricted to the work that is reasonable for a team of 5 members within the duration of the course.
3. The mobile app should be installable (at least for Android) by the users. We will provide a reasonable means for the potential users to easily download, install, and run it.
4. **The app (if deployed) should be marketed well so that it has a network effect, bringing lots of students on the platform since that's the only way it'll be worth using as a user.**
5. **The app should be careful with the impact of users and should try to ensure that the users fulfill their promises. For example, the app should find a way to punish people who are taking advantage of others, and support those who did get taken advantage of.**

Scope and Feature List

Major Features

- ~~a. 2 main pages: items & services; each has their own category.~~
 - ~~i. We will focus on implementing the item page and implement the service page once that's complete.~~
- b. **One main page with general items, categories are on top in a horizontal scroll bar and filters items if a certain category is clicked**
- c. **Item page w/ details of the items**
- d. **Item listing page where seller fills in item details**
- e. **Purchase history page**

- f. Email Authentication code to ensure security, user email, password
 - g. User profile section
 - ~~h. Dropdown for settings and others~~
 - i. Settings window which is opened through icon on user profile page
 - j. Push notifications
 - k. Reporting listings & users
 - l. Upload image, video, and text
 - m. Popup windows in-app to notify users of updates (e.g. "we've sent your purchase request to the seller" and it shows the seller's email)
 - n. Terms & conditions page
 - o. FAQ section
- Stretch Goals
- a. Real-time chat for convenience
 - b. Image & text moderation
 - c. Favorites/save button
 - d. Reviews for certain sellers
 - e. Search Functionality
 - f. Public anonymous comment system
- Out of Scope
- a. Online Payment
 - b. Discount feature b/c not doing online payments
 - c. Product recommendation algorithms

Citations

1. Etsy. 2025. *Etsy: Shop for Handmade, Vintage, Custom, and Unique Gifts*. Retrieved February 5, 2025, from <https://www.etsy.com>
2. Facebook Marketplace. 2025. *Buy and Sell Items Locally or Shipped*. Retrieved February 5, 2025, from <https://www.facebook.com/marketplace>
3. Poshmark. 2025. *Poshmark: Buy & Sell Fashion*. Retrieved February 5, 2025, from <https://www.poshmark.com>

Part 2: Use Cases

Add a section to your **Requirements Document** including the specified number of use cases with the specified components for each use case.

Use case 1

- Actor: Hyeon, a graduating student of Grinnell College
- Goal: Sell things that he does not require anymore after graduation (or even giveaway)
- Trigger: Hyeon initiates the app
- Pre-conditions:
 - Hyeon is registered and logged in
 - Hyeon has a single item to sell/giveaway
 - Hyeon took a photo of his product
- Post-conditions:
 - Hyeon has added an item on the sell list with its photo and description
 - He's contacted the buyer successfully and potentially sold the item
- Flow
 1. go to add item (+ with a circle around sign would be great on the bar below)
 2. add photos and description of the item
 3. Hyeon decides the price range at which he is willing to sell
 4. whenever someone contacts regarding the item, contact back and schedule time to meet for the item
 5. Hyeon sells the item
- Alternative Flow A (Recoverable, eventually buyer does not buy)
 1. Hyeon meets up with the buyer
 2. The buyer decides not to buy the product
 3. Hyeon looks for another person to buy the product
 4. Hyeon finds another person who wants to buy the product
 5. Hyeon sells the product
- Alternative Flow B (Non-recoverable, invalid code while registration)
 1. Hyeon tries to register for the app to sell his stuffs
 2. He inputs an invalid code for Grinnell email code
 3. The app notifies him that the code is invalid

Use case 2

- Actor: Muhammad is a rising senior and is moving off campus soon
- Goal: He needs to find stuff for his room (i.e. chair, bean bag, monitor) but doesn't know exactly what he wants yet.
- Trigger: Muhammad initiates the app and navigates to the category section
- Preconditions:
 - Muhammad has a registered account
 - Sellers have listed items that they're planning to place in the dorm lounges at the end of the semester
- Postconditions:

- Muhammad has browsed through categories
- he's added some things to his favorites/cart list
- he contacted a seller by pressing "get now"
- Flow
 1. Muhammad opens the app and navigates to the home section where he's presented with a list of items
 2. He taps on the clothes category that he's interested in
 3. He taps on the item (a clothing hanger) he is interested in buying which then shows him the details of the item, price, description, photos, and seller information
 4. He decides to buy the item after a lot of contemplation and clicks "~~get now~~ Request Purchase"
 5. The seller reaches out to him through his preferred method of communication and he sets up a meet with the seller
- Alternative Flow A (Recoverable - Seller Unresponsive)
 1. Muhammad opens the app, navigates to the category sections and finds a clothing hanger he really likes so he taps the item to view its details
 2. He likes the price and so taps the "~~buy now~~ Request purchase" button which has the seller's email
 3. After a few days, Muhammad hasn't received any direct communication from the seller after the notification was sent to them
 4. Muhammad decides to email the seller who just forgot to respond
 5. Muhammad finally buys the item
- Alternative Flow B (non-recoverable - invalid contact info)
 1. Muhammad opens the app, navigates to clothes, finds a clothing hanger he likes
 2. He views the hanger's details and decides to tap "~~buy now~~ Request Purchase"
 3. After a few days, Muhammad hasn't received any direct communication from the seller. Muhammad emails him but gets no response
 4. The seller hasn't put down any other contact info so cannot contact them another way
 5. Muhammad can't buy the item cause the seller isn't responding
 6. The app should ideally have a push notification feature which reminds the seller about this purchase.

