Thrift&Thrive:

Second-Hand Apparel Website for Sustainable Living

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Executive Summary

For Generation Z (Gen Z) and millennials, wearing second-hand clothing embodies what it means to be a conscious consumer. There is growing interest among younger generations to purchase and wear second-hand apparel that aligns with their values, which include being thrifty and promoting environmental sustainability.

Our team and company name, Agile Nomads, researched and identified this consumer trend and saw a business opportunity in this growing market. We aimed to create a website prototype of an online marketplace for consumers and businesses to shop or sell high-quality thrift and designer second-hand apparel at affordable rates to promote an environmentally sustainable fashion economy.

The result was Thrift&Thrive, a website powered by Wix. The name represents our vision and the values of our company and directly addresses the needs and lifestyle of our customer base. Thrift&Thrive aims to provide a variety of apparel options to its users with a focus on economical and sustainable products sold by both individual sellers and businesses, including thrift stores and big brands alike.

Introduction

Project Objective

Agile Nomads' project objective was to create an online marketplace for consumers to shop or sell second-hand apparel sustainably by creating a shopping website prototype. To achieve this goal, our team focused on project management best practices to ensure project success, specifically an agile approach rooted in Design Thinking methodology.

Market Research

The Importance of Sustainability

One of the many contributors to an unsustainable planet is the mass production of clothing and apparel, which has a negative impact on the environment and directly contributes to climate change. What does it mean to be environmentally sustainable? It means to preserve and maintain a world where people and nature can coexist in harmony to ensure that present and future generations are able to not only survive, but thrive (United States Environmental Protection Agency 2022).

The fashion sector is responsible for over 10 percent of the world's carbon emissions, more than all flights and maritime shipping combined (The World Bank 2019), and it is predominantly driven by "fast fashion" (Future Market Insights 2022). Fast fashion often consists of low-cost clothing stores offering new designs weekly and not only are consumers purchasing more clothes as a result, but more clothes end up being thrown away (The World Bank 2019). The following statistics published by the United Nations Environment Programme and the Ellen MacArthur Foundation give a glimpse into the environmental toll that the fashion industry has on the environment: the fashion industry uses 93 billion cubic meters of water

which is enough to meet the needs of 5 million people; about 20 percent of wastewater worldwide comes from the dying and treatment of fabric; of the total fiber used for clothing, 87 percent is either incinerated or disposed of in landfills (The World Bank 2019).

Both consumers and businesses are becoming more aware of the need to change, giving rise to the sustainable fashion movement which is doing its part to rally against pollution, climate change, and unethical labor in many parts of the world (Future Market Insights 2022). Purchasing second-hand clothing is one way to address the environmental issues associated with fast fashion (Future Market Insights 2022). The recycling of clothing through the second-hand apparel market saves many clothes from landfills (Future Market Insights 2022). Consumers can sell or donate what they no longer use and should consider the quality of goods over quantity (The World Bank 2019) to help make informed purchasing decisions.

The Growing Market of Second-Hand Apparel

In 2021 alone, the global market value of secondhand and resale apparel was estimated to be worth about 96 billion dollars and this value is predicted to continue to rise exponentially, with estimations reaching a value of 218 billion in the year 2026 (Smith 2022).
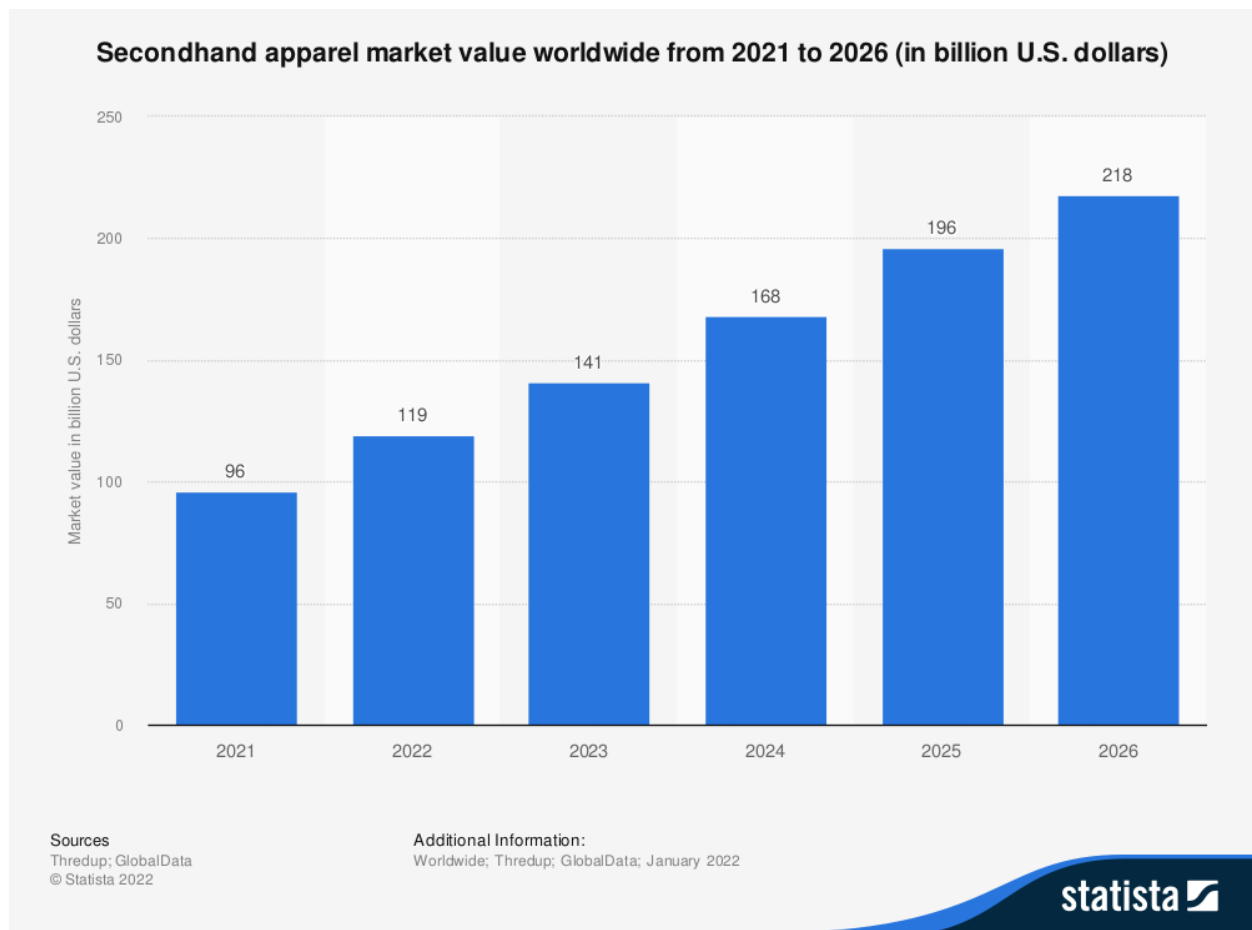
Figure 1. *Secondhand apparel market value worldwide from 2021 to 2026* (GlobalData and Thredup 2022).

