International Journal of Scientific Research in Engineering and Management (IJSREM)
Volume: 09 Issue: 06 | June - 2025 SJIF Rating: 8.586 ISSN: 2582-3930

PRICE & FEATURE COMPARISON

[1]Mr. Chandrashekar
Assistant Professor, Department of Computer Science and Engineering
Vignan's Institute of Management and Technology for Women, Hyd.
Email : shekher.s@gmail.com

[2]V. Aakanksha
UG Student, Department of Computer Science and Engineering
Vignan's Institute of Management and Technology for Women, Hyd.
Email : aakankshavisamshetty@gmail.com

[3]K. Laxmi
UG Student, Department of Computer Science and Engineering
Vignan's Institute of Management and Technology for Women, Hyd.
Email : kodavathulaxmi@gmail.com

[4]A. Amulya Rachel
UG Student, Department of Computer Science and Engineering
Vignan's Institute of Management and Technology for Women, Hyd.
Email : amulyaankam27@gmail.com

***Abstract*— In today's era of online shopping, consumers are using websites to assist them in making decisions regarding what to purchase. With numerous e-commerce websites and fluctuating prices, however, consumers find it difficult to obtain the best values in time. A Price Comparison Website addresses this issue by gathering product and price information from several online retailers and making it available in one location. This paper is on designing and using a full price comparison website for easy shopping and promoting fair purchasing behavior. The proposed system utilizes web scraping tools, APIs, and automated data handling to gather and organize data from different sources in real time. The system has improved filtering options, sorting capabilities, and customer ratings to help customers make informed choices. Furthermore, the system utilizes algorithms to find price trends, show discounts and suggest alternatives according to user choices. By incorporating product metadata, vendor reputation scores, and availability status, the platform not only streamlines the comparison process but also develops trust among the users. In this paper, the architectural design, key technical problems like data inconsistency and scalability, and the social benefits of such software in providing fair prices and competition are discussed. The execution of this platform illustrates how technology can be utilized to develop more efficient and customer-friendly environments.**

keywords—Web Scraping, Online shopping, E-commerce, Price Comparison, Scalability.

I. INTRODUCTION

The past decade has seen a rise in e-commerce, and as a result, there has been a change in the way customers engage with products and services. Consumers are now sure to benefit from having access to digital stores however, as these stores grow, shoppers have to deal with an increasing number of platforms. Regardless of whether it is the same or similar product, all platforms have diverse pricing, features, and discounts. While having plenty of options is a great thing, being bombarded with so many different choices makes it a lot more strenuous to find the 'best' one. In order to solve this complicated problem, price comparison websites, also known as PCWs, came into existence. They serve as vital modern day instruments that assist buyers make smart spending decisions by walking them through various online websites and providing straightforward details regarding prices and product attributes. A Price Comparison Website acts as a digital performing website that contains meticulously curated information taken from different e-commerce websites. Instead of getting scammed, customers can now search for a given item and have access to a myriad of sellers along with their diverse pricing strategies, product descriptions, customer feedback, and added shipping details alongside promotional offers. All of this information does not only help the consumers save their precious time and money but as a result, aids in encouraging competition amongst sellers. Looking at it from a macroeconomic scale, these services play an essential part when it comes to using market resources as they eliminate the information gap in consumers so onto possessing an abundance of knowledge.

In today's digital world, sustaining customer trust and relevance requires the ability to provide real-time, accurate, and detailed information. This document describes the architecture of a sophisticated pricing comparison website that is easy to use, designed to be automated, scalable, and intelligent, while accessible to non-technical users. Through web scraping, API calls, and different types of automated data processing, our proposed system retrieves, cleans, and consolidates information from multiple online retailers. The information collected from different sources is categorized and indexed in a specific hierarchy which allows the system to provide efficient search and comparison services. Users can apply filters to accomplish more targeted, goal-oriented searches, sort results to view the lowest priced, most highly rated or most quickly deliverable item, and even analyze historical pricing data to identify the best purchasing conditions. The platform also incorporates a recommendation engine that provides suggestions for browsable or shoppable items similar to those already listed. The website's architecture guarantees that it will remain responsive and optimize performance with high system demand by leveraging cloud infrastructure and modular design. Our system adopts safe browsing, privacy controls, fraud detection, and other means to ensure trustable interactions with sensitive information from users, thus enhancing overall system security.

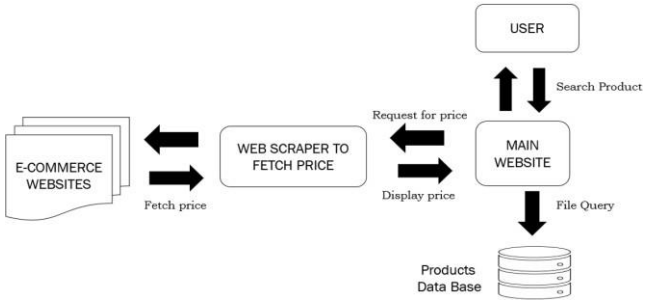
The clear advantages resulting from enabling users and bringing retailers to a single, versatile pricing platform can also be seen with the numerous challenges that accompany modifying and sustaining such an integrative pricing comparison system.

