

Status Report Final

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Link to GitHub: <https://github.com/drew-beamer/WildCart>

1 Introduction

What is the title of your project?

Our project title is “WildCart”.

What is the goal of the project?

The goal of the project is to build a web-based goods trading application where Davidson College students, faculty, and staff can share information about goods available for exchange within the campus community. Our current scope of work is prioritizing information sharing and connecting users with potential trading partners rather than facilitating direct communication. This platform aims to reduce waste by facilitating the recycling and reuse of furniture, electronics, and other items when students move out or no longer need certain possessions. It also serves as a means for students to find items they need in exchange for items they no longer require, fostering a culture of sustainability and resourcefulness within the Davidson community.

What is the motivation for this project?

We have three motivations for building this project.

4. **Resources Re-use:** We aim to minimize the number of abandoned items when students change dorms, move out, or graduate, promoting sustainability and reducing waste.
5. **Convenience:** This app enables users to save money, time, and effort by facilitating item exchanges and reuse within the campus community, eliminating the need for purchasing items elsewhere and avoiding shipping fees.
6. **Community Building:** Given the diversity in the student community, we want to provide an avenue for users to discover new items and facilitate a sense of community by participating in the trading platform.

Who are the customers/users?

Our target users are currently enrolled Davidson College students. In the context of our platform, students can choose to exchange or directly pay for posted goods.

What development process/method did you use for your project (e.g., Agile-Scrum, Waterfall, etc.)?

We used the Scrum method to guide our development process because we want to engage with customers throughout the whole process.

2 Novelty

Describe the novelty of the project.

WildCart differentiates itself from existing platforms through a focus on community-based item exchanges within Davidson College, introducing several novel features designed to optimize user experience, enhance security, and foster a sustainable trading environment. There are three main novelties of our project.

1. **Innovative Trading Mechanism:** In addition to the traditional sell and buy mechanism, our platform allows users to exchange items to satisfy the needs of both parties and contribute to resource reuse. Our offer accept/decline system adds an extra layer of flexibility to negotiations, allowing users to find mutually beneficial agreements while maintaining control over pricing dynamics.
2. **Strategies for Building Trust and Rewards:** To combat common concerns associated with online trading platforms, such as scams and untrustworthy users, WildCart implements a user-leveling system in addition to the common rating/credibility system. This system assigns levels to users based on their activity, successful trades, and feedback from other users. High-level users gain benefits such as increased visibility for their listings, priority support, and other incentives that encourage positive participation in the platform. In addition, we also bound our user community to Davidson-only through implementing *OAuth* Davidson email log-in. These elements aim to reduce scams by promoting a culture of trust and accountability.
3. **Community building.** Just like Dr. Willims said, our trading platform can foster a sense of community among students by providing a platform for them to connect, interact, and engage in mutually beneficial transactions. It can also facilitate communication and collaboration among students, creating opportunities for networking and building relationships. By facilitating the exchange of pre-owned goods, a trading platform can help reduce waste and promote a culture of sustainability among students.

Comparison with existing platforms.

While platforms like Craigslist, eBay, and Facebook Marketplace offer vast marketplaces for buying and selling, they lack the flexibility, convenience, and community-focused approach of WildCart. Here's how WildCart sets itself apart:

- **Enhanced Trading Flexibility.** Unlike existing platforms, WildCart goes beyond simple buying and selling. It promotes a circular and sustainable economy within the Davidson community by allowing both exchanges and sales. This encourages resource reuse and reduces waste. Additionally, our offer system is implemented specifically to meet the needs of college students, ensuring more flexibility and agency in price negotiations.
- **Higher Reliability.** WildCart requires users to verify their Davidson College email addresses upon registration. This ensures that all members of the platform are part of the Davidson community. The platform also employs a level-point system to further enhance reliability and trustworthiness. Users earn points as they engage in successful transactions and positively contribute to the community. These points contribute to their overall level within the platform, indicating their reliability and commitment to fair

trading practices. This incentivizes users to maintain high standards of conduct and fosters a more trustworthy trading environment within the Davidson College community. In addition, when an offer is accepted, WildCart provides users with the known email contact of the other party involved in the transaction. With Davidson being a small school, users are more likely to interact with each other on campus or in shared social circles. This mechanism serves as a powerful incentive for honesty and integrity, particularly within the tight-knit community of Davidson College.

- **Convenience for Users.** WildCart brings unparalleled convenience to students. By facilitating on-campus trading, it eliminates the hassle and expense of shipping fees. Moreover, students can acquire items at lower costs through local transactions. Additionally, WildCart enables students to earn extra cash by trading old items instead of discarding them, further promoting sustainability and financial flexibility within the community.