Much of this growth in the second-hand apparel industry is due to young consumers, specifically Generation Z and millennials, who are the most willing to buy second-hand apparel (Smith 2022). Buying apparel second-hand is often seen as both cost-effective and environmentally friendly, both of which appeal to the values of young consumers (Smith 2022). More specifically, there is also much growth in the personal luxury goods second-hand market due to the reduced prices of second-hand apparel which makes such goods more accessible to the average consumer (Smith 2022).

The following chart represents the share of consumers by age willing to buy second-hand apparel worldwide in 2021 and 42 percent of millennial and Gen Z respondents stated that they were likely to shop for second-hand apparel (Smith 2022).
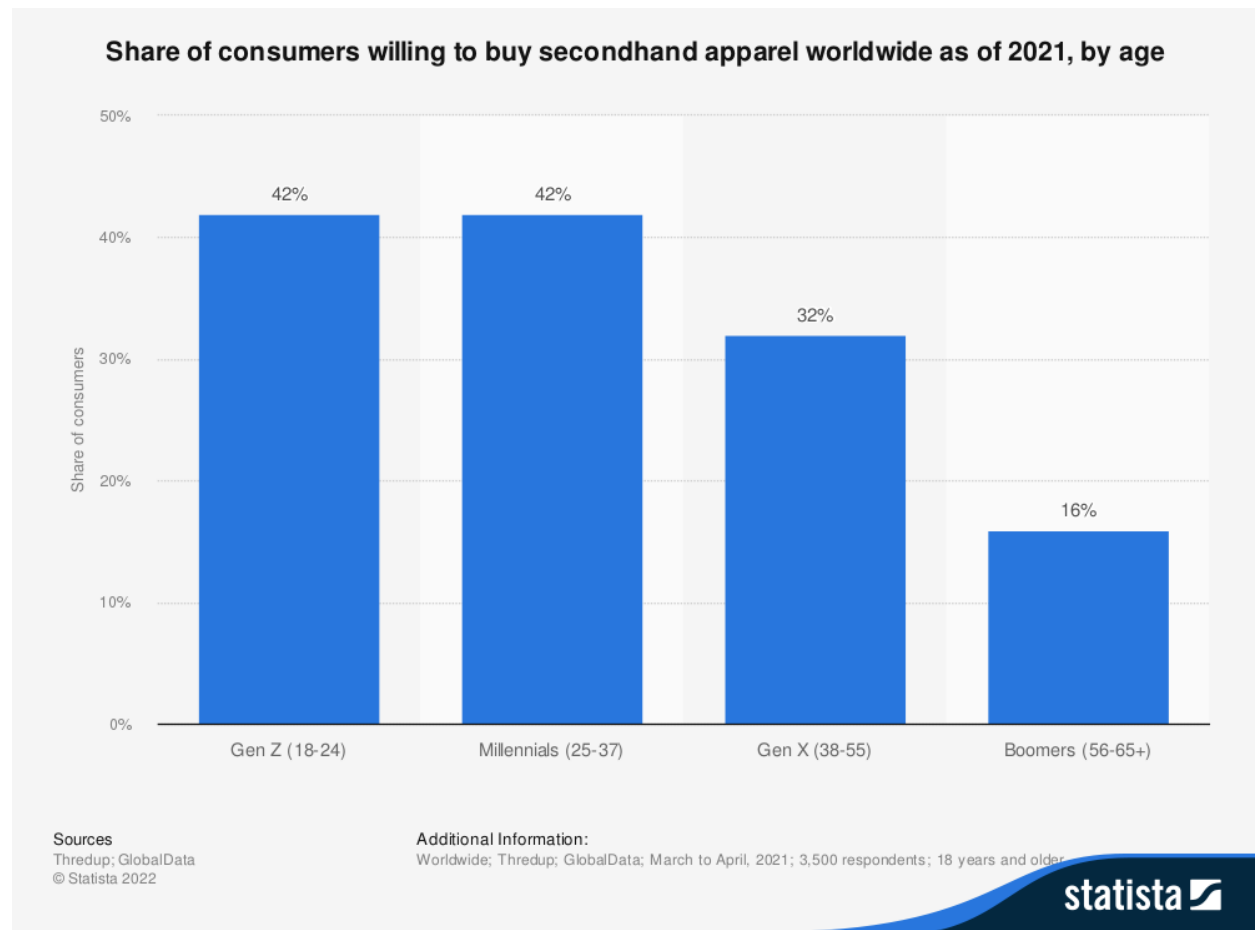

Figure 2. *Share of consumers willing to buy secondhand apparel worldwide as of 2021, by age* (GlobalData and Thredup 2021).