Use case 3

- Actor: Anya is a sophomore and she just heard about this amazing new app called PioneerMart
- Goal: needs to get her account set up so that she can start selling stuff
- Trigger: Anya initiates the app after downloading
- Preconditions:
 - She needs valid contact information and needs to be a Grinnell student
- Postconditions:
 - She has a registered account and is able to access the application
- Flow

1. She first navigates to the page where she's prompted to enter her email and password to sign in
 2. She realizes SHE HASN'T CREATED AN ACCOUNT!!! So she clicks "create an account"
 3. She first navigates to the page where she's prompted to enter her Grinnell email, create a password, and agree to the terms & conditions
 4. She enters her email and creates a strong password
 5. She retypes the password for verification and enters her preferred contact and payment methods
 6. She clicks on terms & conditions and then agrees to the terms and conditions
 7. She clicks "Send verification code"
 8. The app verifies her email by sending her a 4 digit code on outlook
 9. She gets a message on the app saying email verified with a button to go back to login page
 10. She navigates to the login page, enters her email and password and starts shopping!
- Alternative Flow A (Recoverable - invalid email)
 1. She first navigates to the page where she's prompted to enter her email and password to sign in
 2. She realizes SHE HASN'T CREATED AN ACCOUNT!!! So she clicks "create an account"
 3. She first navigates to the page where she's prompted to enter her Grinnell email, create a password, and agree to the terms & conditions
 4. She enters her email and clicks to password box to create a password but she has unknowingly entered a typo in her email address writing "@cornell.edu"
 5. The app highlights this information in red and gives her an error message saying this email is invalid
 6. Anya enters the correct email and proceeds to set up her account with the steps mentioned in original flow
 - Alternative Flow B (non-recoverable - unacceptable terms & conditions)
 1. She first navigates to the page where she's prompted to enter her email and password to sign in
 2. She realizes SHE HASN'T CREATED AN ACCOUNT!!! So she clicks "create an account"
 3. She first navigates to the page where she's prompted to enter her Grinnell email, create a password, and agree to the terms & conditions
 4. She enters her email and creates a strong password
 5. She retypes the password for verification and enters her preferred contact and payment methods
 6. She clicks on terms & conditions, spends 10 minutes reading and realizes that she doesn't like what she reads.
 7. She closes the app and deletes it because she doesn't have any use for it anymore
 8. Takeaway: The app should have reasonable terms and conditions

Use Case 4

- ❖ Actor: Alan, a freshman of Grinnell College, who need buy daily essentials
- ❖ Goal: Alan need to purchase daily essentials for upcoming semester
- ❖ Trigger: Alan initiates the app and navigates to the category section
- ❖ Preconditions:
 - Alan has a registered account
 - Sellers have listed daily essentials
- ❖ Postconditions:
 - Alan successfully purchases essential items for the semester
- ❖ Flow:
 - Alan opens ~~and log into~~ the app
 - He taps on the clothing category he's interested in
 - He taps on the item he is interested in buying which then shows him the details of the item, price, description, photos, and seller information
 - He decides to buy the item after a lot of contemplation and clicks "~~get now~~ **contact seller**"
 - The seller reaches out to him through his preferred method of communication and he sets up a meet with the seller
- ❖ Alternative Flow:
 - A: If the selected item is unavailable, Alan searches for an alternative
 - B: If the seller is unresponsive, Alan is unable to complete the purchase

Use Case 5

- ❖ Actor: Tim, a graduating student
- ❖ Goal: Clear the purchase history on Pioneer Mart
- ❖ Trigger: Tim will not use pioneer Mart any more and want to clear his Purchase history
- ❖ Preconditions:
 - Tim has a registered account on Pioneer Mart
- ❖ Postconditions:
 - Tim successfully deletes his purchase history
- ❖ Flow:
 - Tim open the Pioneer Mart
 - He clicks on my profile at the bottom -right corner
 - He scrolls down the page and find Clear History
 - He click on Clear History
 - The app popup window informs Tim that his purchase history is successfully deleted
 - He click on Done
 - The app lead him back to his user profile page
 - He click on logout
 - The app will ask if he want to Log out or Cancel
 - He click on log out and he successfully logout

❖ Alternative Flows:

- A: Tim misclicks on edit profile, he has to click on " back " to return to the user profile page and clear the history
- B: Tim's mobile goes wrong and could no longer access the app.