3 Customer

3.1 Primary, Secondary, and Any Other Stakeholders

Who is the primary customer outside the team?

The primary customers of our projects are current Davidson students, Faculty, and Staffs.

Who are the secondary stakeholders?

The secondary stakeholder is the Residential Life Office. Even if they are not our major user, our platform aligns with their interests.

What do the stakeholders want? Why?

Based on conversations with our conversation with our primary users (current Davidson College students), we found the following user needs:

1. **Cost Savings:** They seek to save money by avoiding shipping/travel fees and acquiring wanted items at lower costs.
2. **Resourcefulness:** They want to avoid wasting items and gain value from old items by trading them instead of throwing them away.
3. **Trustworthiness:** They want to know about the trustworthiness of another user when deciding whether they want to trade to minimize scams.
4. **Price evaluation:** They want to be able to evaluate and choose the best deal.

Based on conversation with our secondary stakeholders (Residential Life Office), we found the need for:

1. **Sustainability:** At the end of the fall semester every year, they face the problem of too many abandoned and unaccepted items being thrown in the donation pods. Therefore, they want to encourage the exchange and reuse of items among students.

3.2 Problems and Requirements

3.2.1 Meeting Log

Feb.13	Davidson College Student, He	The student is a current junior who has brought many furniture and dorm items on campus and is interested in trading with other students. She is interested in the trading platform for Davidson College because she could browse for potential interesting items to trade or buy.
Feb.13	Davidson College Student, Lai	The student is a current junior who will take a personal leave next semester. He is interested in the trading platform for Davidson College because he needs to settle most of his belongings before he leaves campus.
Mar.11	Davidson College Student, He	The student's experience as an active buyer highlighted the importance of user-friendly browsing features and a robust marketplace interface, such as a filter, which allow user to filter current post based on item condition, price, trade mode.
Mar.11	Davidson College Student, Lai	The student's focus on efficiently managing trading process and ensure credibility underscored the importance of streamlined processes of posting items and connecting users with potential trading partners in less steps. Reliability is also important for users.
Mar.19	Davidson College Student, He	The student liked the clarity and organization of navbar and the market page. The process of creating post is okay, and they like the data validation of the post. She is interested in the offer system since that sound novel. The requirement identified is that users need a

		streamlined process for managing offers and tracking the status of their posts and offers.
Mar.19	Davidson College Student, Lai	The student highlighted the efficiency in his trading experiences. He thought that it would be great if the platform allow more communication between users but he understood that our platform is primarily a information-sharing and matching system.
Apr.05	Davidson College Student, He and Lai	Overall, users expressed appreciation for the enhancements made to offer submission, offer management, and tracking capabilities. They found the new UI elements, such as the tracking page and popup windows for viewing post and offer details, to be intuitive and visually appealing. Users also appreciated the improved communication channels for accepting, rejecting, and viewing offers. They also provided feedback on areas for improvement, such as the need for additional filtering options on the tracking page to better organize posts and offers.
Apr.09	Residential Life Office, Jai-La	Jai-La said that previously, the donation pods were always overflowed and stuffed with not related items. RLO supports the idea of sustainability and exchange, so they think out platform is a very good idea. She also mentioned that an important principle when it comes to manage move out is trial and error and observing what students would do. She

		suggested that we could collaborate with ISP and Lula Bell during move-out period.
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3.2.2 Product Backlog

List all the product backlogs for the project, i.e., a combined list of product backlogs from Sprints 1, 2, and 3, etc. For example, as a user of an online store xyz, I want to be able to search all the available products with keywords.

User Story	Task
As a user, I want to easily navigate through the website using a well-designed navbar, so that I can access different sections of the application seamlessly and efficiently.	Main pages and navbar design, UI implementation
As a user, I want the application to be accessible across different devices and screen sizes, so that I can use it conveniently whether I'm on a computer, tablet, or smartphone.	Responsive design (devices and screen sizes)
As a user, I want to see my own profile so that I can edit my user name and see my overall ratings.	Profile drop-down design, Database schema
As a user, I want to review my post history so that I know what I traded in the past.	Post status page design, Database schema and integration
As a user, I want to create a post for trading, specifying details such as the item I'm offering or seeking, the desired trade conditions, and any additional information so that I can connect with other users for trading purposes.	Post-error handling and validation, Post-creation form, Image compression and storage, Database schema and integration
As a user, I want to log in to my account securely, so that I can access my personalized trading dashboard and interact with other Davidson College users	Authentication flow implementation, Login interface, Login-error handling and validation
As a user, I want to be able to filter opening posts in the marketplace based on various criteria such as category, price range, and condition, so that I can quickly find posts that match my preferences and needs.	Post filtering UI and server action, Backend logic for filter
As a user, I want to be able to view detailed information about post, including trade mode, condition, and any accompanying messages, so that I can evaluate and respond to the post effectively.	View detail button, UI elements for displaying post
As a user, I want to be able to submit offer for opening posts so that I can engage in trading activities effectively.	Offer submission, UI elements for viewing offers, Backend logic for offer