II. LITERATURE REVIEW

In the current digital economy, consumers seek ways to make informed purchasing decisions efficiently. price comparison systems (pcs) have emerged as vital tools to facilitate this process by aggregating and comparing prices of similar products across multiple platforms. these systems reduce the time and effort required by consumers to find the best deals and enhance market transparency. several studies have explored the design and implementation of such systems. kambil et al [1] highlighted the early use of agent-based technologies to compare product prices and services automatically. more recently, web scraping and api integration have become central to real-time price comparison. according to gupta et al. [2], the use of dynamic web crawlers enables accurate data extraction from various e-commerce websites, although maintaining crawler performance against frequent website changes remains challenging. Mobile-based price comparison applications are increasingly popular due to smartphone proliferation. the study by lin and wang [3] demonstrated how barcode scanning integrated with mobile apps can instantly retrieve and compare prices from online stores, improving user experience and purchase satisfaction. cloud computing integration was also proposed by anusha and karthik[4] for scalability and performance enhancement, especially in handling large datasets and user traffic. machine learning techniques have also been applied to enhance pcs functionality. for instance, bhargava and srivastava [5] used supervised learning to predict price trends and suggest the best time to buy a product. their model significantly improved recommendation accuracy. moreover, semantic web technologies, as explained by zhou [6], have been employed to understand user preferences and match products more effectively across various platforms another essential dimension is the user interface design and usability. a study by raut 7] emphasized that intuitive ui/ux design is crucial for user engagement in pcs applications. they found that cluttered interfaces often lead to user dissatisfaction and reduced trust in the platform. furthermore, security and privacy concerns were analyzed by ahmad and shaikh [8], who proposed a framework to safeguard users' browsing data while maintaining comparison accuracy. In conclusion, modern price comparison systems incorporate a combination of web technologies, mobile integration, cloud computing, machine learning, and user-centered design. the literature underscores the importance of accuracy, scalability, and usability in developing an effective. Future research should focus on adaptive algorithms that respond to changing market data and enhanced privacy-preserving techniques.

III. METHODOLOGY

A. SYSTEM ARCHITECTURE



The system architecture of the proposed Price Comparison Website is structured to provide real-time product price comparisons across multiple e-commerce platforms. It consists of four primary components: User Interface, Main Website, Web Scraper, and E-commerce Data Sources, all working together to deliver up-to-date pricing information to the end-user.

User Interaction Layer:

The user initiates the interaction by searching for a specific product through the Main Website. This interface is designed to be user-friendly, allowing customers to input product queries, apply filters, and view comparison results seamlessly.

Main Website (Core Engine):

This is the central component that manages the overall workflow. When a user submits a search query, the main website processes the request and:

Sends a file query to the Products Database to check if the product details and historical prices already exist.

Sends a price request to the Web Scraper for updated pricing from external e-commerce platforms.

Products Database:

This backend storage component holds metadata, previous prices, user interaction history, and product details. It ensures that common products do not need to be scraped repeatedly, improving system efficiency and speed.

Web Scraper:

The Web Scraper is responsible for dynamically fetching current product prices from multiple E-commerce Websites.

It:

- Receives product information from the Main Website.
- Initiates web scraping or API calls to the target e-commerce platforms.
- Retrieves and formats price data.
- Sends the updated prices back to the Main Website.

E-commerce Websites:

These are third-party online retail platforms from which the system gathers pricing and product details. They act as the data sources for the comparison engine.

Display and Result Delivery:

Once the pricing data is returned by the web scraper, the Main Website presents the user with a comparison table or chart, showing the prices across various sellers. Users can then sort

results based on factors like price, vendor rating, or delivery time.

B. IMPLEMENTATION

STEP 1: Login or Sign up
User logs in with existing credentials or registers for a new account.
STEP 2: Enter the product name
User inputs the name of the product to search for
STEP 3: Check the product details
The system displays specifications, images, and basic information about the product
STEP 4: Compare the product price and features
System compares prices and features from different sellers or platforms
STEP 5: Click on the product link
User selects a preferred option and adds it to the shopping cart
STEP 6: Order Confirmed
User confirms the order and proceeds with payment or redirection
STEP 7: Logout

Methodology for ecommerce Price Comparison Application
1. Requirement Analysis
- Identify the ecommerce websites to be supported (e.g., Amazon, Flipkart).
- Determine data to extract: product name, price, URL, image, etc.
- Decide on data refresh intervals and target response times.

