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Enhancing the shopping experience in e-commerce: a path to improvement – buy the best

Sarama Shehmir [a,1], Mobeen Nazar [b,d,2], Ayesha Anees Zaveri [b,3,*], Naveera Sami [c,4], Ramsha Mashood [d,5], Nabiha Faisal [d,6], Abdul Waqas [d,7], Rimsha Naeem [d,8]

[a] Ryerson University, Ontario, Canada
[b] Malaysian Institute of Information Technology, Universiti Kuala Lumpur, Malaysia
[c] NED University of Engineering & Technology, Karachi, Pakistan
[d] Bahria University, Karachi, Pakistan
[1] sarama.shehmir@ryerson.ca; [2] mobeen.nazar@s.unikl.edu.my; [3] zaveri.ayesha@s.unikl.edu.my; [4] naveerasami@cloud.neduet.edu.pk;
[5]ramshamashood.bukc@bahria.edu.pk; [6] nabihafaisal.bukc@bahria.edu.pk; [7] Abdulwaqas12@gmail.com; [8] Rimsha123@gmail.com
* corresponding author

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ABSTRACT

This research paper presents the development of "Buy by Best," a user-friendly platform designed to save users' time by providing a consolidated shopping experience. The project addressed the inconvenience of visiting multiple websites and logging in to various accounts to shop for different brands. Extensive research was conducted to explore existing shopping websites, user behaviors, and industry trends. The project team analyzed multiple sites, considering brand reputation, product variety, and user experience. Based on the findings, "Buy by Best" was developed to streamline the shopping process. The platform features a centralized login where users can access products from various brands, eliminating the need for multiple website visits and logins. Technologies like the MERN stack and Python libraries like Selenium and Beautiful Soup were used for web development and web scraping of brand products. The platform offers a user-friendly interface with options to browse products by brand, apply filters, and view product details. Users can place orders seamlessly and be redirected to the brand's official website. Future work includes developing a mobile application, enhancing the user interface, expanding the range of brands, and integrating other platforms. In conclusion, "Buy by Best" offers users a convenient and time-saving solution by consolidating products from various brands into a single platform. The project successfully achieves its objective through web scraping, user authentication, and intuitive interfaces.

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1. Introduction

Undoubtedly, technology is an indispensable instrument for internet marketing in the contemporary era. Nevertheless, Pakistan has recently experienced a surge in brick-and-mortar retailers and small-scale businesses. Both buyers and sellers will have several detrimental situations with this business paradigm. For instance, the purchaser may require an instant purchase, yet the store needs more inventory, or the supplier may possess the desired items, but the consumer may need to be made aware of it [1].

In addition, customers can select from a wide array of products at competitive prices and easily compare them with each other while making online purchases. Developing a website application for browsing and buying things from each store is crucial, given the deficiencies and constraints of the traditional offline business model. In contemporary times, the phrase "e-comm," sometimes abbreviated as "EC" (E-commerce), refers to transactions that occur on the Internet for buying and

selling goods and services. Some examples of e-commerce platforms that facilitate the sale of items include Daraz, Krave Mart, and many more. Various products are marketed on social media platforms, including Facebook, among the many e-commerce sites that have grown lately [2], [3].

Due to the extensive assortment of products on these websites and their lack of focus on categorization, clients need help choosing the desired things. In addition, the sellers are required to pay substantial fees or make a substantial investment in marketing. (May 2020) Developing an internet-based e-commerce web application for clothing stores enables businesses to handle their product management systems independently, eliminating the need to depend on third-party websites, notwithstanding the abovementioned disadvantages [4], [5].

The "Buy the Best" initiative aims to revolutionize the online shopping experience by providing consumers with a unified and user-friendly platform to explore and purchase products from renowned companies. This part comprehensively covers the fundamental concepts and areas that form the basis of the project. The project's primary goal is to mitigate the inconvenience of users logging in to each website while surfing multiple brands individually. "Buy The Best" aims to streamline the shopping process by curating a selection of items from renowned companies such as Origins, Generation, Sana Safinaz, Khaadi, and Gul Ahmed. This will conserve consumers' precious time and exertion [4].