User Story	Task
	and post.
As a user, I want to be able to view and manage received offers, so that I can evaluate them and make decision regarding trade.	Offer accept and decline functionality, UI elements for managing received offers, Backend logic for offer and post
As a user, I want to have a dedicated tracking page where I can view the status of my current posts, as well as access information about closed or completed transactions, so that I can stay organized and informed about my trading activities.	Current ad closed posts on tracking page, UI elements for viewing detailed information about individual posts, Backend functionality to retrieve and display post based on status
As a user, I want to be able to view contact information for other users once I have accepted their offer, so that I can communicate with them directly to arrange the transaction.	Backend and server action to retrieve user email data, UI elements for displaying contact information

3.2.3 Overall Customer Experience

Write a paragraph or two about the overall experience the user wanted to have from using your system (explicitly discussed with your group). Then, explain whether your current system satisfies their overall experience. Please be explicit about how you know your project is satisfied or dissatisfied.

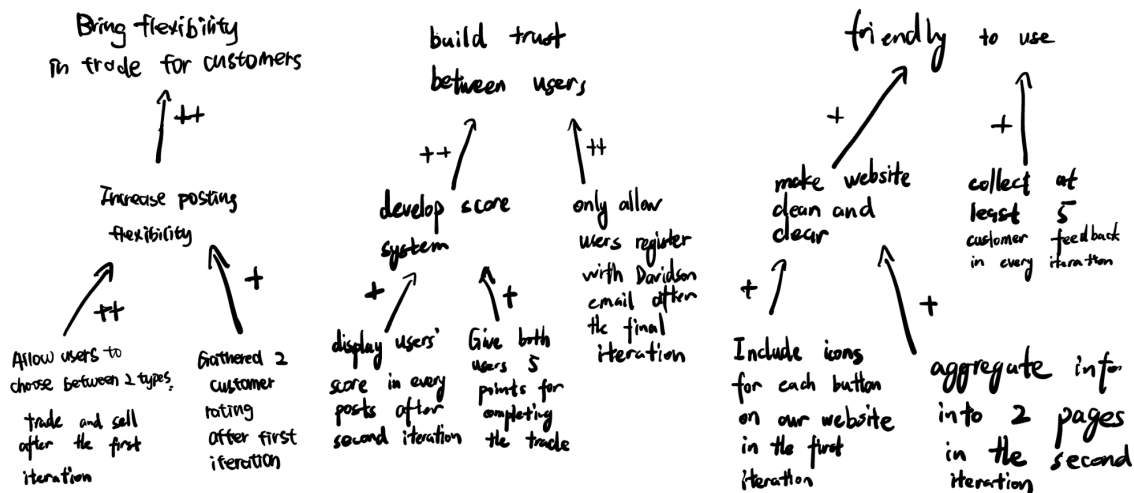
The overall experience that users desired from our trading platform encompassed convenience and trustworthiness.

For convenience, we expect WildCart to be easy and clear to use. We want our pages to be easily recognizable and all functionalities are clear and bug-free. Our system satisfies these needs. We fine-tuned our UI and added an icon for each of our buttons. We took a clean UI design, so all of the features are easily recognizable. This can be shown when first-time users try our platform, they can easily find their post or make an offer without guidance from the development team.

For trustworthiness, we want to reduce or even eliminate scams on WildCart. We required Davidson email for registration, and we have a level system to reflect users' experience on our platform. In customer feedback, both Davidson students and faculties felt confident that the Honor Code will be a good protection against scams, so requiring Davidson email is definitely reassuring. For the level system, several users said it can help them make decisions since they may not know the seller in the real world, so knowing their level can help build trust in each trade.

4 SMART Goals

Select the three main goals of the project. Draw a SMART (Specific, Measurable, Achievable, Relevant, and Time-Bound) goal hierarchy for each goal. Make sure to follow the style and rules for the SMART goal hierarchy.



5 Sprint Backlog

First sprint - Cranky Frog

Database Setup and Schema Design

- Brainstormed and finalized database schema
- Set up a *MongoDB* environment on the local host.