Market Trends

The growing popularity of eco-fashion, the proliferation of online shopping platforms, and the cost-effectiveness of second-hand apparel are some of the key factors that are driving the growth of this market globally (Future Market Insights 2022).

Digital resale is emerging as the next big trend in fashion, due to increased consumer demand and innovative digital platforms such as Tradesy and Poshmark, that promote peer-to-peer trading of everyday apparel (Future Market Insights 2022). Many retailers in the second-hand apparel market are shifting their focus from traditional thrift stores to online platforms to boost sales and increase their consumer base since e-commerce continues to grow in popularity (Future Market Insights 2022). The majority of Gen Z and millennials prefer online shopping to traditional brick-and-mortar stores (Future Market Insights 2022), allowing shoppers both greater choice and greater convenience (Smith 2022).

The growing popularity of second-hand apparel is due to being less expensive and also better quality, both of which are key factors driving the demand in the market (Future Market Insights 2022). Vintage fashion is also a huge trend (Future Market Insights 2022) among Gen Z and millennials, making the second-hand apparel market the perfect source for pre-owned apparel.

Methods

Design Thinking

We specifically followed an agile project management approach centered on elements of Design Thinking methodology which embraces "human-centered design" (IDEO n.d.). The five main steps of Design Thinking are "Empathy, Define, Ideate, Prototype, and Test" (Stanford University n.d.), of which we tailored the first four steps to the needs of our project.

When designing a product or service, the very first and also the most important step of the process is to *empathize* with your customer's needs, problems, and lifestyle (Stanford University n.d.). When we initially had to decide on a topic for our project, we agreed that we

wanted to choose an area of focus that would be relatable and meaningful to all of us. We decided we wanted to focus on issues surrounding sustainability and fashion. We dove into market research and found many key themes that were synthesized from our findings, as seen in the section of our project report titled Market Research.

Define is the step of Design Thinking that helps focus and define the exact issue the project team will be attempting to solve (Stanford University n.d.). In our case, we wanted to modernize how people could sustainably shop for second-hand apparel outside of the traditional brick-and-mortar thrift store. Much of this was inspired by researching statements made by Gen Zers in an interview session by Refinery29. Hannah Valentine, who was 19 years old at the time, loves to thrift shop and sells second-hand clothing through Depop, an online marketplace, "Now, I thrift because I want to help save clothing from being thrown away, while also providing an easy and accessible way for people to shop secondhand so that they're not instead shopping on fast fashion websites…I think of my job as a second-hand clothing rehoming service" (Huber 2020). Monique Miu Masuko, who was 23 years old, said that "[Thrifting] is more affordable, accessible, and eco-friendly – all three of which go hand in hand with sustaining Gen Z's future" (Huber 2020). Tori Lopez, 24 years old, stated that "Wearing 'one-of-a-kind' clothing makes me feel special; it makes me feel unique; it makes me feel happy – and if that outfit costs you $30, all the better" (Huber 2020).

The *Ideate* step is about limitless possibilities where the project team writes down as many creative ideas and solutions as possible. This step encourages the project team to think creatively and outside of the box. For our project, our team created a shared document where we were each tasked to come up with a list of ideas and website functionalities which we then reviewed and narrowed down as a team. Once this step was complete, we brought our ideas to

life by building a *prototype*. We decided that building a website from an existing Wix shopping template would be the most efficient and effective way for us to complete a functional prototype. The results of our prototype are captured in a later section of this report. The final step, *Test*, would be the final phase that we would employ if we went beyond the prototype stage. This step involves testing the prototype with others and receiving feedback in order to go back and work on a new and better iteration of the prototype.

Project Management Tools and Techniques

Agile Nomads utilized a number of tools for our project. The project management tool Smartsheet was used to create a project plan with a Gantt chart in order to track our project milestones. Microsoft Teams (Teams) was our communication and file management tool of choice. We used Teams to conduct virtual meetings, collaborate and manage files, and keep track of tasks through the use of Microsoft Planner (Planner) integration with Teams. Weekly notes and tasks were also posted as a running word doc in Teams so we could keep track of what was discussed during meetings. We also regularly used WhatsApp to share updates and to easily communicate between team members.

