Sneakerxchange - Enhancing User Experience through HCI Principles in a Reselling Website

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Abstract. Sneaker and streetwear reselling websites have become increasingly popular in recent years, providing a platform for enthusiasts to buy and sell rare and collectible items. In this research paper, we explore the application of human-computer interaction (HCI) principles in the development of a sneaker and streetwear reselling website. Our focus is on identifying key design principles that can enhance the user experience of the platform, including clear navigation, intuitive search functionality, personalized recommendations, and mobile responsiveness. We evaluate the effectiveness of these design principles through a combination of expert evaluation and user testing, gathering feedback from participants on their experience using the platform. Our results indicate that incorporating HCI principles can significantly improve the usability and overall user experience of a sneaker and streetwear reselling website, leading to increased engagement and satisfaction among users. This research has implications for the development of future e-commerce platforms in the sneaker and streetwear space and highlights the importance of considering user needs and preferences in the design process.

1 Introduction

Sneaker and streetwear reselling websites have revolutionized the way people buy and sell coveted items in the fashion industry. As the demand for rare and collectible items continues to grow, it is important for these platforms to provide a user experience that is both intuitive and engaging. In this research paper, we explore the application of human-computer interaction (HCI) principles in the development of a sneaker and streetwear reselling website, with a focus on enhancing the user

experience for buyers and sellers alike.
Our investigation begins with a comprehensive review of the HCI literature, where we identify key design principles that can improve the user experience of an e-commerce platform. Based on these principles, we develop a set of design guidelines specific to the needs of sneaker and streetwear reselling websites. These guidelines include features such as clear navigation, intuitive search functionality, personalized recommendations, and mobile responsiveness, among others.
We then conduct expert evaluation and user testing to evaluate the effectiveness of these design guidelines in improving the user experience of our sneaker and streetwear reselling website prototype. Our user testing sessions involve participants from different backgrounds, including buyers and sellers, with varying levels of expertise and familiarity with sneaker and streetwear reselling platforms. We gather feedback from these participants and analyze their interactions with the website to determine areas for improvement.
Our findings demonstrate that incorporating HCI principles in the design of a sneaker and streetwear reselling website can significantly improve the user experience, leading to increased engagement, satisfaction, and ultimately, sales. This research has implications for the development of future e-commerce platforms in the sneaker and streetwear space and highlights the importance of considering user needs and preferences in the design process.

2 Literature Survey

2.1 A Review Paper on E-Commerce

Authors: Dr. Shahid Amin | Prof. Keshav Kansana | Jenifur Majid
February 2016 | Conference: TIMS 2016-International Conference | Gwalior

The review article offers insightful information on the many facets of e-commerce and how it affects contemporary companies. E-commerce is becoming a crucial component of contemporary business, offering important advantages including cost savings, a broader market reach, and increased consumer satisfaction.

E-commerce platform success is influenced by a number of elements, including user experience, security, and convenience.
Due to the convenience and accessibility of online shopping, customers' preferences have changed significantly as a result of e-commerce. With the help of targeted advertising and customer engagement, social media has grown to be a potent tool for e-commerce.

2.2 Human-Computer Interaction Research in Web Design and Evaluation

Authors: Panayiotis Zaphiris | Sri Hastuti Kurniawan
January 2006 | Publisher: IGI Publishing

The function of human-computer interaction (HCI) in web design and evaluation is covered in this study paper. The significance of comprehending user requirements and preferences in web design and how HCI approaches may be utilized to obtain and analyze this information are some possible takeaways from the research article. The function of usability testing in assessing the efficiency of website designs and locating potential improvement areas.
Designing for users with impairments and other accessibility difficulties are important considerations that should be made, and HCI can help guide these decisions. The effect of cultural variations on web design and the significance of taking these variations into account during the design process. The application of HCI to the development and assessment of mobile web interfaces takes into account the special difficulties and opportunities that mobile devices bring.

2.3 Website Design and Development

Author: Lan Nguyen
Turku University of Applied Sciences | Bachelor's thesis | Abstract
Bachelor of Engineering Information and Communications Technology | 2020

Based on the research findings, the following points can help in designing an effective and visually appealing website that achieves its business goals and serves its target audience:
Understand the audience and goals: It is important to know the target audience and business goals before starting the design process.
Plan layout and structure: Creating a sitemap and wireframes help in organizing content and ensuring a user-friendly design.
Use consistent branding: Consistency in branding helps in maintaining a professional and cohesive design.
Keep it simple: Avoid cluttered designs and focus on a simple and easy-to-navigate design.
Focus on accessibility: It is essential to design for accessibility to ensure that the website is accessible to all users.
Test and iterate: Testing the design with real users and feedback helps in refining and improving the design.