This project synergistically integrates the robust capabilities of Python utilities such as Selenium and Beautiful Soup for web scraping with the MERN stack, comprising MongoDB, Express.js, React.js, and Node.js. This integration enables efficient management of user interactions and effortless retrieval of data from brand websites [4].

Furthermore, this paper will explore the benefits and implications of providing a unified platform for online shopping. By enhancing the user experience and promoting efficiency in the e-commerce industry, "Buy the Best" has the potential to reshape the way consumers interact with online retail.

In conclusion, this research paper will shed light on the innovative "Buy the Best" project and its potential to revolutionize online shopping. This project aims to enhance the user experience and promote efficiency in the e-commerce industry by addressing the inconvenience of navigating multiple brand websites and offering a centralized platform [4], [5].

2. Literature Review

E-commerce has unequivocally emerged as a dominant component of our culture and society. The Internet plays and will continue to play a significant role in our daily lives. The benefits of e-commerce include cost savings, superior quality, increased efficiency, and personalization. It is crucial to categorize the disparate phrases employed and evaluate their origin, rationale, and process to understand electronic commerce [6].

Contemporary e-commerce platforms encompass a variety of functionalities that facilitate the acquisition of any merchandise directly from their online portals. However, conducting a comprehensive comparison of pricing, discounts, and quality for any product across many applications takes time, requiring customers to invest their time reading reviews and visiting various websites to evaluate costs. Key product attributes, including brand name, size, weight, and dimensions, play a crucial role in helping customers identify and select the perfect product to meet their specific requirements in e-commerce. Nonetheless, collecting, incorporating, and upholding these ideals requires significant effort, particularly on more extensive websites. The creation of Product Attribute Extraction (PAE) involves the utilization of state-of-the-art transformer-based models and the training of a question-answer model. The user's text is "[7]"

This project aims to introduce a web application that identifies essential product information from several e-commerce platforms. Upon the user's final selection, the comparison details are visually shown in a graphical format [5]. The system will generate simulation results, enabling the consumer to obtain recommendations for purchasing suitable products with minimal effort and at the most convenient moment. An unsupervised methodology is also employed to extract product attributes and brand names from E-commerce data specifically obtained from Amazon [7].

An approach to accomplishing the goal is investigating the impact of recommender systems on a customer's purchasing choice, intending to develop more efficient systems through data analysis. Analysis of customer data from e-commerce platforms suggests that utilizing the following strategies

to search for fashion items by brand, color, or pattern might enhance efficiency and improve the chances of obtaining desired products [8].

With the increasing number of competitors, the focus is changing from pricing and services to customer retention strategies, which are now vital to the e-commerce ecosystem. Using image recognition technology, users can compare costs by uploading an image of the object [9]. There is an analogous Android application that examines a desired item and generates a list of prices from online merchants or e-commerce websites. Once you have decided, you will be sent to the purchasing page [10].

The two predominant approaches for assessing customer satisfaction are soliciting customer feedback and conducting periodic evaluations. The sellers encountered significant challenges, bordering on insurmountable, in reaching a consensus during the bargaining process. A chatbot system is necessary to improve customer satisfaction and negotiation effectiveness. A sophisticated chatbot system was utilized in this study to deliver responses based on the user's objective. The user's text is "[11]."

The research aims to develop a website that enables customers to retrieve the pricing information of any requested products from Amazon and Flipkart. The developers are utilizing PHP, XAMPP, and MongoDB to do this. Now, available methods display the costs of the required product from Amazon and Flipkart with a 96% accuracy [12]. Additionally, an analysis is conducted on the top two web page categories to gather pricing information. The system uses user queries to navigate the website and extract the price information. Subsequently, it downloads the HTML search page for the corresponding webpage. Once the websites have finished loading, the product prices from both sites will be displayed on the website's interface for easy comparison [12]. An Omani Perspective also promotes these commercial transactions, which can involve business-to-business (B2B), business-to-consumer (B2C), consumer-to-business, or business-to-consumer interactions.

