e-ISSN: 2582-5208
International Research Journal of Modernization in Engineering Technology and Science
(Peer-Reviewed, Open Access, Fully Refereed International Journal)
Volume:06/Issue:05/May-2024 Impact Factor- 7.868 www.irjmets.com

PRODUCT AND PRICE COMPARISION USING M.L

Ruchita V Saindane*1, Ashwini S Patil*2, Rajashri S Bhoi*3, Sanskruti Y Bhoite*4

*1,2,3,4Department Of Information Technology, SSBT COET, Jalgaon, India.

ABSTRACT

Price comparison sites are designed to compare the price of various products and services from a wide range of providers, which will help consumers in making decision to choose products that will save their money through online. Online shopping has become an integral part of modern consumer behavior, presenting both opportunities and challenges for users seeking optimal product choices. This explores the implementation of machine learning techniques. The project focuses on collecting diverse and reliable data, employing preprocessing techniques, and developing real-time updating mechanisms. The machine learning models analyze product features and prices to provide users with personalized and accurate recommendations through an intuitive user interface. This system will improve online shopping experiences and providing valuable recommendations for future developments in the e-commerce domain. The proposed system utilizes Python, Flask, HTML, CSS, and JavaScript to develop a user-friendly web application that empowers consumers to make informed purchasing decisions. By harnessing the predictive capabilities of linear regression, the system accurately predicts product prices based on historical data and relevant attributes, thereby facilitating seamless comparison across multiple e-commerce platforms.

Keywords: Price, Websites, Comparison, Product, Data , Machine Learning, Shopping, Algorithm, Mechanisms, Python, Flask.

I. INTRODUCTION

In today's dynamic marketplace, consumers are inundated with an abundance of products and purchasing options, each accompanied by varying price points and distinct features. This diversity often makes decision-making a challenging task, compelling consumers to seek efficient and reliable methods to compare products and prices effectively. In recent years, the e-commerce industry has witnessed exponential growth, driven by the convenience and accessibility it offers to consumers worldwide. With an ever-expanding array of products available online, consumers face the challenge of making informed purchasing decisions amidst the abundance of choices. In response to this challenge, product and price comparison platforms have emerged as indispensable tools for modern consumers, empowering them to compare products across multiple online retailers and make well-informed purchasing decisions based on factors such as price, features, and reviews. the role of product and price comparison in enhancing the e-commerce experience for consumers. Leveraging a data-driven approach, we delve into the methodologies and technologies involved in building a robust product and price comparison system using real-world datasets obtained from leading e-commerce platforms.

Python: Python is a versatile programming language widely used in data science, web development, and machine learning. In the context of product and price comparison projects,

Python is often used for data preprocessing, analysis, and model development.

Flask: Flask is popular web framework in Python used for developing web applications. They provide essential features for building server-side logic, handling HTTP requests, and rendering dynamic web pages. In a product and price comparison project, Flask can be utilized to create APIs for fetching and processing data, as well as serving web pages for user interaction.

II. LITERATURE SURVEY

Price comparison websites (PCWs) have gained significant popularity in India in recent years. With the growth of e-commerce. in the country, consumers are looking for ways to find the best deals on products sold by different online retailers. This literature survey aims to explore the research conducted in the field of price comparison websites in India, with a specific focus on the factors that affect consumers' decision-making process when using these websites.

1. John Smith focused on user behavior analysis. Emphasizes personalization in decision support systems through collaborative filtering and regression-based recommendation systems.

e-ISSN: 2582-5208
International Research Journal of Modernization in Engineering Technology and Science
(Peer-Reviewed, Open Access, Fully Refereed International Journal)
Volume:06/Issue:05/May-2024 Impact Factor- 7.868 www.irjmets.com

2. Jane Doe explores price prediction using ensemble learning, showcasing the importance of predictive analytics in navigating price volatility. Michael Johnson delves into deep learning for product feature extraction, highlighting the significance of leveraging both textual and visual information for comprehensive comparison.
3. Emily Williams demonstrates real-time price comparison with web scraping and NLP, emphasizing the importance of up-to-date information and user sentiments.
4. David Brown focuses on grocery price comparison, utilizing clustering algorithms for handling large datasets effectively.