User Interface Design

- Consult primary customers to brainstorm the main pages to be implemented on the web application.
- Designed all main pages (market page, trade status page, profile page), and navbar with both mobile and desktop versions on *Figma* after talking to primary customers (students at Davidson College).

Environment Setup and Learning

- Set up the *next.js* environment
- Learned how to connect *Mongo* and *next.js*.

Customer Feedback and Backlog Expansion

- Gather feedback from primary customers on the designed pages.
- Discuss with customers to expand the product backlog for the next sprint based on their needs and suggestions.

Second sprint - Epic Buffalo

UI Implementations

- Implemented the navbar and market page using the *shadcn* UI library.

Database Integration

- Utilized *Mongoose* to build connections with the database.

Posting Functionality

- Implemented server-side image compression, storing images in 64-base strings.
- Created a server action that validates and adds posts to the database
- Create the posting form with the needed input fields

Customer Review and Feedback

- Talked to primary customers(students at Davidson College) to review the overall design and posting functionality.

Third sprint - Eloquent Tiger

Categories and Filter Functionality

- Met with primary customers (students at Davidson College) to identify needed item categories and search filters.

Authentication Flow Implementation

- Implemented authentication login using NextAuth.js
- Scheduled a meeting with Davidson Technology & Innovation about Davidson College email authentication

Customer Outreach and Engagement

- Expanded potential customers by talking to professors at Davidson College

Other User Experience Enhancement

- To implement avatar change upon user login

Fourth sprint - Brave Sardine

- Consulted T&I for email authentication
- Updated the Navbar to support Login and Sign-up functionality
- Added flagged word filter for Post and Offer
- Added *Jest* for Unit and Regression testing
- Added error state handling for the Post-form
- Implemented Post-Filtering on the Market Page
- Implemented real-time refreshes and updates on the Market Page
- Implemented *OAuth Google* Login for Davidson emails

Fifth sprint - Trusting Hamster

- Added server action for Offer-form and Offer submission
- Implemented accept/reject Offer functionality
- Implemented view Offer Functionality
- Created a Tracking page for current Post and Offers
- Created UI for individual Offers on the Tracking Page
- Created UI for popup windows for viewing Post details
- Created UI for popup windows for viewing Offer details
- Customer review conducted for feedback collection (Apr.05)