E-commerce provides retailers with several advantages in comparison to traditional selling. Some key advantages include overcoming geographical limitations, lower prices, round-the-clock availability of products, gaining new customers through enhanced search engine visibility, creating customized content, enabling comparison shopping, and saving customers' time and money on trips. The primary benefits of scrapping include cost-effectiveness, ease of implementation, little maintenance requirements, and high speed. This can also be accomplished by extracting data from websites and saving it in a comma-separated values (CSV) format for analysis. The data presented on websites is in the form of unorganized information. In this study, the Bar Diagram is used to visualize the outcome of comparing the prices of the Apple iPhone on the e-commerce websites Flipkart and Snapdeal [13]. More previous research needs to be done on halal product sales through e-commerce. The Halal label data was obtained from the Lazada e-commerce platform via web scraping, explicitly utilizing the Selenium package in Python. Subsequently, the data was analyzed using the Kruskal-Wallis statistical test. The results indicated considerable variations in average halal sales throughout Indonesia, Malaysia, and Singapore. Nevertheless, after doing a pairwise/comparison test between groups of countries, it was discovered that the average sales in Indonesia and Singapore were identical [14].

Online shopping has gained significant popularity in recent years due to its convenience and the wide range of products it offers consumers. However, the fragmented nature of e-commerce platforms has posed challenges for users, particularly in accessing products from multiple brands and managing multiple accounts. Several existing solutions have attempted to address these challenges by introducing features such as product aggregation, centralized platforms, and streamlined ordering processes. [1], [4], [5] One notable solution in online shopping is the Sanaulla Store Shopping App. This web application aggregates products from different brands, allowing users to compare prices, read reviews, and make purchases within the app. It offers a single login for all brands and provides a smooth ordering process. However, the app has limited brand coverage and lacks certain advanced features like filtering by sales or product popularity (Sanaulla Store, n.d.). [2] Another established e-commerce platform is Daraz. It provides users with a centralized marketplace to find products from various brands. Daraz offers a user-friendly interface, advanced search capabilities, and personalized recommendations. However, it does not provide a seamless ordering process, as users are redirected to individual brand websites to make purchases (Daraz, n.d.) [3].

While these existing solutions have made progress in simplifying online shopping, there is still room for improvement. The "Buy the Best" project aims to build upon these solutions by offering a comprehensive platform combining product aggregation, seamless ordering, and a wide range of brand coverage. Leveraging the MERN stack and integrating web scraping techniques, "Buy the Best" strives to provide users with an intuitive and efficient online shopping experience, saving time and effort while offering various products from various brands. [4] In the following sections, we will delve into the implementation details, features, and user experience of the "Buy the Best" project, highlighting its unique contributions to online shopping.

3. Existing Systems

The current systems in the market are characterized by the fragmented structure of online shopping, where customers frequently need to visit many branded websites and undergo various login procedures to make purchases. This results in a laborious and unwieldy user experience, as customers must go via many platforms, recall numerous login credentials, and compare products across disparate websites.

In recent years, online shopping has gained popularity due to its convenience and the variety of products it offers consumers. Nevertheless, the disjointed structure of e-commerce platforms has posed difficulties for users to obtain products from various brands and handle different accounts. Past systems have tackled these difficulties by implementing features like product aggregation, centralized platforms, and faster ordering processes. Several prominent solutions in the realm of e-commerce encompass.

3.1. Sanaulla Store Shopping App

The Sanaulla Store Shopping App is a web application that consolidates products from several companies, enabling users to compare prices, read reviews, and make purchases directly within the app. It provides a unified login for all brands and facilitates a seamless ordering process. Nevertheless, the app's brand coverage is restricted, and it needs more specific advanced functionalities, such as filtering by sales or product popularity [2].

3.2. Daraz e-commerce Platform

Daraz is a well-established e-commerce website offering consumers a centralized marketplace to discover products from various brands. The platform provides a user-friendly interface, powerful search tools, and personalized recommendations. However, the ordering process could be more flawless since consumers are led to the websites of specific brands to make purchases [3].