3 Concepts used

3.1 Norman's Model of Interaction

Norman's interaction model, often known as the execution-evaluation cycle, is a well-known HCI model. It suggests that in order to use the system to accomplish that purpose, a user should first set a goal.
The results of those actions are then shown on the interface by a system. A user looks at the interface and assesses whether their objective has been achieved. If not,

a fresh objective is set, and the process is repeated.

Good design should not design for tasks but for goals. To lead to actions goals must be transformed into specific statements of what is to be done. In Norman's perspective, the goal is put in an initiating position that guides the execution and evaluation of the action. Based on this understanding, the usability research on the website started from the goals, instead of the tasks.

This model of interaction explained is divided into seven primary stages, we gave our best to follow:-

1. Forming the goal
2. Forming the intention
3. Specifying an action
4. Executing the action
5. Perceiving the state of the world
6. Interpreting the state of the world
7. Evaluating the outcome

3.2 Design Principles

Design principles are fundamental pieces of advice for you to make easy-to-use, pleasurable designs. In user experience (UX) design, minimizing users' cognitive loads and decision-making time is vital. Design principles should help designers find ways to improve usability, influence perception, increase appeal, teach users and make effective design decisions in projects.
The following guidelines were in mind as we created our website:
PURPOSE OF WEBSITE: Each page should have a straightforward goal to let the consumer interact with what you have to offer.
SIMPLICITY: When thinking about the user experience and usability of your website, simplicity is the ideal approach.
NAVIGATION: Maintaining visitors requires effective navigation. Visitors will give up if the website's navigation is difficult. The goal is to keep the page's navigation basic and clear.
The use of size, colour, imagery, contrast, typography, whitespace, texture, and style are all examples of visual hierarchy.
F-SHAPED PATTERN READING: The F-shaped layout resembles the left-to-right and top-to-bottom reading habits that are common in the West.
CONTENT: By using appealing language, quality content may draw in readers and influence them to become clients.
GRID BASED LAYOUT: Grids support design structure and content organisation. The grid makes the page look neat and aligns the elements on the page.
LOAD TIME: Nearly 50% of website visitors anticipate that a page will load in 2 seconds or less, and they may leave if it takes more than 3 seconds.
MOBILE FRIENDLY: More individuals are browsing the web on their phones or other mobile devices.

3.3 Serial Positioning

Users are most likely to remember the first and last items in a series.
According to the Primacy and Recency Effect and the Serial Position Effect, things near the beginning and end of a list of information are easier to recall than those in the middle. It is kept in your short-term memory due to the primacy effect and the recency effect, which both state that the first item in a list is remembered because it is the first thing you see when you start scanning a page, and the last item in a list is remembered because it is the last thing you see on this page.

3.4 Heuristic Evaluation

Heuristic evaluation is a detailed review of a product's user interface with the goal of identifying usability problems that might arise when users engage with a product and provide solutions.
A product's quality can be shown in its great usability. As a result, the higher the ROI, the more people will interact with the product and the better the usability.

3.5 Hick's Law

Limit the overall amount of options consumers have to choose from. Users must put in more effort to decide when there are more options available.
Make navigation options a priority. Concentrate on the most crucial selections rather than offering an unending range of navigation possibilities.
Reduce the user's need to make complex decisions by breaking them down into smaller steps and making the suggested options obvious.

3.6 Weber's Law of Just Noticeable Differences

According to Weber's law of just perceptible differences, customers often dislike radical changes less. The least amount by which users will perceive a change is the just perceptible difference. Weber first found this and showed how a stimulus' original strength or magnitude influences a person's perception of a change in the stimulus.

3.7 Picture Superiority Effect

Words are less likely to be recalled than visuals and pictures. Studies show that when it comes to human memory recall, images significantly outperform text. Tell stories visually with your products. You can boost the likelihood that people will recall the content by combining text and graphics.