Project Milestones

It was crucial to develop a project plan and timeline, detailing the milestones to reach in our project and keeping track of our progress. The team leader would regularly update the Smartsheet, assess progress, and update the team. Embracing an agile approach, some of the project milestones were changed or updated as the project became more defined.
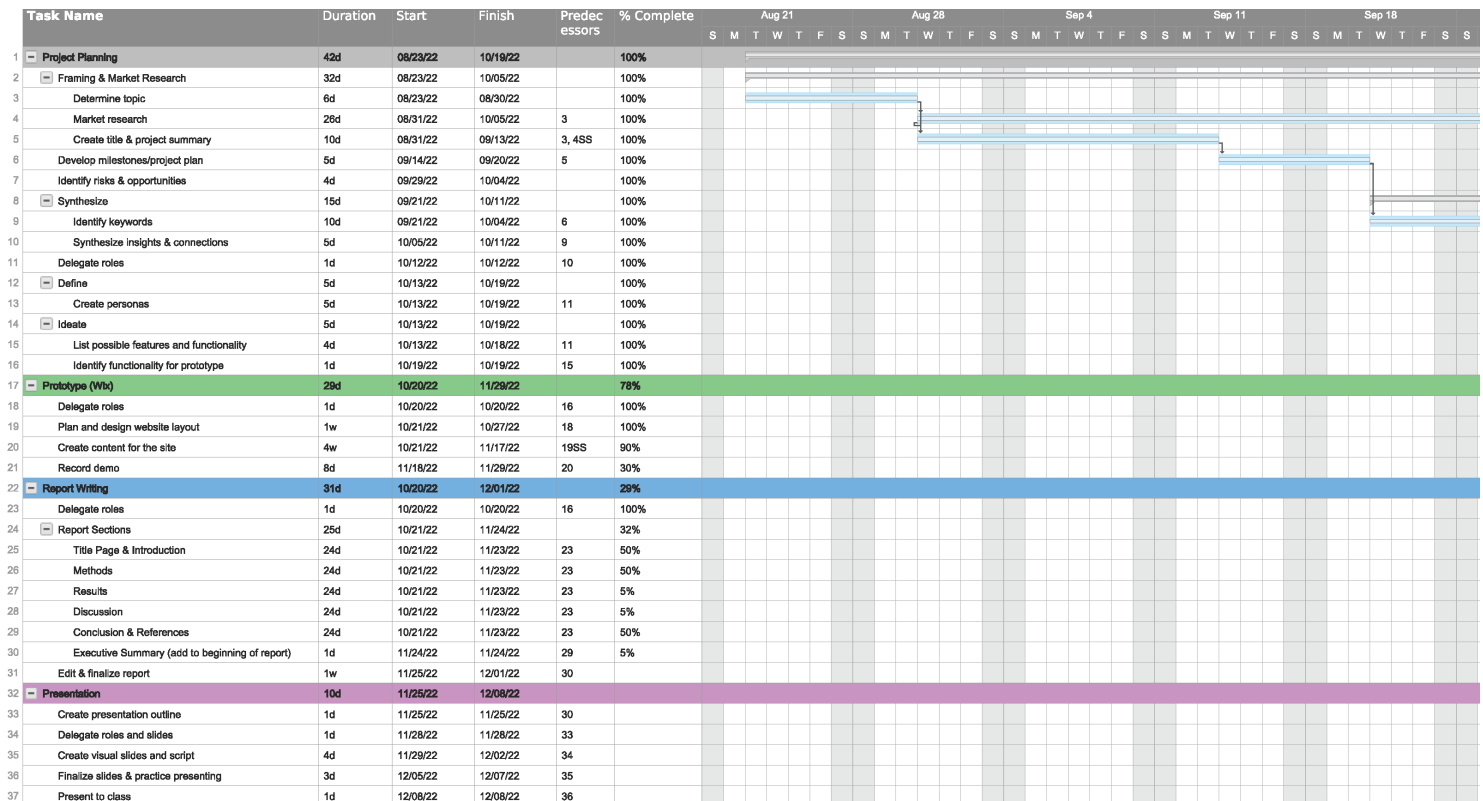
#	Task Name	Duration	Start	Finish	Predecessors	% Complete
1	Project Planning	42d	08/23/22	10/19/22		100%
2	Framing & Market Research	32d	08/23/22	10/05/22		100%
3	Determine topic	6d	08/23/22	08/30/22		100%
4	Market research	26d	08/31/22	10/05/22	3	100%
5	Create title & project summary	10d	08/31/22	09/13/22	3, 4SS	100%
6	Develop milestones/project plan	5d	09/14/22	09/20/22	5	100%
7	Identify risks & opportunities	4d	09/29/22	10/04/22		100%
8	Synthesize	15d	09/21/22	10/11/22		100%
9	Identify keywords	10d	09/21/22	10/04/22	6	100%
10	Synthesize insights & connections	5d	10/05/22	10/11/22	9	100%
11	Delegate roles	1d	10/12/22	10/12/22	10	100%
12	Define	5d	10/13/22	10/19/22		100%
13	Create personas	5d	10/13/22	10/19/22	11	100%
14	Ideate	5d	10/13/22	10/19/22		100%
15	List possible features and functionality	4d	10/13/22	10/18/22	11	100%
16	Identify functionality for prototype	1d	10/19/22	10/19/22	15	100%
17	Prototype (Wix)	29d	10/20/22	11/29/22		78%
18	Delegate roles	1d	10/20/22	10/20/22	16	100%
19	Plan and design website layout	1w	10/21/22	10/27/22	18	100%
20	Create content for the site	4w	10/21/22	11/17/22	19SS	90%
21	Record demo	8d	11/18/22	11/29/22	20	30%
22	Report Writing	31d	10/20/22	12/01/22		29%
23	Delegate roles	1d	10/20/22	10/20/22	16	100%
24	Report Sections	25d	10/21/22	11/24/22		32%
25	Title Page & Introduction	24d	10/21/22	11/23/22	23	50%
26	Methods	24d	10/21/22	11/23/22	23	50%
27	Results	24d	10/21/22	11/23/22	23	5%
28	Discussion	24d	10/21/22	11/23/22	23	5%
29	Conclusion & References	24d	10/21/22	11/23/22	23	50%
30	Executive Summary (add to beginning of report)	1d	11/24/22	11/24/22	29	5%
31	Edit & finalize report	1w	11/25/22	12/01/22	30	
32	Presentation	10d	11/25/22	12/08/22		
33	Create presentation outline	1d	11/25/22	11/25/22	30	
34	Delegate roles and slides	1d	11/28/22	11/28/22	33	
35	Create visual slides and script	4d	11/29/22	12/02/22	34	
36	Finalize slides & practice presenting	3d	12/05/22	12/07/22	35	
37	Present to class	1d	12/08/22	12/08/22	36	

Figure 4. Image of Agile Nomads' project milestones (Critical Success Factors) and progress tracker (Key Performance Indicators) in Smartsheet.