Although the current solutions have made progress in making online purchasing easier, there is still potential for further enhancement. The "Buy the Best" project seeks to enhance existing solutions by providing a comprehensive platform that integrates the benefits of product aggregation, effortless ordering, and extensive brand coverage. "Buy The Best" aims to enhance consumers' online purchasing experience by utilizing the MERN stack and including web scraping methods. This approach ensures a user-friendly and efficient platform, saving time and effort while delivering various products from different brands [4].

In the subsequent parts of this research, the research will explore the steps taken to execute the "Buy the Best" project, emphasizing its distinctive features and the user's encounter while underscoring its original contributions to online commerce.

- Inefficiency in Product Search

  Users must independently visit each brand's website to look for and examine products. This procedure is characterized by a significant investment of time and restricts their capacity to effectively evaluate costs, ratings, reviews, and other product characteristics.

- Multiple Login Requirements

  Users frequently encounter the need to establish and oversee distinct accounts for each website associated with a brand, leading to a heightened mental burden and an elevated likelihood of losing login information.

- Lack of Centralized Information

Currently, no centralized platform consolidates products from many companies, resulting in users facing challenges accessing a diverse range of products and making well-informed purchasing choices.

- Cumbersome Ordering Process

  Order placement often entails visiting each brand's individual websites or physical locations. The website allows users to add items to different carts and complete individual checkout processes. This fragmented approach introduces additional intricacy and impedes the overall purchasing experience.

This research endeavors to establish a unified platform that tackles the difficulties above by providing consumers with access to products from many brands, comparisons based on various factors, and effortless order placement. It provides a cohesive buying experience. This research aims to optimize customers' efficiency in exploring and purchasing products from their preferred brands while reducing time, money, and effort.

4. Key Features

The "Buy the Best" initiative presents a holistic approach to overcome the constraints of current internet shopping platforms. The project integrates various distinguishing characteristics that strive to improve the user experience and streamline the process of purchasing products from multiple manufacturers. These are the main characteristics of this research.

- Centralized Platform

  "Buy the Best" offers users a centralized platform that enables them to conveniently access and explore products from a wide range of well-known brands. Users can consolidate their browsing experience by accessing all products from many brands in a single platform.

- Brand Aggregation

  The project utilizes web scraping methodologies to collect product data from renowned companies such as Khaadi, Sana Safinaz, Gul Ahmed, Generation, and Origins. This consolidation allows customers to compare and select products from various companies without navigating various websites.

- User Authentication & Management

  "Buy the Best" enhances the user experience by providing a unified login and account management system. Users can create a singular account that grants them access to items from several brands, thereby alleviating the task of managing multiple login credentials.

- Efficient Product Comparison

  The website enables users to compare products based on many factors, including price, reviews, ratings, popularity, and sales. This functionality empowers customers to make well-informed judgments by considering many aspects, eliminating the need to manually visit each brand's website.

- Streamlined Ordering Process

  "Buy the Best" strives to provide a streamlined ordering experience by enabling consumers to place purchases directly via the site. Upon selecting a product for purchase, the customer will be automatically transferred to the website of the corresponding brand to finalize the transaction, guaranteeing a seamless and safe checkout process.

- Advanced Filtering & Sorting

  The project integrates sophisticated filtering and sorting functionalities, allowing customers to narrow their product search according to their preferences. Users can apply filters based on price range, reviews, ratings, and sales to discover the most appropriate products swiftly and effectively

- User-Friendly Interface

"Buy the Best" prioritizes delivering a user-friendly design with intuitive navigation, visually attractive product displays, and interactive aspects. The interface optimizes the user experience and guarantees friendliness for inexperienced and proficient shoppers. The "Buy the Best" initiative combines these unique characteristics to transform the online shopping experience. It provides consumers with a single platform that enables them to view, compare, and purchase products from various companies in a streamlined and convenient manner.