3.8 Software release life cycle

A software product's development, testing, and distribution process is known as the software release life cycle. Before the final version, or "gold," is made available to the public, it often goes through a number of stages, including pre-alpha, alpha, beta, and release candidates.
The program is internally tested using white-box methods as part of the formal testing process's initial phase, known as alpha testing. The software is tested by a broader set of users during the subsequent step of beta testing, who are often individuals outside the company that created it. Usability testing could be part of the beta phase, which is concerned with minimizing effects on users.
The program may go through one or more release candidate phases after beta testing, during which it is improved and tested further before the complete version is made public.

4 Wireframe

With your programmers and designers, you can communicate the structure of the software or website you're creating by using a wireframe, which is a schematic or blueprint. In terms of software design, creating a solid interface structure is unquestionably the most important step. One will save a tonne of time and tedious rework by completing this work immediately before any code is written, and before the visual design is complete.

Why were wireframes created in the manner that they were?
Wireframes frequently have a purposely low-fidelity look and feel for the following reasons.
1. Wireframes clearly demonstrate that this is not the finished design.
2. Wireframes indicate that "this is all up for discussion"
3. Wireframes clearly demonstrate that no code has yet been created.

For reference, the following wireframes created by Andy Jones and found on Dribble under the category "Marketplace Wireframes"

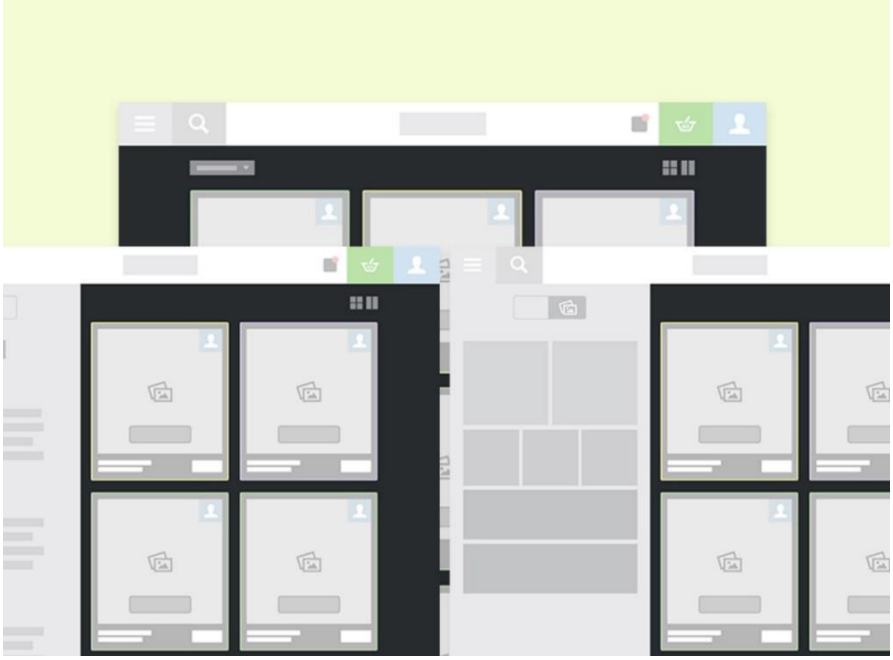

Fig. 1 Figure depicting the Items pages' wireframe draft for the sneakers, hoodies, and t-shirts page. The profile and cart buttons are located in the upper right corner of the page, and the hamburger menu and search icons are located on the left. A thorough description of the item is provided on the page, along with its image, price, and Product Description.

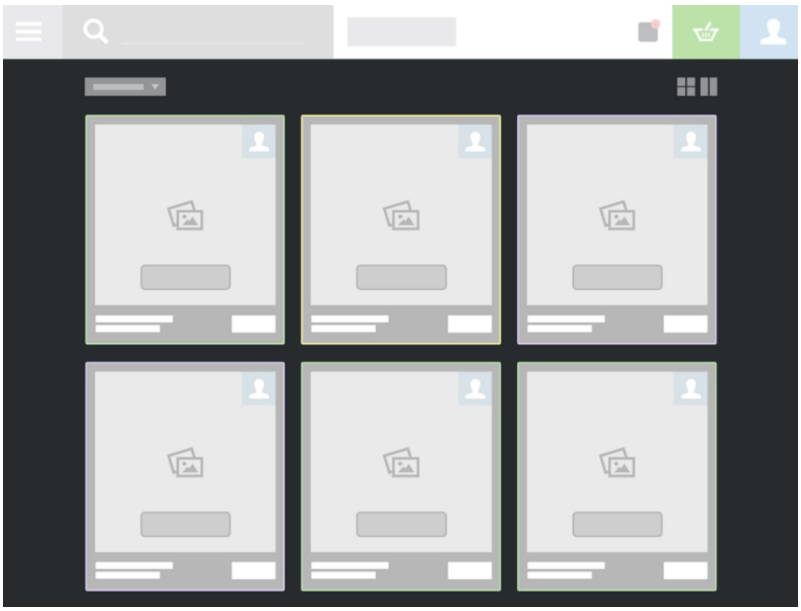

Fig. 2 This wireframe shows product details including the product description, price, and a high-quality image for a clearer idea.