III. SYSTEM ARCHICTURE

The product and price comparison system is architected to seamlessly integrate front-end user interaction with back-end data processing. The front-end interface, developed using HTML, CSS, and JavaScript, provides a visually appealing and intuitive platform for users to input their desired product specifications. On the back-end, a robust infrastructure is in place to handle data extraction, storage, analysis, and comparison tasks. This architecture ensures efficient communication between the user interface and the underlying data processing components, enabling smooth navigation and real-time access to product information.

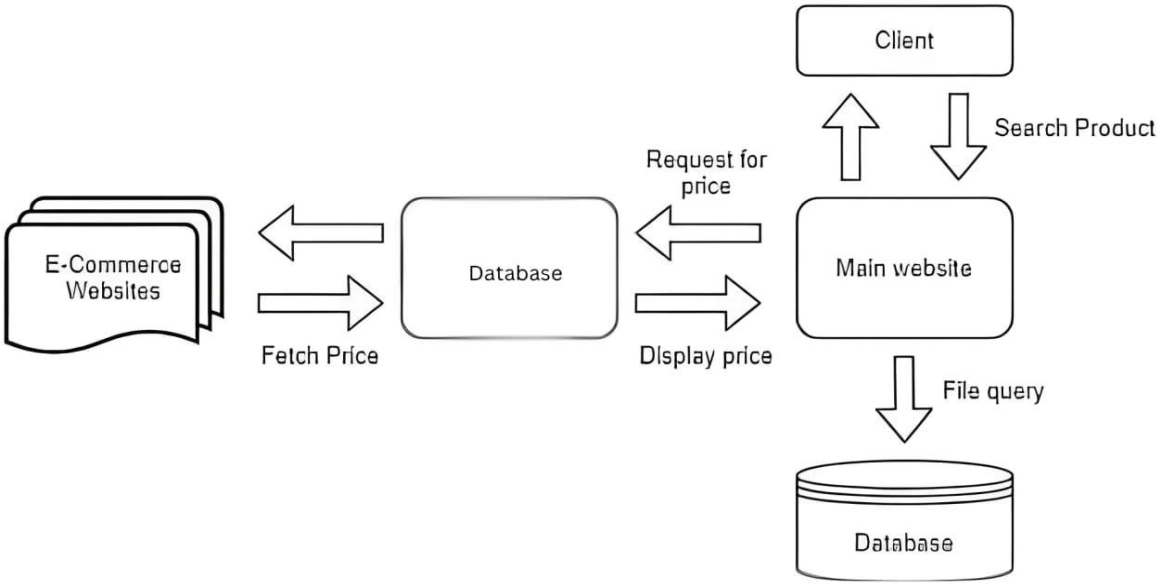

Fig 1: System Architecture

Working Procedure:

1. The user interacts with the front-end interface by providing product details such as brand, model, color, and rating.
2. Upon submitting the query, the front-end sends a request to the back-end system.
3. The back-end retrieves relevant product information from the dataset based on the user's input.
4. Data analysis techniques, including linear regression algorithms, are applied to predict prices and analyze historical data.
5. The system compares prices from different e-commerce platforms and generates a response containing the results.
6. The response is sent back to the front-end interface, where it is displayed to the user, enabling them to make informed purchasing decisions.

IV. PROPOSED SYSTEM

Our proposed system harnesses the power of machine learning algorithms and dataset-driven analysis to facilitate seamless product and price comparison across various e-commerce platforms. By leveraging pre-existing datasets obtained from e-commerce websites, users can conveniently explore a diverse range of products, compare prices, and make informed purchasing decisions. The system prioritizes user convenience

e-ISSN: 2582-5208
International Research Journal of Modernization in Engineering Technology and Science
(Peer-Reviewed, Open Access, Fully Refereed International Journal)
Volume:06/Issue:05/May-2024 Impact Factor- 7.868 www.irjmets.com

and satisfaction by providing a centralized platform for accessing comprehensive product information and competitive pricing data sourced directly from the datasets. Additionally, machine learning algorithms are employed to analyze the dataset, generate insights, and offer personalized recommendations tailored to individual user preferences and browsing history, thereby enhancing the overall shopping experience.

