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## A COMPREHENSIVE COMPOSITE BUSINESS MODEL FOR PRICE COMPARISON IN DIFFERENT E-COMMERCE SITES

<sup>1</sup> Sumanta Chatterjee, <sup>2</sup> Sayni Bag, <sup>3</sup> Sarthak Ghosh, <sup>4</sup> Rahul Bhattacharyya, <sup>5</sup> Sahajaddin Seikh, <sup>6</sup> Riju Mandal

<sup>1</sup> Assistant Professor, Department of Computer science and engineering, JIS College of Engineering, Kalyani, Nadia, West Bengal, India

<sup>2</sup> Student, Department of Computer science and engineering, JIS College of Engineering, Kalyani, Nadia, West Bengal, India

<sup>3</sup> Student, Department of Computer science and engineering, JIS College of Engineering, Kalyani, Nadia, West Bengal, India

<sup>4</sup> Student, Department of Computer science and engineering, JIS College of Engineering, Kalyani, Nadia, West Bengal, India

<sup>5</sup> Student, Department of Computer science and engineering, JIS College of Engineering, Kalyani, Nadia, West Bengal, India

<sup>6</sup> Student, Department of Computer science and engineering, JIS College of Engineering, Kalyani, Nadia, West Bengal, India

**Abstract :** This report presents a web-based app designed to assist consumers in making informed purchasing decisions by offering price comparison and product review analysis. The app provides a convenient platform for users to compare product prices, evaluate product quality across multiple e-commerce websites, and analyze customer reviews. Its main objective is to provide users with a comprehensive solution for successful purchasing decisions, emphasizing quality ranking reports and review analysis interface. By integrating price and quality comparison functionality with advanced review analysis techniques, the app empowers users to explore online marketplaces, enhance their shopping experiences, and find products that best meet their needs. It eliminates the need for users to manually go through detailed reviews, as the website performs the analysis and identifies the products with good quality. Additionally, the app offers a unique price comparison feature, allowing users to check and compare prices across various websites before making a purchase. It aims to provide a user-friendly search and price comparison interface, enabling users to analyze product criteria and save valuable time, effort, and money. Developing countries are also recognizing the importance of e-commerce for business applications and improving access to global markets. E-commerce is defined as any business transaction involving the transfer of information across the Internet, encompassing various types of businesses such as retail, auctions, music sites, and business exchanges. It is an integral part of the Internet and continues to grow in significance.

**IndexTerms - e-commerce, Price Comparison, Product Analysis, Composite Business Model**

### I. INTRODUCTION

Online shopping is a form of electronic commerce which allows consumers to directly buy goods or services from a seller over the internet using a web browser. Consumers find a product of interest by visiting a retailer directly or by searching among online vendors. Using a shopping search engine which displays products of same brand available and pricing at different e-Retailers. Online shopping has been around for about twenty-five years. It has grown in popularity significantly. Today, you can purchase almost any product online. In fact, retail experts say that online shopping will soon surpass traditional shopping in monetary terms. So Online price comparison services are useful for finding sellers of a specific product. The biggest challenge for online shopping is to provide services and maintain customer satisfaction. A key success factor for surviving in a fiercely competitive e-commerce environment is a strategy that focuses on quality services. A company must deliver superior service experiences to its customers, so that they will repurchase and be loyal to the firm. E-services are services which use

Information and communication techniques. The three main components of e-commerce are Service provider, Service receiver and channel of service delivery. The Internet is the main channel of service delivery. In the service industry, definitions of service quality tend to focus on meeting customers' needs and requirements and how well the service delivered meets their expectations. In order to deliver and maintain service quality, an organization must first identify what it is that constitutes quality to its target customers.

In this research paper, the first module contains abstract where we have discussed the summary of the research work, the second module contains introduction where we have introduced our composite business model for price comparison and product review analysis. Third module contains literature review where we have discussed about the previous published works in this field, next in the fourth module there is research methodology where we have discussed about the process and methods like workflow diagram, flow chart and business model. Fifth module contains the outputs and results of our research work. The final module contains the conclusion, future scope and references.

## II. LITERATURE REVIEW

In the year of 2018, Maxime C. Cohen, Ruben Lobel and Georgia Perakis have published the paper entitled "Dynamic Pricing through Data Sampling". In this paper he described to determine a dynamic pricing strategy that maximizes revenue throughout the entire selling season. they developed a tractable optimization model that directly uses demand data, therefore created a practical decision tool. they have shown computationally that regret-based objectives can perform well when compared to average revenue maximization and to a Bayesian approach. Consumer behaviour has changed rapidly and visiting a local store to buy a mobile phone is now more of a pain. While Flipkart, Snapdeal and Amazon have been touted as the major players in this industry, the report shows that Travel industry comprised almost 61% of the total e-commerce market. Online business shopping is the last fortune. E-trade has reduced the gap between these Producers and buyers. Their degree of understanding for web-based business dictated by Indian people. The modelling approach proposed in this paper could be particularly useful for risk-averse managers with limited access to historical data or information about the true demand distribution. Finally, provided theoretical performance guarantees for this sampling-based solution [1].