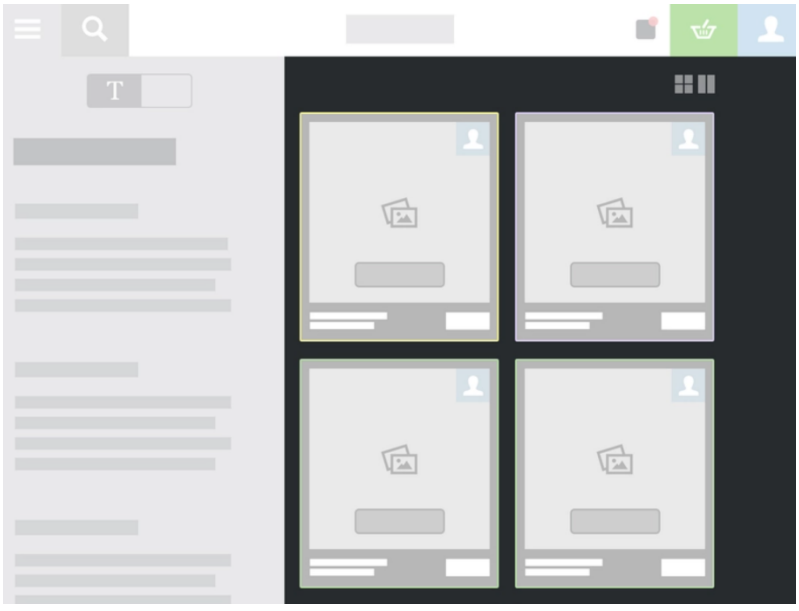

Fig. 3 Using the filter menu that appears on the left side of the screen, the user can customize all the necessary product information, including color, price, size, and brand.

5 User Data Flow Diagram

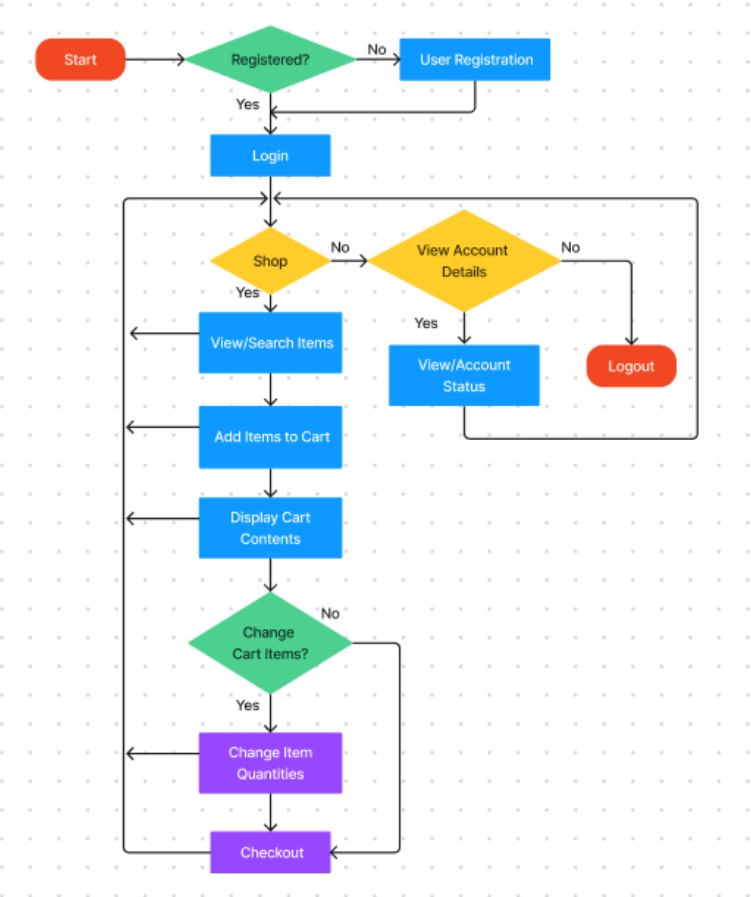

Fig. User Data Flow Diagram designed for the Website

We summarised the following points and created a flowchart that depicts the typical interactions of site visitors with the shopping cart application while taking into account the sequence of actions taken by regular Internet users.