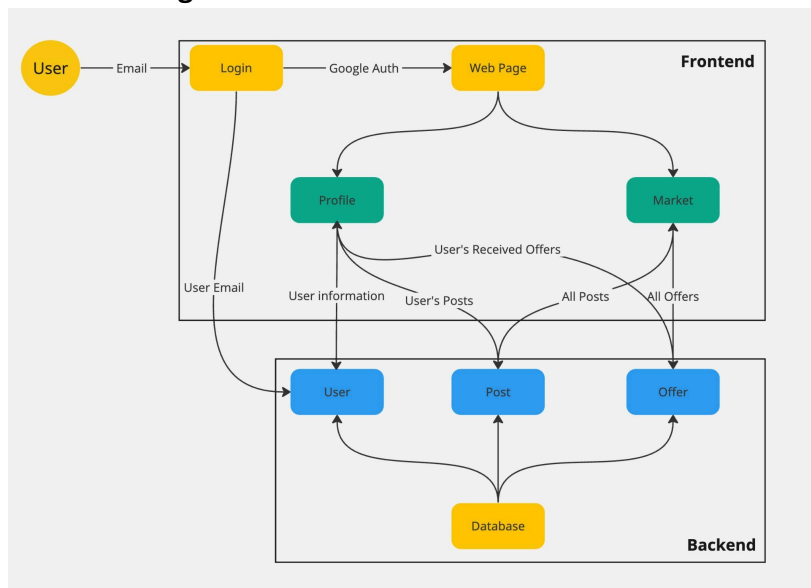
Sixth sprint - Thirsty Llama

- Create buy offer functionality

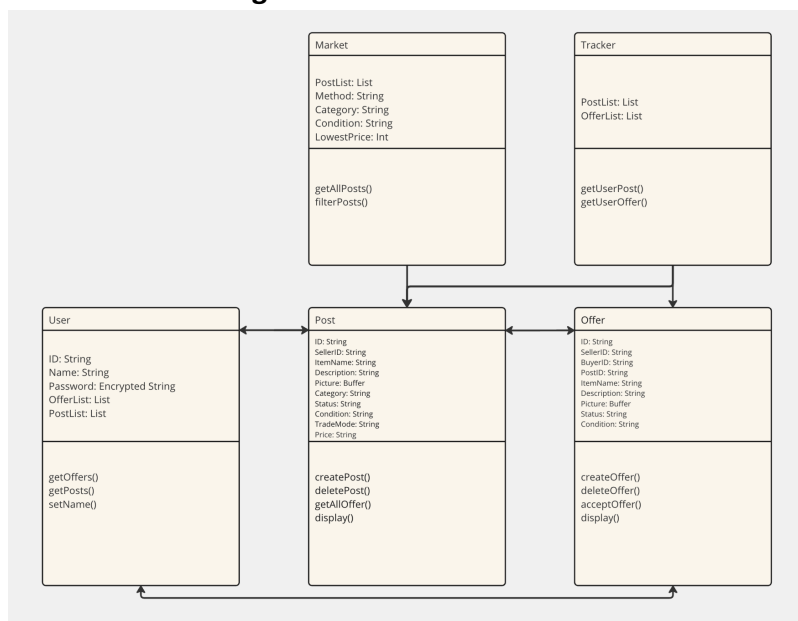
- Separate completed post and current post
- Add delete post functionality to the profile page
- Connect database to Atlas
- Implement level points mechanism
- Run tests in tests folder on every git push

6 System Description

6.1 Block Diagram



6.2 UML: Class Diagram



7 Current Status

7.1 Screenshots

Add the screenshot(s) of the working system. Add the screenshots in the sequence of actions. This means that your screenshots will show you the flow of how the user interacts with the system. Think of it as how you would walk through the live demonstration during the presentation. Add the following details for each screenshot:

1. What are you trying to show in the screenshot?
2. Which part in the system description diagram does the part belong to?
3. What are the input and output of the system?
4. Why is this part of the system important?

WildCart

Search the marketplace

Market

D

Method

All

Category

All

Condition

All

Lowest Price

0

Highest Price


100

Post Date

☒ Past 24 hours

☐ Past 7 days

☐ Past 30 days



A Used Robot

DB Drew Beamer

Level 2

2 orders

This robot is used

Create Offer

Details

Create Post

Create a Post

Select a method

Item Information

Name*

Category*

Select a category

Approximate Value*

Picture*

Choose File No file chosen

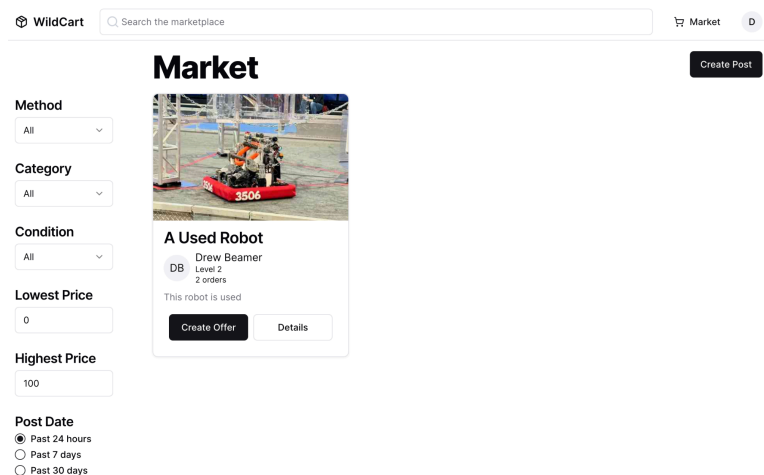
Condition*

Select a condition

Description*

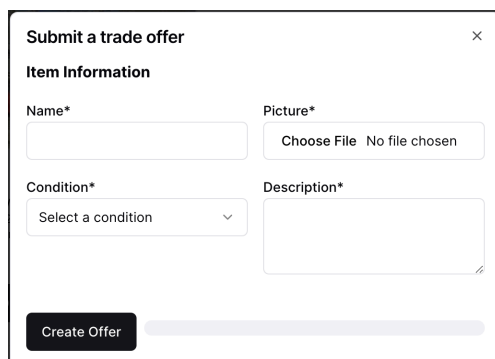
Create Post

1. This is our create a post form, which allows the user to input data on an item they wish to sell or trade in order to create a listing.
2. This belongs to the Post part of our system
3. The input of this is user data on the item they wish to sell or trade, the output is a response which determines if the post is valid or not—if the post is valid it will be inserted into the database
4. This part of our system is critical: without it our platform would not be able to even show items available to trade