5. Method

The "Buy the Best" project employs a methodical approach to accomplish its goals. Although the precise implementation details may differ, the following offers a summary of the methods and algorithms utilized

5.1. Web Scraping

The project employs web scraping techniques, utilizing Python packages such as Selenium and Beautiful Soup. A programmed procedure is utilized to traverse the brand websites (Khaadi, Sana Safinaz, Gul Ahmed, Generation, Origins) and retrieve pertinent product details. The algorithm may involve identifying specific website items, retrieving product names, pricing, reviews, ratings, and photos, and organizing the extracted data in a structured format.

- Backend Development (Node.js and Express.js)

  The project's backend is constructed using Node.js and Express.js. The backend architecture adheres to a design that follows the principles of a RESTful API. Authentication and management functionalities for users are implemented using suitable techniques and libraries, such as JS g and JSON Web Tokens for authentication. APIs are developed to manage user registration, login, and session management.

- Database Management (MongoDB)

  The project uses MongoDB to store user information, product data, and associated information. The database is accessed using suitable algorithms, which handle tasks such as storing scraped data, fetching products, and managing user information.

- Frontend Development (React.js)

  The project's user interface is built using React.js. The user interfaces, such as the home page, brand selection, product comparison, and product information, are created and executed using React components. The implementation includes algorithms and strategies for managing user interactions, filtering products according to user preferences, and dynamically rendering product data.

5.2. Product Comparison Algorithm

A novel algorithm evaluates and contrasts products by considering diverse factors such as pricing, reviews, ratings, popularity, and sales. The algorithm can allocate weights to various attributes according to user choices and compute a score or ranking for each product. The algorithm subsequently chooses the most high-performing products to be showcased in the product comparison section.

5.3. Order Placement Algorithm

Once a user chooses to make a purchase, an algorithm is used to streamline the process of placing the order. The algorithm may entail forwarding the visitor to the relevant brand's website and automatically populating essential information, such as the chosen product and user details. The algorithm guarantees a safe and smooth checkout process for the user. Acknowledging that the above description offers a broad overview of the approach and algorithms utilized in the "Buy the Best" initiative is crucial. The implementation specifics and algorithms may differ depending on the project's architecture, design choices, and technologies.

5.4. Model

The software process paradigm for the "Buy the Best" project is the Agile software development technique, especially Scrum. Scrum is a methodology that follows a repetitive and gradual approach,

emphasizing adaptation, teamwork, and responsiveness to evolving needs. The software process model can be explained by the order in which information and work products flow, the reviews done, the primary goals met, the versions used, and the deliverables made for the project. Fig. 1., below shows the flow of all the project's information.

5.4.1. Flow of Information and Work Products

- The project requirements, user stories, and tasks are captured and documented in a.
- Product backlog
- During the Sprint Planning meeting, the development team selects a set of user stories
- From the product backlog to work on in the upcoming sprint
- The selected user stories are divided into smaller tasks, each assigned
- To team members
- Daily Scrum meetings are conducted to provide status updates, discuss challenges,
- And ensure alignment within the team
- The development team collaborates on implementing the tasks, integrating their work,
- And continuously reviewing the progress

5.4.2. Reviews Conducted

- Sprint Review

  At the end of each sprint, a sprint review meeting is conducted to demonstrate the completed functionality to stakeholders and gather their feedback.

- Retrospective

  A retrospective meeting is held after the sprint review to reflect on the sprint's successes and challenges. The team identifies areas for improvement and discusses strategies to enhance the development process.

5.4.3. Major Milestones

- Sprint Planning

  IT occurs at the beginning of each sprint to determine the user stories and tasks to be addressed.

- Sprint Review

  They are conducted at the end of each sprint to showcase the completed functionality and gather feedback.

- Retrospective

  They are held after each sprint to reflect on the sprint and plan for process improvements.

- Release

  It occurs when sprints are completed, and the software reaches a deployable state.

5.4.4. Versions Established

The project adheres to an iterative methodology, wherein each sprint yields a software increment that is possibly ready for shipping. Versions can be determined by completing designated sprints or adding noteworthy features or functions

5.4.5. Tools and Techniques

- Development Methodologies: Agile/Scrum

  The project will follow the Agile software development methodology, specifically Scrum, for iterative and incremental development [15].