V. USE CASE DIAGRAM

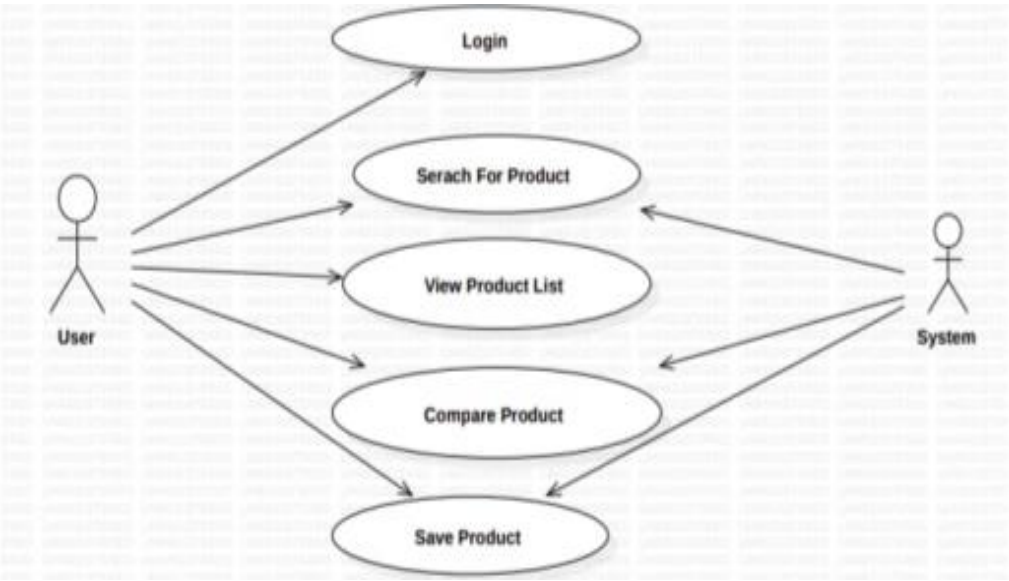

Fig 2: Use CSE Diagram

Use case diagrams are a set of use cases, actors, and relationships. It represent the use case view of a system. A use case represents a particular functionality of a system. Hence, a use case diagram is used to describe the relationships among the functionalities and the internal/external controllers. The controllers are known as actors. The translator application consists of 2 actors are user and system and use cases such as select input type, capture image input, provide text , make translation, get output and check internet connection.

The use case diagram for the product and price comparison project using machine learning provides a concise representation of system functionality from the user perspective. Users, including shoppers and administrators, are identified as actors, interacting with key use cases such as product search, price comparison, and personalized recommendations. Relationships between actors and use cases illustrate their involvement, and the system boundary encapsulates the entire scope. The diagram simplifies the flow, emphasizing user-centric goals and major interactions while allowing for extensions, such as handling.

VI. ALGORITHM

Our system harnesses the power of linear regression, a fundamental statistical method, to predict product prices based on attributes such as brand, model, color, and rating. By analyzing historical data extracted from the dataset, the algorithm learns patterns and trends, enabling users to compare prices across multiple e-commerce platforms. This predictive modeling capability empowers users to make informed purchasing decisions by providing insights into the relative pricing of products from different sources.

VII. IMPLEMENTATION

In the implementation phase, our system capitalizes on a user-friendly web interface where individuals input specific product details, initiating a backend operation. This operation employs the linear regression algorithm, utilizing a comprehensive dataset encompassing diverse product attributes and corresponding prices. By leveraging this dataset, the algorithm predicts prices for the specified product based on the input parameters. The system seamlessly compares these predicted prices with actual prices from multiple e-commerce platforms, furnishing users with a comprehensive view of available options. This facilitates informed decision-making by presenting users with valuable insights into price differentials across various online retailers.

e-ISSN: 2582-5208
International Research Journal of Modernization in Engineering Technology and Science
(Peer-Reviewed, Open Access, Fully Refereed International Journal)
Volume:06/Issue:05/May-2024 Impact Factor- 7.868 www.irjmets.com

VIII. RESULT

LOGIN PROCESS:

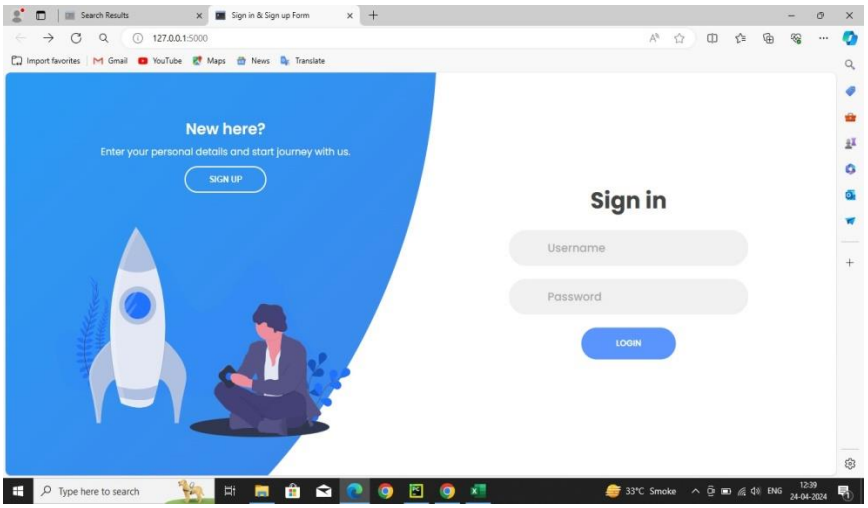

Fig 3:

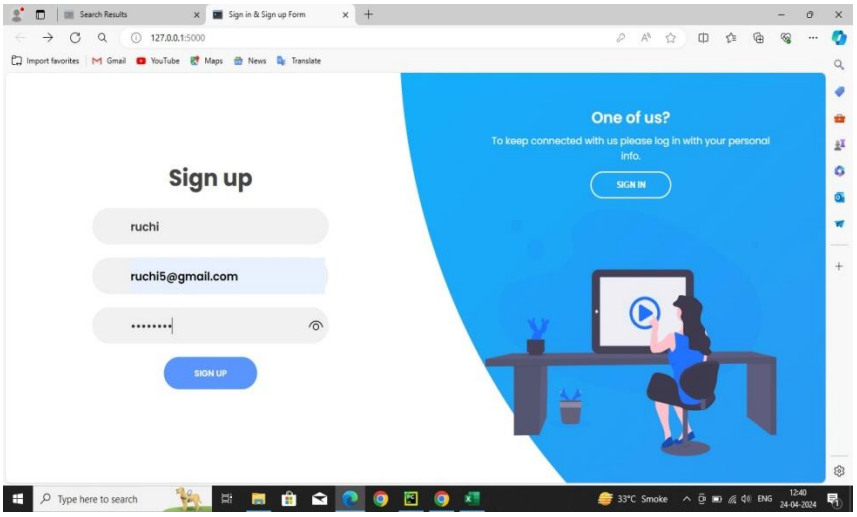

Fig 4:

INPUT-REALME 8s 5G:

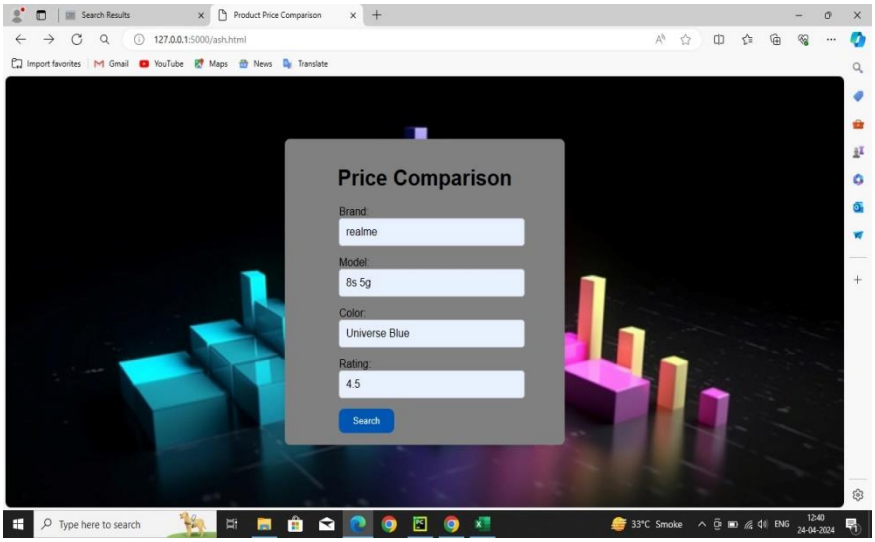

Fig 5:

e-ISSN: 2582-5208
International Research Journal of Modernization in Engineering Technology and Science
(Peer-Reviewed, Open Access, Fully Refereed International Journal)
Volume:06/Issue:05/May-2024 Impact Factor- 7.868 www.irjmets.com

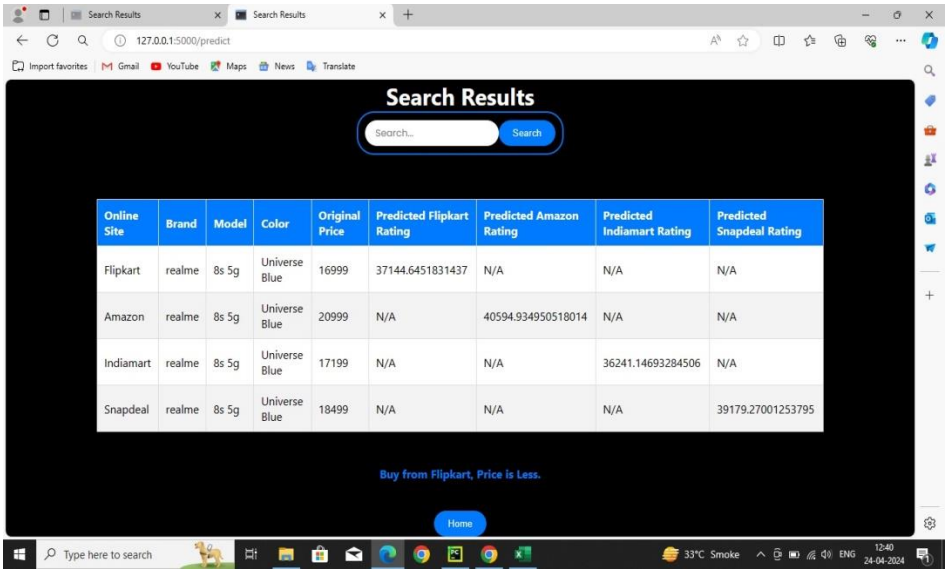

Fig 6:

IX. CONCLUSION

We conclude that, exploring a product and price comparison system using machine learning shows great potential but also comes with challenges. We need to ensure we have quality data, navigate technical complexities, and integrate seamlessly with existing systems. The project successfully utilized machine learning algorithms to analyze product features and prices, enabling consumers to make more informed purchasing decisions. The comparison tool provided a user-friendly interface, allowing customers to easily navigate and find the best products. Through the implementation of regression models, the system achieved high accuracy in predicting product prices. The machine learning models were capable of identifying and highlighting emerging trends in the market, helping consumers stay up-to-date with the latest offerings.

X. REFERENCES

[1] Brown, Mary, ”Data Science in Retail: Strategies for Success. Publisher”.

[2] Jones, A. et al, ”Impact of Machine Learning on E-commerce Pricing”.

[3] Schiffman, L. G., Kanuk, L. L., ”Consumer Behavior (9th ed.). Upper Saddle River”, ”NJ: Pearson Prentice Hall”,(2007).

[4] Sen, R., King, R. C., Shaw, M. J., ”Buyers’ Choice of Online Search Strategy and Its Managerial Implications”, ”Journal of Management Information Systems”,(2006),23(1),,211-238.

[5] Shankar, V., Rangaswamy, A, Putaseri, M. ”Customer Price Sensitivity and the Online Medium”, ”Pennsylvania State University, e-Business Research Center”,(1999). [6] Stahl, D. O., II. ”Oligopolistic Pricing With Sequential Consumer Search”, ”The American Economic Review”(1989), 79(4), 700.