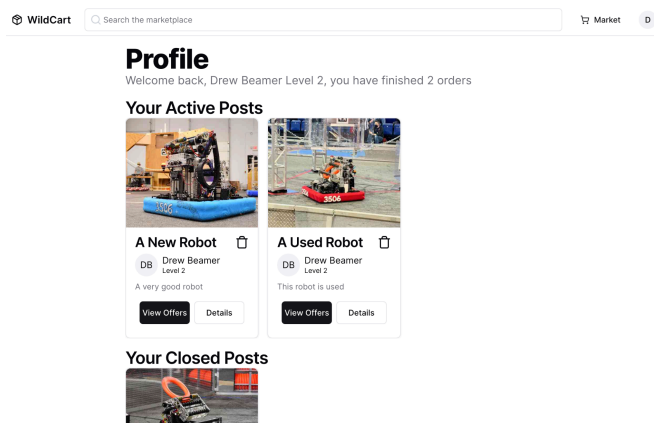
The screenshot shows the WildCart Market interface. At the top, there's a search bar and a 'Market' tab. Below the search bar, there's a 'Create Post' button. The main content area is titled 'Market' and features a list of filters on the left: Method (All), Category (All), Condition (All), Lowest Price (0), Highest Price (100), and Post Date (Past 24 hours, Past 7 days, Past 30 days). The main listing area shows a robot with the title 'A Used Robot', a 'DB' badge, and the text 'Drew Beamer Level 2 2 orders'. Below the listing, there's a 'Create Offer' button and a 'Details' link.

1. This is our Market page, which allows the user to browse posts
2. This belongs to the Market part of our system
3. The input of this system is user clicks on buttons and filters. The output of the system is either posts that are filtered to what the user has entered, or a window that allows the user to make an offer
4. This page forms the backbone of our system, and allows users to be able to see posts that they can make an offer on

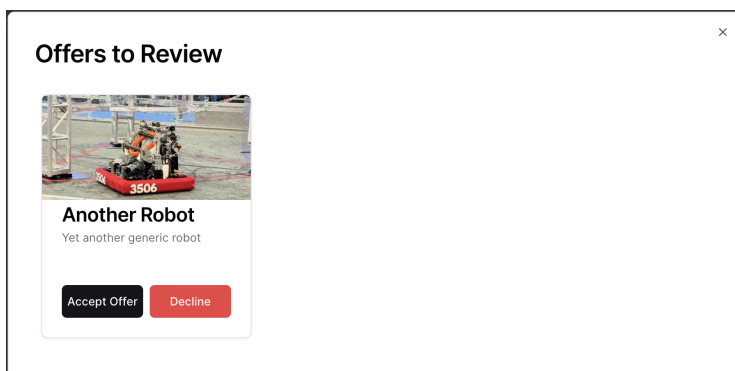


The screenshot shows a 'Submit a trade offer' form. It has a title bar with a close button. The form is divided into two main sections: 'Item Information' and 'Offer Information'. Under 'Item Information', there are fields for 'Name*' (a text input), 'Picture*' (a file upload button labeled 'Choose File No file chosen'), 'Condition*' (a dropdown menu with 'Select a condition'), and 'Description*' (a text area). At the bottom, there is a 'Create Offer' button and a progress bar.

1. This is our create offer form, which allows the user to make an offer on a post they want to trade for or buy
2. This belongs to the Offer/Market part of our system
3. The input of this system is data on the item the user wishes to offer. If valid, the form will output success, otherwise, it will output errors to be corrected
4. This page allows the user to make an offer directly to the user, without needing to contact the user off of the application

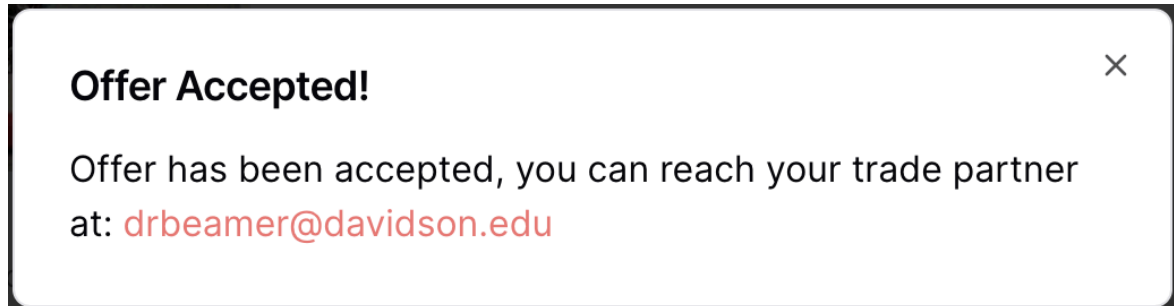


1. This is our profile page, which allows the user to see which of their posts are active and closed, along with view offers on active posts
2. This belongs to the User/Post part of the system
3. The input of this page is the posts belonging to the user—which are then divided into active and closed. The output is a page divided into these sections that shows offers on request for active posts.
4. This is an important part of our system as it allows for users to see their active posts and check if they have offers.