- Notations: UML (Unified Modeling Language)

UML will be used to visualize, specify, construct, and document the software system's artifacts, including use case, class, and sequence diagrams [16].

- Programming Languages

  React: React.js will be used for front and backend development, including implementing user interfaces, API development, and data manipulation [17].

  Python: Python will be used for web scraping using libraries such as Selenium and Beautiful Soup [17].

- Techniques

  The techniques are as follows:

  - Web Scraping: Techniques for web scraping will be employed using Python libraries such as Selenium and Beautiful Soup to extract data from the websites of different brands [18].
  - API Development: RESTful API development techniques will be used to create the backend APIs that facilitate [19].

5.4.6. Tools

The tools are as follows:

- Visual Studio Code: A lightweight and versatile code editor that supports JavaScript and Python development.
- Git: Version control system for tracking changes and managing code collaboration between team members.
- Bitbucket: An online platform for hosting and managing the project's Git repository.
- Postman: A tool for testing and documenting APIs, which will be used to validate the functionality and behavior of the developed APIs.
- Ant Design: A UI library that provides pre-designed components and styles for creating a user-friendly and visually appealing front end. Data retrieval, user authentication, and order placement.

5.5. Implementation

The “Buy the Best” project utilizes a combination of Hardware, operating systems, development frameworks, and libraries to achieve its goals. Here are the key technologies used in the research

- Hardware

  The project can be implemented on standard hardware configurations, such as desktops, laptops, or servers, with adequate processing power and memory to meet the anticipated user workload.

- Operating System

  The project is engineered to be compatible with several platforms and can be implemented on different operating systems, such as Windows, Mac OS, and Linux.

- MERN Stack

  The project adheres to the MERN (MongoDB, Express.js, React.js, and Node.js) stack architecture, encompassing the subsequent frameworks. MongoDB is a widely used NoSQL database that stores user information, product data, and associated information. Express.js is a web application framework for constructing the backend API and managing server-side logic and routing. React.js is a JavaScript package used to construct front-end user interfaces and components. Node.js is a JavaScript runtime environment for executing server-side code and managing backend logic [20].

- Libraries and Dependencies

  The corporation must distribute yarn bags from the store to a company of a specific size through various contracts to produce beams. Within this module, the system will document and save this

transaction. Selenium is a Python library for web scraping, automating browser interactions, and retrieving data from online sites. Beautiful Soup is a Python package for parsing HTML and XML documents. It simplifies the process of extracting data from web pages that have been scrapped. JSON Web Tokens (JWT) is a library for user authentication and session management, guaranteeing safe access to the application's features. Ant Design is a user interface component library created explicitly for React.js. It provides a collection of pre-made UI elements that may be easily customized [21]. The React Responsive Slider is a software tool designed to create sliders and carousels that adapt to different screen sizes. It is commonly used to showcase products on the compare brands page. CSS Animations improve the user experience and generate captivating visual effects. The selection of these technologies facilitates effective development, scalability, and interoperability across several platforms. It utilizes the functionalities of the MERN stack to provide a solid and adaptable web application. In addition, the Python packages Selenium and Beautiful Soup are utilized for web scraping and extracting data. Integrating additional libraries and dependencies improves the user experience, simplifies user authentication, and enables interactive features in the program

6. Results and Discussion

The results of this research demonstrate the significant benefits of the centralized platform. Users reported substantial time savings, as they no longer needed to visit multiple brand websites. The efficient product comparison and filtering options provided by the platform resulted in an enhanced user experience, enabling users to make informed purchasing decisions. The simplified user authentication and management process further facilitated a seamless and hassle-free shopping experience.

The centralized platform presented in this research paper offers a comprehensive solution for users seeking to access and purchase products from multiple brands. The platform saves users valuable time and enhances their overall experience by eliminating the need to visit multiple brand websites.

The efficient product comparison and filtering options and simplified user authentication and management contribute to a seamless and secure ordering process. Future research could focus on further optimizing the platform's features and expanding its capabilities to cater to evolving user needs.