Kanban Board for Task Delegation

The team leader managed the task list and assigned tasks to team members using Planner integrated with Teams. To better organize tasks, a virtual Kanban board was created in Planner. A Kanban board is a visual tool that provides an overview of the current work status and helps to simplify team communication, boosting productivity and minimizing confusion among team members (Kanban Tool n.d.). A virtual Kanban board maps individual tasks to virtual sticky notes placed into columns (Kanban Tool n.d.). As work progresses, the sticky note is moved from left to right (Kanban Tool n.d.) so that the team can see a current snapshot of the project's status. Our three columns were labeled *To Do*, *In Progress*, and *Completed*.

During our weekly meetings, team members would be assigned new project tasks which would then be added to the Kanban board by the team leader. Notes, checklists, attachments, comments, and due dates were often added to each task. Team members could update their own tasks, but it was often the team leader who would update or close out the tasks based on updates provided by team members in weekly meetings or WhatsApp.
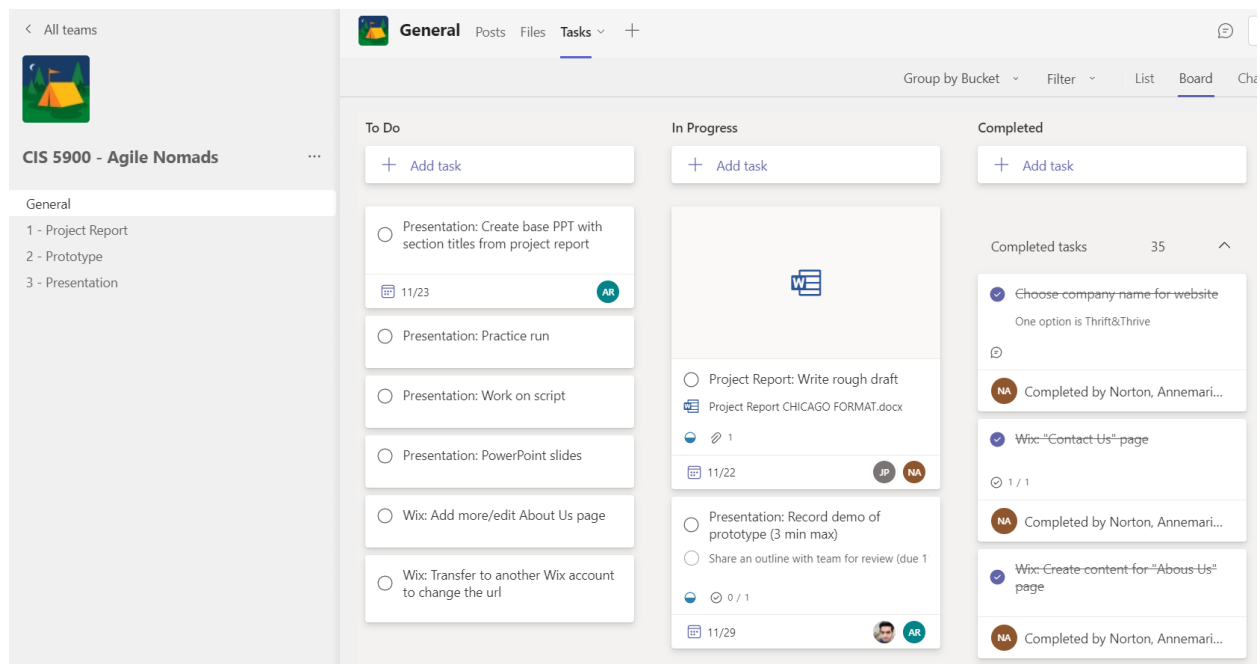

Figure 5. Screenshot of Agile Nomads' Kanban board in Microsoft Teams.

Risks and Opportunities

It was essential for us to identify potential risks as well as opportunities that we might encounter throughout the project. It was equally crucial for us to agree on the appropriate response for each risk and opportunity, depending on its probability and impact. The following table depicts the risks, opportunities, and responses that were identified for our project.

LEGEND					
Risk/Opportunity Score	< 5%	5% – 20%	20% - 50%	50% - 90%	> 90%

Project Level Risk	Very Low	Low	Medium	High	Very High

		RISKS				
	DESCRIPTION	PROBABILITY	IMPACT	TOTAL	OWNER	RESPONSE
1	Project scope not defined properly, resulting in scope creep	0.4	0.7	Medium	Project Lead	Regularly assess the scope of the project and make sure website functionality is in line with scope
2	Project resources impacted by Comp Exam	1.0	0.7	High	Project Lead	Plan for enough time in project schedule to accommodate for several weeks of being unable to focus on the project
3	Team members unavailable to attend meetings	0.5	0.8	Medium	Project Lead	Keep meeting notes up-to-date and continue to assign tasks; redistribute tasks to other team members if necessary
4	Project does not follow timeline	0.5	0.6	Medium	Project Lead, Supporting Team	Project Meeting every week to analyze and review the ongoing work and progress.
		OPPORTUNITIES				
	DESCRIPTION	PROBABILITY	IMPACT	TOTAL	OWNER	RESPONSE
1	Utilize existing website template instead of creating from scratch	1.0	0.9	Very High	Project Team	Using a template allows the team more time and resources to focus on design and website content
2	Use Teams for file management and online meetings	1.0	0.7	High	Project Lead	Collaboration space and helpful tool for file management and communication
3	Use WhatsApp to provide quick updates and ask questions within the team	1.0	0.7	High	Project Team	Easiest way to get in contact with team members and provide updates/ask questions

Table 1. Analysis of project risks and opportunities.