1. This is our Offers to Review popup, which shows the active offers for a post
2. This belongs to the User/Post/Offer part of the system

3. The input of this page is the offers that are open for an individual post, the output is a popup showing details on each of these offers that allows the user to accept or decline.
4. This is an important part of our system as it allows for users to see offers on their posts and to inform the offerer of their interest



1. This is our Offer Accepted popup, which shows the contact details of the offerer upon the offer being accepted
2. This belongs to the User/Offer part of the system
3. The input of this popup is details on the user who made the offer, and the output is a popup with dialog containing their contact details
4. This is an important part of our system as it allows for posters to get in touch with offerers

7.2 Software Testing

7.2.1 Test Cases

We verified manually that our application accomplished all five of the tests we established in Homework 5. These were:

1. *Create Posts* - when the user clicks on the "Create Post" button, it will display a post form where the user can fill in trade information. If the information in all input fields is valid, the user can click on the "Submit" button and a post will be created on the "Marketplace" page.
2. *Filter Posts by Criteria* - when the user enters data to filter on the market page, the page will update with posts matching all the criteria entered.
3. *Create Offers for Posts* - when the user clicks the "make offer" button, they should be able to fill out a form about their offer and submit it.
4. *View all Offers for a Post* - when the post owner clicks a single post on their tracking page, they can see all the offers others made for the post.
5. *Accept an Offer* - when the post owners view all offers for the post, they can click the ideal offer, click the "accept" button, and get connected with the offer provider.

7.2.2 Combinatorial Testing

Define all the factors for your system. For each factor, define all the values you might use in the combinatorial testing (Note: You do not have to create covering arrays. Just list the factors and values).

Browser	Device
Chromium	Laptop
Safari	Tablet
	Cellphone

8 Project Management

Continue to maintain the Change Log. Add all the changes made during the entire project process, tracking the date and description of each change. Use the table below:

Date	Change Made
2024-02-29	Initialize <i>Next.js</i> Application (Drew)
2024-03-12	Add and configure <i>shadcn</i> UI (Drew)
2024-03-18	Add database schema with <i>Mongoose</i> (Jerry)
2024-03-18	Add dev environment setup instructions (Drew)
2024-03-18	Create PostCard template component (Drew)
2024-03-19	Add Navbar for Desktop and Mobile (Allen)
2024-03-19	Add create Post server action and data validation (Jerry)
2024-03-19	Add create Post form UI and link to server action (Drew)
2024-03-21	Add <i>NextAuth.js</i> authentication (Toffy / Drew)
2024-03-26	Add ability to log in and out to navbar (Allen)
2024-03-27	Create flagged word filter (Jerry)

2024-03-31	Form Close on Submit and Better Error Handling (Drew)
2024-03-31	Add Jest for Unit Testing (Drew)
2024-04-01	Create marketplace UI including filter (Jerry)
2024-04-02	Add Google OAuth (Toffy/Drew)
2024-04-02	UI for Make Offer Form (Allen)
2024-04-02	Log in and out of nav (Allen)
2024-04-04	Update schema to work with Google OAuth, add ability to accept offers (Drew)
2024-04-04	UI for Market Popup (Allen)
2024-04-04	Create UI for view offer in Market (Jerry)
2024-04-09	Add Buy Offer functionality (Jerry)
2024-04-12	Separate completed and current posts in profile page (Jerry)
2024-04-15	Add Delete Post functionality (Drew)
2024-04-15	Run tests in tests folder before every attempt to push (Drew)
2024-04-15	Connect to MongoDB Atlas (Jerry)
2024-04-16	Add Level Points and render on user cards (Allen)

2024-04-16	Initialize score when user registers (Jerry)
2024-04-18	Fix user score render bug (Drew)

9 Review and Retrospective

9.1 Sprint Review

Are there any additional customer needs?

1. In some cases, our customers are not sure whether they want to sell or trade their idle items. As a result, they want to post their items in both trading and selling methods.
2. Our customer wants us to integrate a chat platform into our site because it would be convenient and more efficient compared to emails.

What are some of the customer(s) requests that you could not accomplish? Any comments and feedback from the customer(s)?

1. We suggest our customer to set two posts at the same time and look at all offers together to get a better option.
2. We also could not finish the chat platform because of the time limitation. It is quite complicated about the chat area and also we have to consider plenty more about privacy. So, this is not included in our plan.
3. Regarding user feedback and reviews, we have received mostly positive reviews. People mainly praised the UI design of our platform and the core idea of exchanging idle items. We also received suggestions about functionalities. As I mentioned earlier, customers want a more convenient experience, such as in-platform communication.