6.1. USER INTERFACE DESIGN

The "Buy the Best" user interface is meticulously crafted to offer a user-friendly and intuitive buying experience. The interface has multiple panels and components that enable users to navigate, explore, compare, and purchase products from diverse brands.

The user interface design adheres to a sleek and contemporary appearance, prioritizing simplicity and user-friendliness. The layout is designed to be adaptable and adjust to various screen sizes, ensuring a uniform experience across different devices. Key features of the user interface include:

- Home Page: The home page displays the logos of the scraped brands on separate cards. Users can select multiple brands to compare their products or click on individual brands to view them in detail.
- Product Listing: The product listing screens show the products of a selected brand, allowing users to filter and sort them based on criteria such as price, reviews, ratings, and sales. The initial view displays a limited number of products, with the option to load more.
- Product Details: Each product is presented on an Ant Design card, showing the product image, views, rating, sales, price, and reviews. Users can click the "Place Order" button to navigate to the official website for purchase or "View Details" to see additional information about the product in a modal.
- User Authentication: The user interface includes user registration, login, and account management screens. Users can sign up or log in using their credentials to access personalized features and make purchases as show in Fig. 1.

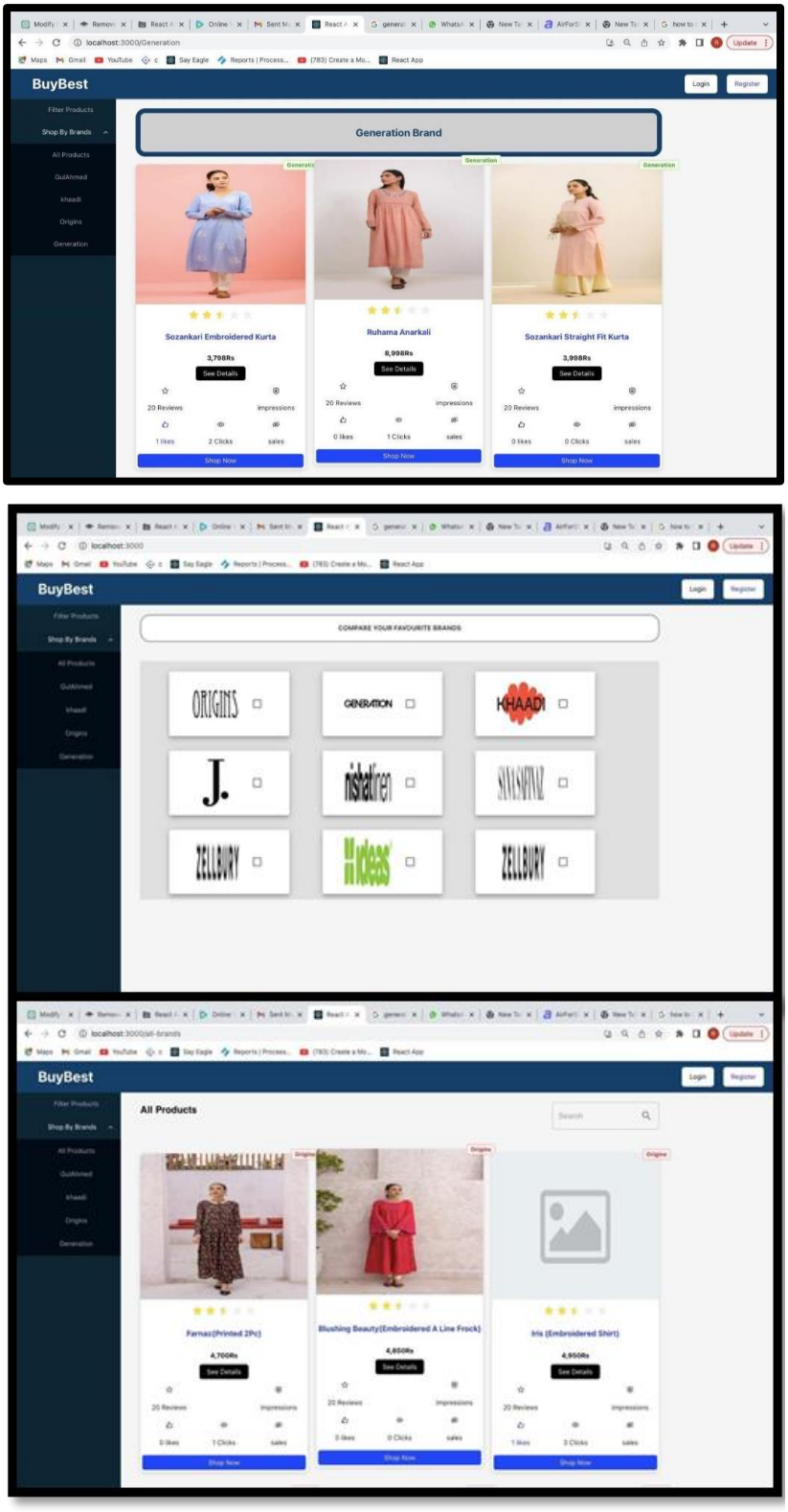

Fig. 1. User interface

6.2. Future Work

- Mobile Application Development

The future work of this research study is to create a mobile application for the centralized platform to reach a more extensive user base and enhance accessibility. This mobile application enables customers to effortlessly access and purchase products from numerous companies using

smartphones or tablets. Measures will be taken to guarantee a smooth and intuitive experience on the mobile platform. A substantial influx of potential customers can be enticed to a store or website by leveraging self-service technology (SST) implemented via a mobile application [22].

- User Interface Enhancement

  Future efforts will prioritize enhancing the user interface of the centralized platform to enhance the user experience further. This entails enhancing the design, arrangement, and navigation to enhance intuitiveness and user-friendliness. Conducting user feedback and usability testing can help identify areas that need improvement and allow for the implementation of essential modifications.

- Brand Range Expansion

  The project team intends to broaden the selection of brands offered on the centralized platform. This will require forming strategic alliances with more brands to give users a broader range of items. The team will perform market research to identify prominent and burgeoning businesses that align with customer preferences and incorporate them into the platform.