2. Price Comparison Logic
- Group products by name or identifier.
- Compare prices from different sources.
- Determine the minimum price and highlight it for the user.

IV. RESULTS AND ANALYSIS

1. This image shows the registration page for the user to register in application. The new users can register from this page.

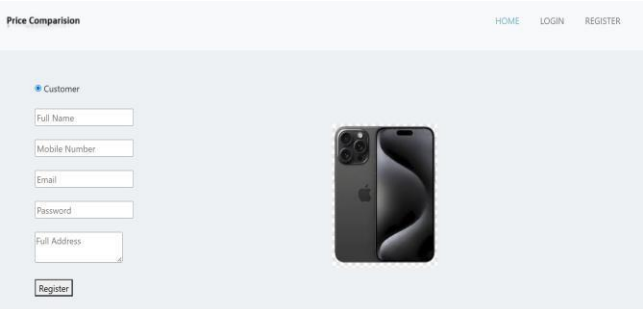


Figure 1:Register Page

2. This page is the login page of the application. This helps the user to login with their email or mobile number and their passwords.

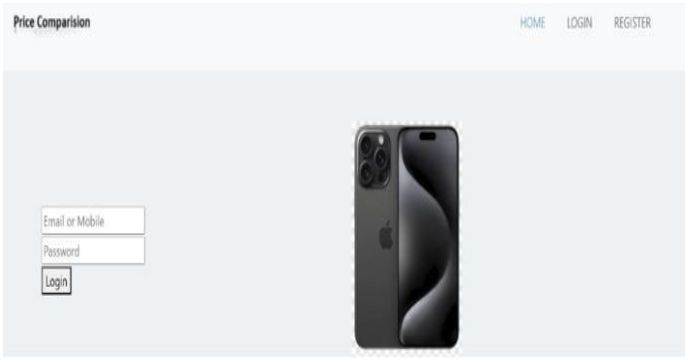


Figure 2:Login Page

3. This image shows a page where the user can search the name of the product of their desired.

Figure 3:Search Product

4. This page shows the results of the product which the user has been searched. It shows the details of the product from the two websites like amazon and flip kart. It highlights the product which has the least price.

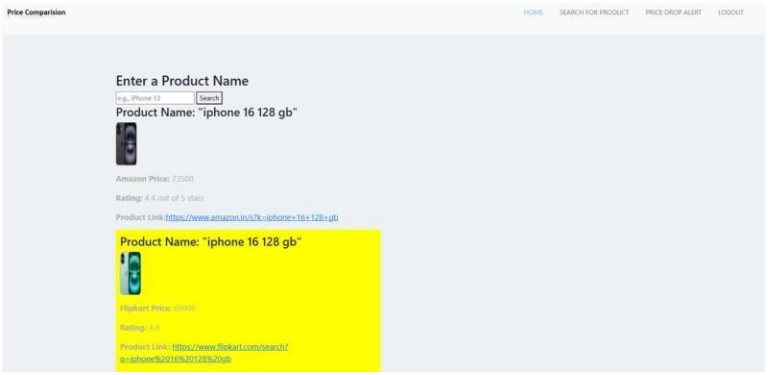


Figure 4:Display product details

5. This page shows the details of the product to predict the details of the product.

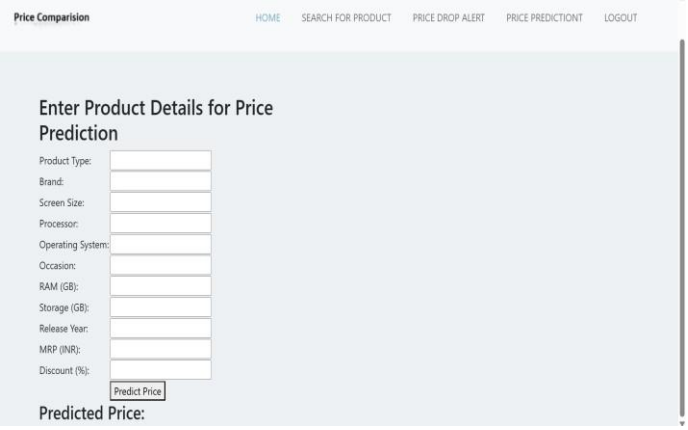


Figure 5:Price Comparison

6. This page shows the track details of the product where the user can track the price of the product. It asks for the product URL and user mail.