Personas

We created two personas as part of our Design Thinking process. By generating these fictional users of Thrift&Thrive, it helped us to focus on the user experience when creating our website.
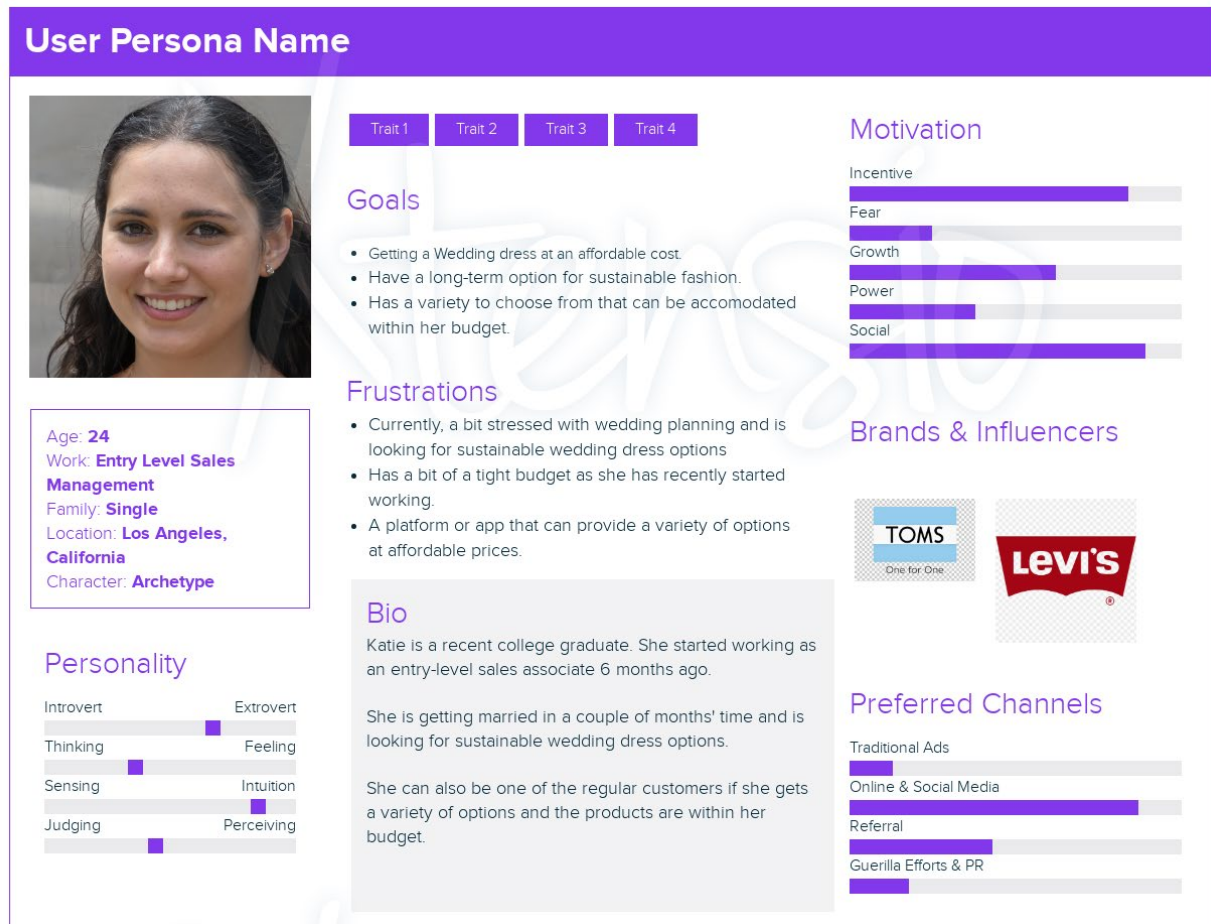
Figure 3. Image of one of the personas created by Agile Nomads. Template provided by Xtensio.

Results

Business Model

Thrift&Thrive is both a peer-to-peer and business-to-consumer platform. It is completely free to use as a buyer, but a small percentage of what is sold is automatically charged to the seller. Businesses are also charged a fee to maintain their own storefront in Thrift&Thrive. Users can select a monthly subscription level if they wish to have benefits beyond the free website experience as a buyer, such as free and faster shipping, early access to brand partnership

products, and more. As a result, Thrift&Thrive can remain a completely ad-free service.

Thrift&Thrive also has a customer satisfaction guarantee policy where customers can return

products up to 14 days after receiving their purchase and get a full refund if they are not satisfied

with their order. Non-subscription users will have free shipping applied to all orders over a

certain threshold.

User Benefits

We focused on the following customer benefits when developing Thrift&Thrive into a

functional website.

Benefit	Details
Cost savings and increased purchasing power	Consumers can purchase second-hand products at a more affordable price point
Huge selection of apparel to choose from that is posted from either businesses or individual sellers.	Variety of products to choose from, so consumers have a lot of choices
Online marketplace	The online shopping experience is convenient for users since they can shop and order anywhere and anytime
Income for individual sellers	A great way for individual sellers to make a second income or even their primary income
Promotes environmental sustainability	By buying and selling goods second-hand, waste can be significantly reduced
Fashion trend	Vintage, recycled, and upcycled clothes can be fashion statements
Free to use for buyers	The Thrift&Thrive platform will be free to use for consumers
Means to connect	It will be a means to connect with different sellers and vendors
Reach	As it is an online platform, Thrift&Thrive will have a far and wide reach

Table 2. A detailed list of how customers will benefit from using Thrift&Thrive.

Website Features

The following table lists the current features of our website prototype Thrift&Thrive.