- Integration with Other Sites

  Future efforts will focus on incorporating the centralized platform with other pertinent sites to offer users a complete purchasing experience. This may involve incorporating social networking networks, e-commerce marketplaces, or other online buying platforms. The connection will allow consumers to access a more comprehensive array of items and use supplementary features and services.

- User Feedback and Iterative Improvements

  Continuous improvement is essential for the success of any platform, as it allows for user feedback and iterative improvements. Subsequent efforts will entail the collection of user feedback via questionnaires, interviews, and user testing sessions. This input aims to identify areas that need improvement and make incremental improvements to enhance the platform's functionality, usability, and overall user experience.

  The research attempts to improve the centralized platform by focusing on these future work areas to increase accessibility, user-friendliness, and comprehensiveness for users. These endeavors will enhance the platform's ongoing prosperity and expansion by addressing users' changing requirements and expectations in the future

7. Conclusion

Ultimately, the "Buy the Best" initiative has effectively created an online platform that enables customers to conveniently access and compare items from many manufacturers in a centralized area. Utilizing the MERN stack and Python modules like Selenium and Beautiful Soup for web scraping has facilitated the smooth incorporation of diverse brand items into the platform. The intuitive layout and streamlined search and filtering capabilities have improved the user experience and facilitated locating and buying desired products. A comprehensive series of tests have been carried out to guarantee the effectiveness and dependability of the software system, including many areas, including user authentication, product scraping, the home page, brand comparison, and order placement. Using a methodical testing methodology, the team has successfully detected and resolved any anomalies or flaws, enhancing the overall caliber of the system. The project has accomplished its primary objective of enhancing user efficiency by eliminating the necessity of visiting many websites and logging in to each one individually. By consolidating products from several companies onto a unified platform, consumers can effortlessly compare pricing, reviews, ratings, and other relevant variables, enabling them to make well-informed purchasing choices. The project's effective execution showcases the platform's ability to enhance users' online purchasing experiences.

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