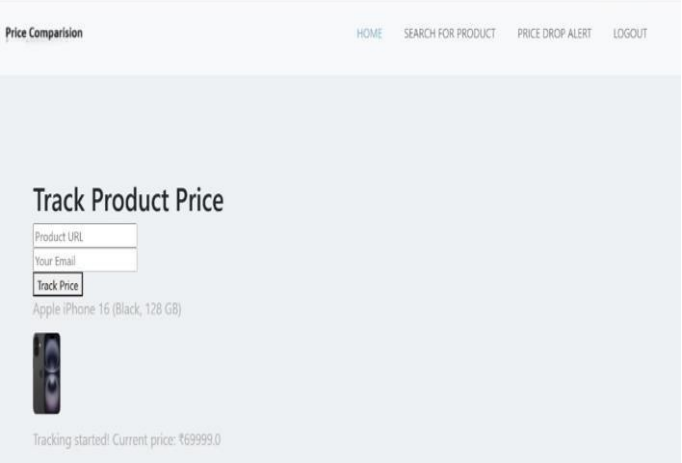


Figure 6:Price Track

V. CONCLUSION

Modern e-commerce has been revolutionized and transformed because of price comparison websites which enable customers to make effective purchasing decisions.As previously mentioned, comparing prices is an important purchase decision influencer and even though customers are focused on getting the best price, this does not always guarantee value. Our research shows that many vendors who sell products at low prices do so at the expense of quality, warranty, after-sales service, delivery, and return policy. On the contrary, the sellers who have slightly higher prices tend to offer additional value in form of credible reputation, extended warranty, and proactive customer care that comes bundled with other services. A consumer's choice, therefore, should not depend solely on the price being the lowest. Instead, what is most important is the combination of factors alongside the consumer's needs and satisfaction. Price comparison websites enable users to evaluate numerous vendors with just a click offering more than just price listings. Apart from price listings, these platforms also offer vendor ratings, specifications of products, stock availability, delivery dates, and even pricing history that enables the customer make optimal decision according to their needs. These offer a complete and comprehensive enabling informed and strategically beneficial decision-making processes.

Such platforms are beneficial since they give sellers equal opportunities which motivates them to improve their value propositions rather than competing on price alone. This allows for improved economic efficiency and outcomes for consumers.

VI. FUTURE SCOPE

A price comparison website is not only a tool for finding the lowest price possible but also serves as a decision-support system that refines the entire shopping experience. It enables consumers to find equilibrium between low prices and high value by integrating real-time data and intelligent filtering, along with trust-building indicators to promote value, ensuring that the selected products offer the greatest advantage in light of the consumers' distinct preferences and needs.

There is dire need of evolution and progress in the area of price comparison websites. These systems are likely to become smarter and more individualized tools in the future as dependability on digital devices increases among consumers. Using AI and ML to provide tailored suggestions depending on user actions, transaction history, and personal preferences is one of the most exciting possibilities. Predictive analytics can also help users determine the best time to make purchases by predicting future price trends. Price comparison platforms can transcend traditional e-commerce boundaries and become an all-inclusive decision-making center by integrating services such as travel booking, financial products, insurance policies, and even real-time utility rates. The integration of block chain technology helps vendors in providing authentic price and secure payment transactions as it increases transparency and trust. Developing mobile-first solutions and voice assistance can improve accessibility, especially in developing countries where smartphones are the primary mode of internet access. They are also adaptable by people from all over the globe boasting different economic backgrounds which improves globalization. Lastly, sustaining enhancement in data precision, user interface, and real… in conjunction with multi-lingual support will help break language barriers.

VII. REFERENCES

[1] A. Kambil, J. van Heck, and E. D. Larsen, "Digital marketplaces for business procurement," Commun. ACM, vol. 43, no. 5, pp. 82–88, May 2000.

[2] S. Gupta, A. Sharma, and P. Agarwal, "Design and development of an efficient web crawler for real-time price comparison," Int. J. Compute. Appl., vol. 178, no. 24, pp. 1–5, June 2019.

[3] Y.-C. Lin and H.-W. Wang, "Mobile-based price comparison system using barcode recognition," J. Theor. Appl. Inf. Technol., vol. 70, no. 2, pp. 309–314, Dec. 2014.

[4] V. Anusha and B. Karthik, “Cloud-based architecture for scalable price comparison system,” Int. J. Innov. Technol. Explore. Eng., vol. 8, no. 10, pp. 421–424, Aug. 2019.
[5] M. Bhargava and R. Srivastava, “Dynamic pricing prediction using supervised machine learning for e-commerce,” in Proc. IEEE Int. Conf. Comput. Commun. Inf. Sci., Dec. 2020, pp. 119–123.
[6] H. Zhou, L. Zhang, and J. Liu, “Semantic price comparison engine using linked data,” IEEE Access, vol. 6, pp. 45112–45124, July 2018.
[7] R. D. Raut, B. B. Gardas, and M. Govindarajan, “Design considerations for mobile-based product comparison applications,” Comput. Human Behav., vol. 96, pp. 328–336, July 2019.
[8] T. Ahmad and F. Shaikh, “Privacy-aware web-based price comparison platform using secure browsing,” Int. J. Web Appl., vol. 12, no. 2, pp. 95–103, 2020.