Available	Feature	Details
Yes	Seller Control Panel	A user can create a seller account (either as a business or personal account) and add products to the website which can be managed in their admin panel
Yes	Buyer Control Panel	• Wishlist • Profile information management • Ability to review previous and current orders
Yes	Wishlist	The Wishlist helps consumers create personalized collections of products they want to buy, saving them in their user account for future reference
Yes	Search	• Classify products into different categories • Filter products based on customer search criteria • Keyword search • Identify best sellers based on customer rating
Yes	Product Categories	• Clothes, Bags, Shoes, Accessories, Vintage • Separated by Men and Women
Yes	Sales Page	For products on clearance/sale
Yes	Best Sellers Page	For best-selling products
Yes	Product display	Products on the website are shown with details of descriptions and pictures
Yes	Online Chat	Customer support
Display only	Brand Partnership	Partnership with brand name apparel (such as Banana Republic, Tommy Hilfiger, Hollister, Levi's and Burberry)
Display only	Online Payment Methods	Accept most types of payments including PayPal, Debit/Credit Cards, and Gift Cards
Display only	Social Media	Have a strong and engaging social media presence

Table 3. List of current prototype features. The "Available" column refers to whether the feature is fully integrated into the prototype or display only/non-functional.

Product Category	Details
Clothing	Variety of clothes (such as t-shirts and jeans in good quality) and include some popular brands like Levi's
Bags	Popular brands, eco-friendly (such as reusable material)
Shoes	Sandals, flats, sneakers, boots, and all types of shoes
Accessories	Some popular brand accessories like glasses, hats, belts, wallets, and gloves
Vintage	80's coats, jackets, shirts, and other uniquely designed apparel
Weddings	Wedding dresses and suits

Table 4. A list detailing Thrift&Thrive's current product categories for both men and women.
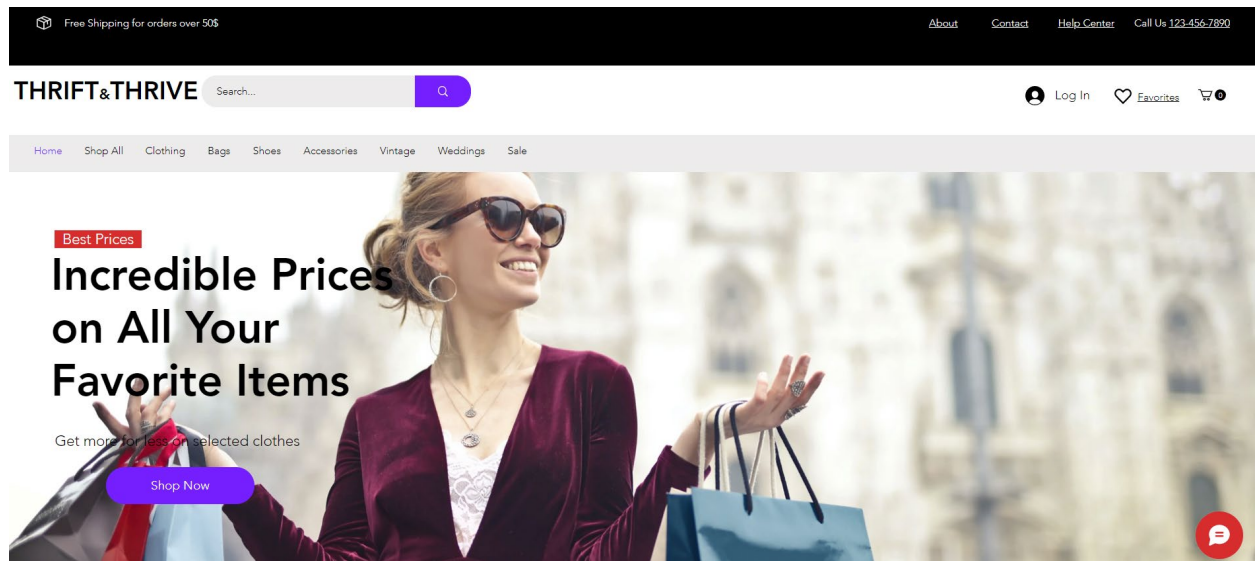
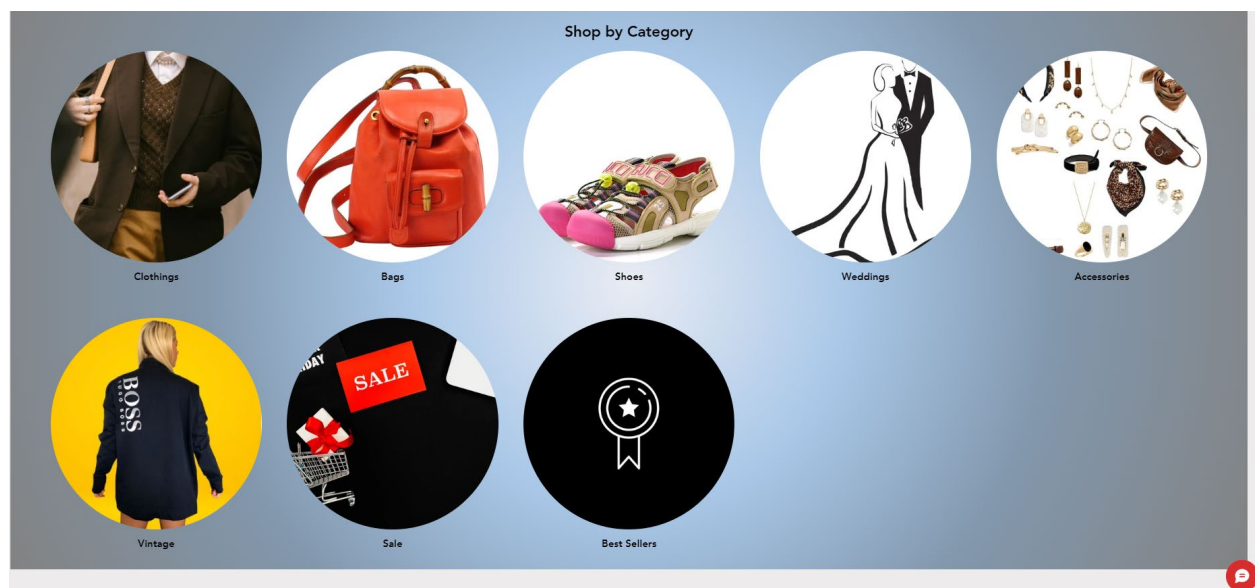Figure 4. Image of Thrift&Thrive's home page, hosted by Wix.