- Any website that welcomes new users requires them to create accounts. Existing users can authenticate by supplying their personal identification numbers and passwords.
- Following successful authentication, customers can examine the list of things in their shopping carts and add items they want to buy to those carts. (Occasionally, people could like to look about or simply browse through the website without buying anything.)
- Users wish to alter the quantity of the things they have chosen when examining the contents of their shopping cart.

- After checking out, website visitors affirm that they want to buy the things in their shopping carts. Then, the database is updated with the items that clients have in their shopping carts.
- After that, users can either log out or keep shopping. Customers may also want to check the website later to see if their purchased things have been sent or delivered.

6 The Website

In this section, we describe our sneaker reselling website, which is built using Figma plugins and hosted online. The website allows users to buy and sell sneakers through a user-friendly and intuitive platform. The website is designed to provide a seamless experience for users, with clear navigation, intuitive search functionality, and personalized recommendations.

6.1 Home Page

The home page of our sneaker reselling website serves as the main landing page for users, providing a visually appealing and easy-to-use interface. The page begins with a clear and concise header section that includes the logo and a navigation bar that allows users to access other sections of the website. The navigation bar is fixed at the top of the page, ensuring that users can easily move around the website without having to scroll back to the top.

Fig. 1. Home Page

6.2 Registration

The registration page features a design, with a header section that includes the logo and navigation bar. The main section of the page includes a registration form that prompts users to enter their name, email address, password, and confirmation of the password. The form also includes a checkbox to agree to the website's terms and conditions and a CTA button to create the account.

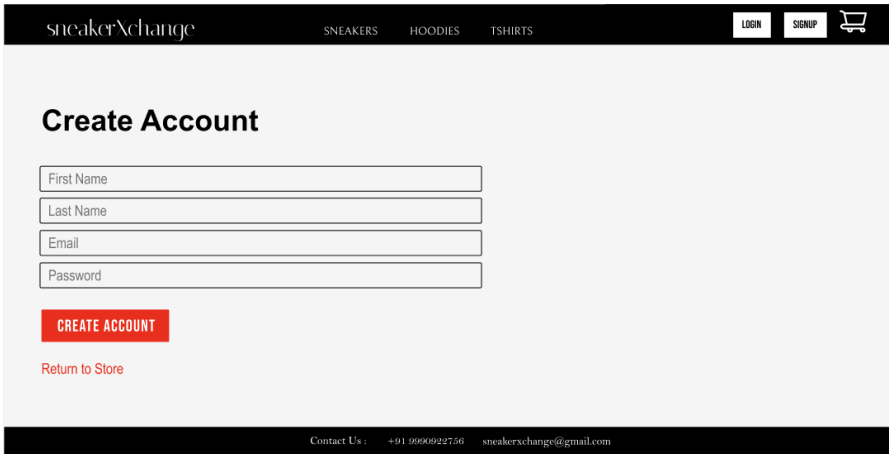

Fig. 2. Registration Page

6.3 Login

The login page features a header section that includes the logo and a navigation bar, providing users with easy access to other sections of the website. The main section of the page includes a login form that prompts users to enter their email address and password to access their account. If users have forgotten their password, they can click on the "Forgot password?" link to reset their password.