9.2 Sprint Retrospective

What went well?

1. **Effective Collaboration and Communication:** Our team successfully implemented agile practices, especially Scrum, which facilitated clear and consistent communication. Regular sprint meetings and daily standups helped in keeping the team aligned and focused on project goals.
2. **Goal Completion from Last Sprint:** The team successfully met the majority of the defined goals from the last sprint, demonstrating effective project management and prioritization capabilities. This includes the completion of key functionalities such as delete and save post, and also level-up mechanism.
3. **User-Centered Design:** Continuous engagement with the users through feedback sessions was instrumental. It ensured that the development was closely aligned with user needs and expectations, which was reflected in the positive feedback on the UI design and platform functionalities.

4. **Technical Implementation and Learning:** The team effectively handled the technical side, from setting up the database with MongoDB to implementing Google Auth for secure authentication. The willingness to learn and adapt to new technologies contributed significantly to the project's success.

What didn't go well?

1. **Feature Completion:** While the team successfully met most of the goals outlined in the last sprint and the project proposal, there is room for improvement in certain features. Specifically, the level-up mechanism implemented in the platform proved too simplistic. The primary issue was the lack of comprehensive user data, which limited our ability to refine and optimize the algorithm. Without robust statistical feedback from actual users, tailoring the mechanism to better serve user engagement and satisfaction was challenging.
2. **Putting into Practical Use:** Despite not initially setting a goal to fully deploy the platform for public use within the broader community, our inability to gather substantial data and feedback from real users within the Davidson Community was a significant limitation. This lack of real-world interaction restricted our ability to perform updates that would make the platform more humanized and responsive to actual user needs.

For the goals that were not met, what were the issues? How could you have done differently?

The primary issue was the data deficiency—both in quantity and quality—from real users. This shortfall impacted our ability to accurately assess user behavior and preferences, which are critical for refining features like the level-up mechanism and for making informed decisions about user interface improvements and additional functionalities.

Also, for practical use, we are worried about maintenance and safety issues, like checking illegal items in the market and privacy issues. Therefore, we didn't publish the website.

What Could Have Been Done Differently?

1. **Partnership and Collaboration:** Establishing partnerships with other campus organizations or tech companies could have provided additional resources and avenues for user engagement. These partnerships might also offer opportunities to access a wider pool of user data and technical expertise.
2. **Incentivizing Participation:** Offering incentives for users to participate in the testing phase and provide feedback could have increased engagement. Incentives might include early access to new features, recognition on the platform, or small rewards for active participation.

10 Team Management

What were the team roles?

We have maintained the roles we planned, where Toffy is our Product Manager, Drew is the Scrum Master, and Allen and Jerry are developers.

What did each team member contribute?

Toffy brought efficient collaboration and timely sprint meetings to the team, as well as some back-end programming. She also handled part of the front-end appearance design using Figma. Drew brought us a lot of his internship experience in software development. He set up the Scrum plan using Jira and provided substantial help with both front-end and back-end coding, especially in server responses, algorithms, and many front-end functionalities. Jerry was mainly responsible for designing the back-end database and server implementation, and he also developed many front-end features and helped everyone modify the code. Allen was primarily responsible for front-end design and the implementation of various functionalities, including the leveling-up feature

What were the regarding team management, e.g., regular meetings, etc.?

1. We have a regular sprint meeting every Tuesday.
2. We have a chatting platform for difficulties and progress reports using discord and also a daily stand-up bot for everyday contribution.
3. We have set our goal and plan on JIRA using the SCRUM method with organized cooperation in our team.

What are the plans to overcome the challenges?

1. **Team Collaboration:** Our team maintains excellent communication. Whenever an issue arises, we seek assistance on Discord, where everyone contributes their opinions and shares resources from the internet. We also engage in pair programming to tackle problems together. During our weekly meetings, team members assist each other in overcoming various challenges.
2. **Additional Learning:** In our regular meetings, team members share knowledge on specific topics, new technologies, or lessons learned from their tasks. Everyone also dedicates time to learning the necessary skills required for the project.

If you were the third party who knows very well about your team, what suggestions would you give to your team?

1. **Balance Team Workloads:** Monitor and balance workloads to ensure no team member is consistently overburdened or under-challenged. Regular workload reviews can prevent burnout and promote a more equitable distribution of tasks, which is critical for sustaining cooperation and morale.
2. **Continuous Process Improvement:** Foster a culture of continuous process improvement by regularly revisiting and potentially revising your team's workflows and

methodologies. This can involve periodically stepping back to review what processes are working and which aren't, encouraging ongoing adaptation to optimize team output.