Figure 5. Image of Thrift&Thrive's categories as listed on the home page.
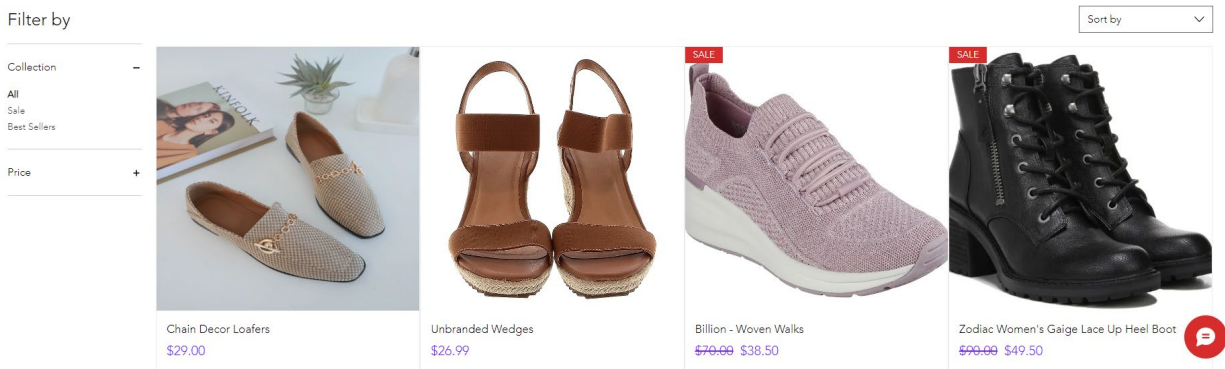
Women's Shoes

Figure 6. Image of one of Thrift&Thrive's product search pages.

Looking Forward

Discussion

Agile Nomads' goal to provide an online second-hand apparel marketplace for sellers and buyers to connect has been achieved through the creation of our user-friendly and easy-to-navigate prototype, Thrift&Thrive. The following list consists of features we would implement if we had more time and resources available to us. We could see this list being incorporated into a future iteration of our prototype.

Feature	Details
Create an app version	The current website is functional on a smartphone, but creating an app will greatly increase the user base
Products beyond apparel	• Can expand the product line in the future to include furniture, books, etc. • Ability to view the products in a particular room or ambiance as an app feature
Security	Automatically monitor the price of products and remove products listed at unusual prices.
Fashion Guide	A regularly updated blog with fashion suggestions of popular items so consumers can put together the perfect outfit and buy the individual products
Consumer Engagement &	• Collaboration with small businesses and local brands to grow their businesses

Environmental Sustainability	• Products that are eco-friendly are marked and categorized as such. These products will also include descriptions of the fabric material (ex. recycled) and how the product was made • Provide information and online resources about fabric materials derived from eco-friendly sources, such as recycled materials

Table 5. A detailed list of ideas for future implementation.

Conclusion

Thrift&Thrive may not be the only online second-hand marketplace in the industry, but it stands out because of its mission statement to promote an environmentally sustainable fashion economy. Agile Nomads' hope for the future is that Thrift&Thrive will encourage consumers to be more conscious in their clothing purchases and be the catalyst for change for the entire fashion industry.

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References

GlobalData and Thredup. 2022. *Secondhand apparel market value worldwide from 2021 to 2026.* Chart. Statista. https://www.statista.com/statistics/826162/apparel-resale-market-value-worldwide/.

GlobalData and Thredup. 2021. *Share of consumers willing to buy secondhand apparel worldwide as of 2021, by age.* Chart. Statista. https://www.statista.com/statistics/828034/willingness-to-buy-secondhand-items-by-age-worldwide/.

Smith, P. 2022. "Share of Consumers Open to Buying Resale Items Worldwide As of 2021, by Age." Statista. Accessed November 21, 2022. https://www.statista.com/statistics/828034/willingness-to-buy-secondhand-items-by-age-worldwide/.

Smith, P. 2022. "Value of the Secondhand Apparel Market Worldwide from 2021 to 2026." Statista. Accessed November 21, 2022. https://www.statista.com/statistics/826162/apparel-resale-market-value-worldwide/.

2022. "How Much Do Our Wardrobes Cost to the Environment?" The World Bank. Accessed November 21, 2022. https://www.worldbank.org/en/news/feature/2019/09/23/costo-moda-medio-ambiente.

2022. "Secondhand Apparel Market." Future Market Insights. Accessed November 21, 2022. https://www.futuremarketinsights.com/reports/secondhand-apparel-market.

n.d. "5 Steps to Design Your Career Using Design Thinking." Stanford University. Accessed November 21, 2022. https://online.stanford.edu/5-steps-design-your-career-using-design-thinking.

n.d. "History." IDEO Design Thinking. Accessed November 21, 2022. https://designthinking.ideo.com/history.

n.d. "Kanban Board." Kanban Tool. Accessed November 22, 2022. https://kanbantool.com/kanban-board

n.d. "Learn About Sustainability." United States Environmental Protection Agency (EPA). Accessed November 21, 2022. https://www.epa.gov/sustainability/learn-about-sustainability.

Valentine, Hannah, Monique Miu Masuko, Tori Lopez. "For Gen Z, Thrifting Isn't Just a Way to Shop, It's A Lifestyle." Interview by Eliza Huber. 2020. *Refinery29,* October 29, 2020. https://www.refinery29.com/en-gb/2020/10/10135164/thrifting-gen-z-thrift-shopping-trend.