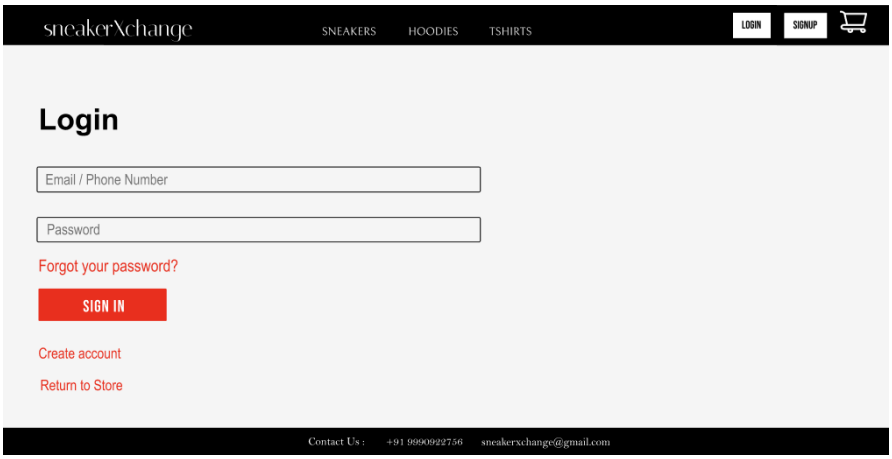

Fig. 3. Login Page

6.4 Cart

The cart page of our sneaker reselling website serves as the final step before users checkout their purchase. The page has a simple and clean design, with a focus on clear and concise instructions to guide users through the checkout process. The main section of the page includes a summary of the user's cart, including the product name, price, quantity, and total cost. Users can adjust the quantity of each item in their cart, remove items, or continue shopping. The page also includes a CTA button to proceed to the checkout page.

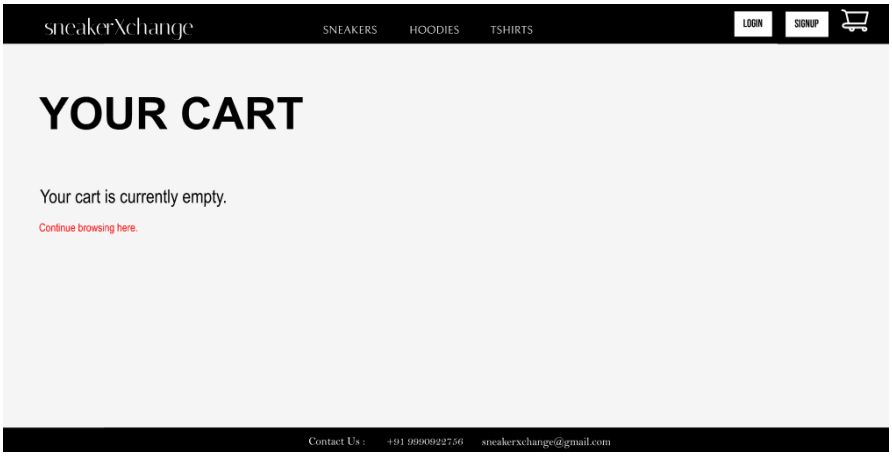

Fig. 4. Cart Page

6.5 The Backdrop Color

After extensive investigation and careful observation of numerous e-commerce and other websites, a pattern or commonality was found: the backdrop color. The white background was a feature that each of these websites and apps shared. In order to give the user a better and clearer display of the product, we choose white color for our background. White background creates a contrasting impact to all the colors, and photos of the products are better exhibited on a white background.

6.6 Sneakers Page

The sneakers page of our website features a comprehensive collection of sneakers, providing users with a wide range of choices to select from. The page is designed with a grid layout, allowing users to easily browse through the various sneakers available. Each sneaker is displayed with a clear image, price, size, and availability. Users can also filter the sneakers based on brand, size, and price range, enabling them to find the perfect pair of sneakers to meet their needs.

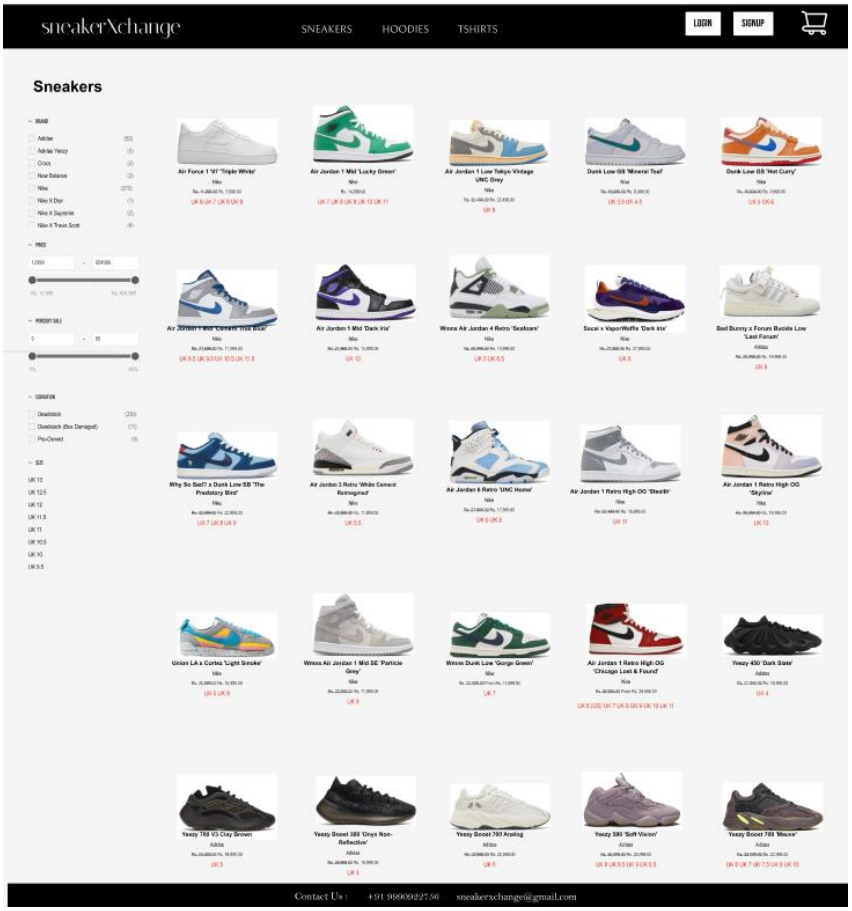

Fig. 5. Sneaker Page

6.7 Hoodies Page

The hoodies page of our website features a collection of hoodies, providing users with a range of styles and colors to choose from. The page is designed with a similar grid layout as the sneakers page, allowing users to easily browse through the various hoodies available. Each hoodie is displayed with a clear image, price, size, and availability. Users can also filter the hoodies based on brand, size, and price range, enabling them to find the perfect hoodie to meet their needs.

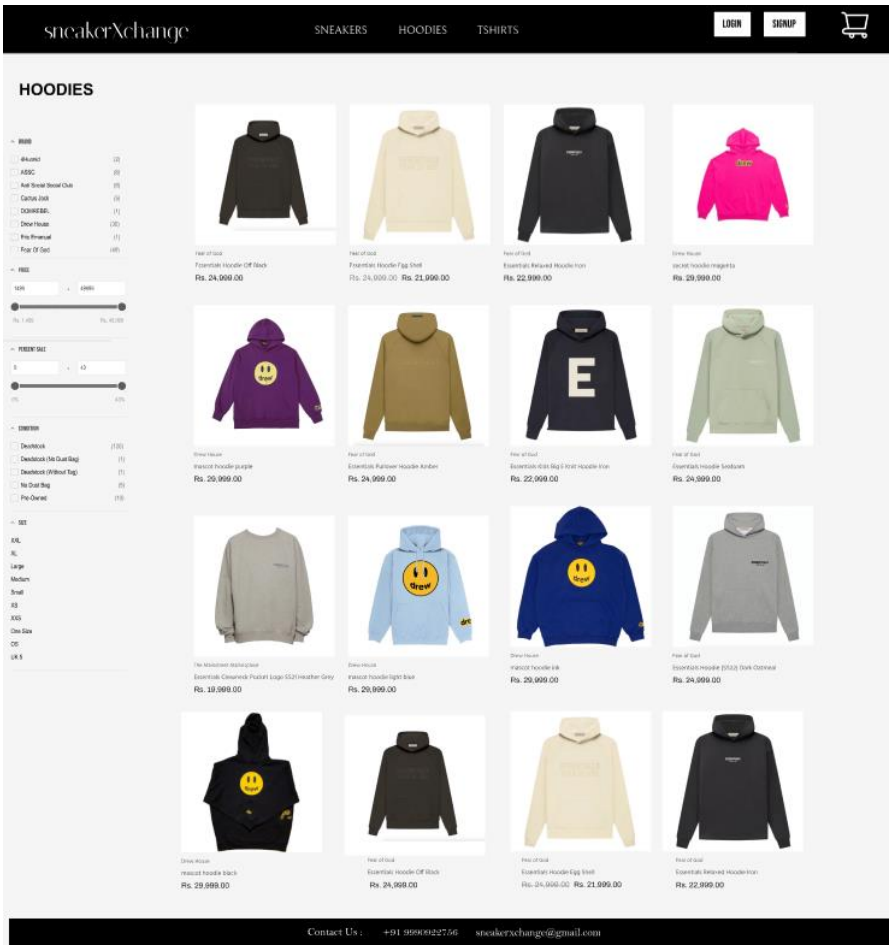

Fig. 6. Hoodies Page

6.8 Tshirts Page

The t-shirt page of our website features a collection of t-shirts, providing users with a range of styles and colors to choose from. The page is designed with a similar grid layout as the sneakers and hoodies page, allowing users to easily browse through the various t-shirts available. Each t-shirt is displayed with a clear image, price, size, and availability. Users can also filter the t-shirts based on brand, size, and price range, enabling them to find the perfect t-shirt to meet their needs.

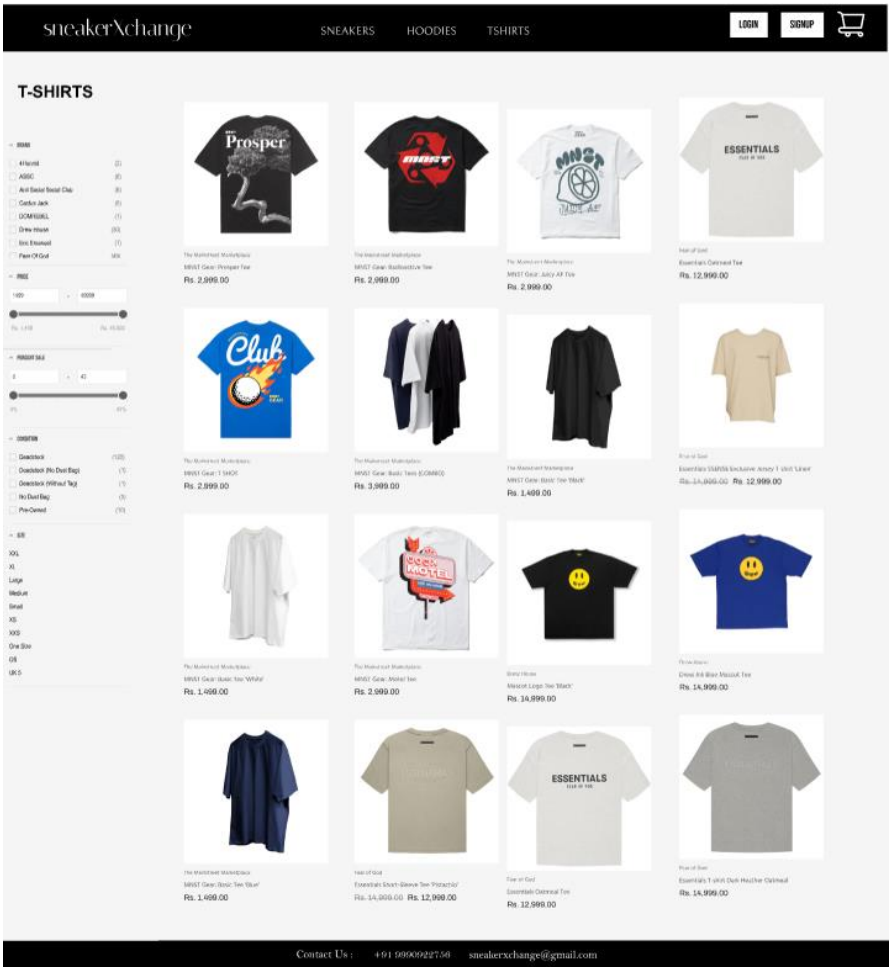

Fig. 7. Tshirts Page

7 Conclusion

In conclusion, the Sneaker Exchange website designed using Figma plugins provides an intuitive and user-friendly platform for sneaker enthusiasts to buy and sell sneakers. The website incorporates a range of features that enable users to easily navigate through the various pages, search and filter products based on their preferences, and securely purchase products through the simple and secure checkout process.

The website also employs principles of Human-Computer Interaction to ensure an accessible and enjoyable user experience, including a clear and organized layout, dyslexia-friendly design, and responsive web design. Additionally, the website uses Django to create a simple authentication system that allows users to easily register and log in to their accounts.

Overall, the Sneaker Exchange website is an excellent example of how the principles of Human-Computer Interaction can be applied to create a user-friendly and intuitive website that meets the needs of its users. Through the use of effective design and technology, the website provides a seamless and secure platform for sneaker enthusiasts to buy and sell their favorite footwear.

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