In the year of 2017, Madhurima Khosla<sup>1</sup>, Harish Kumar, have published the paper entitled "Growth of E-commerce in India". In this paper he described the invention and accessibility and strength of internet connection Online tools have resulted in a new trading era This is ecommerce, which is completely there It revolutionized conventional thinking Business e-commerce sales and Purchase of goods and services through its Internet and computer networks. E-commerce Can increase economic growth opportunities, competition, good and profitable access to markets. In the year of 2017, Dr. Habibah-Al-Husain, have published the paper entitled "E-commerce Emerging as a new way to help businesses Enterprises compete in the market and thus Contributes to economic success". In this paper he described, about advanced What does a SWOT analysis of e-commerce do, consists of strengths, weaknesses, Opportunities and threats faced by e-commerce in the current situation. Realizes that web-based business is changing the way items and administrations are purchased and offered In light of the fact that only 19% of individuals in India are now using the web for offers and purchases Products and administration so the rest of the rate we can consider that we have extension in the Indian market. Exchange is allowed to expand their view, basic rights, for example, security, licensed Innovation, extortion avoidance, buyer insurance and more are fully addressed [2] [3].

In the year of 2015, Pritha Bose has published the paper entitled "E-commerce in India worth \$13.5 billion in India will cross \$16 billion". In this paper he described many benefits to consumers as well as companies as compared to traditional retailing. According to the latest report by IAMAI and IMRB International, the e-commerce industry in India reached a value of INR 81,525 crore (US\$13.5 billion) in 2014. Similarly, e-Tailing grew by 1.4 times since 2013 taking up almost 29% of the e-commerce market share in India. In the year of 2015, Dr Kishore Kumar Das and Affreen Ara have published the paper entitled "Growth of E-Commerce in India" In this paper he described the ecommerce is one of the fastest growing Business, India has huge market potential for investment. has been huge Investment has increased since last year and more is expected in coming years. rapid growth the use of mobile and internet users has facilitated e-commerce business in both urban and rural areas rural town. rapid growth the use of mobile and Internet users has facilitated e-commerce business both in urban and rural areas Topics covered in rural towns include studying the terms of trade, key drivers of growth, Market growth potential, investment, retail market, logistics infrastructure, internet Regulations, key challenges and the future of e-commerce [4] [5].

In the year of 2015, R. Nicole and Nishith Desai have published the paper entitled "E-Commerce in India". In this paper he described the latest findings in the global marketplace with detailed results prepared through rigorous scientific methodology. Reviewed by prestigious scholars in the field of marketing science, articles often feature game theory, econometrics, multivariate analysis, econometric modelling, and choice models. The E-commerce Industry in India has come a long way since its early days. In the year of 2012, Chanana Nisha and Goele Sangeeta have published the paper entitled "Future of e-commerce in India. In this paper he described the market has matured and new players have entered the market space. In the present dynamic scenario, e-commerce market in the B2C space is growing in demand as well as in the array of services. This paper gives an overview of the future of E-Commerce in India and discusses the future growth segments in India's E-Commerce. Also find out various factors that would essential for future growth of Indian E-commerce. And represent the various opportunities for retailers, wholesalers, producers and for people. In this paper we found that the Overall E-Commerce will increase exponentially in coming years in the emerging market of India [6] [7].

In the year of 2014, Indo-Asian News Service have published the paper entitled "Indian E-Commerce Growth Shakes Up Retail Industry". In this paper he described the Comparison of e-commerce products available on these different websites in order to help users to grab their desired products for the best affordable price Libraries like Requests and BeautifulSoup4 were implemented for crawling and scraping techniques using Python and Indexing method is used in MongoDB to acquire best possible results thereby savings customers time, efforts and money. In the year of 2010, D'silva, B., D'Silva, S., and Bhuptani, R., S., K. have published the paper entitled "Behavioral Aspect of Teenagers Towards Internet Banking: An empirical study". In this paper he described a strong and healthy banking system is important requirement for economic growth. Indian banking industry, today is observing an IT revolution. In this paper the implementation electronic banking has modernized the banks. Internet banking products and services can include wholesale products for corporate customers as well as retail and

fiduciary products for consumers. Ultimately, the products and services obtained through Internet banking may mirror products and services offered through other bank delivery channels [8] [9].

In the year of 2020, S Saeed, M Naqvi, M Memon have published the paper entitled “E-Commerce Web-Crawling to Facilitate Consumers for Economical Choices”. In this paper he described gives us great opportunity in presenting the preliminary paper on ‘E-Commerce WebCrawling to Facilitate Consumers for Economical Choices ’Price comparison sites are designed to compare the price of goods and services from a range of providers, which will help consumers in making decision to choose products that will save their money through online. In the year of 2002, Anita Rosen has published the paper entitled “The E-commerce Question and Answer Book”. In this paper he described book identified and explained many of the issues & questions we'd been stumbling over. Highly recommend it as both a primer and a blueprint for taking on the e-commerce world. This practical question and answer guide provides all the information business people need to know about e-commerce. It explains what it's all about, which technology is used, how to create and market a successful Web site, and how to incorporate e-commerce into an overall business strategy [10] [11].

In the year of 2014, Dharendra Pandey, Vishal Agarwal have published the paper entitled “E-commerce Transactions: An Empirical Study”. In this paper he described about E-commerce transactions, its different types and classes, its effectiveness, and the major factor, i.e., security, which may give the momentum for driving secure E-commerce Transaction. E-commerce or electronic commerce have taken root position in all present-day business opportunities in the world. In E-commerce business transactions, buying and selling of products are done over electronic system or by the internet. In the year of 2002, MK, Euro Info Correspondence Centre (Belgrade, Serbia) have published the paper entitled “E-commerce-Factor of Economic Growth”. In this paper he described the paper approaches the terminology used in the current literature that deals with topics related to electronic commerce. It presents several definitions of electronic business, electronic commerce, electronic marketing, components of the electronic markets, but also electronic commerce models and dimensions. Electronic business components described are: electronic commerce, electronic publishing, electronic service delivery [12][13].

### III. RESEARCH METHODOLOGY

So, in our paper of Comprehensive Composite Business model for price comparison and review analysis in different e-commerce sites, we have implemented different features. In this research paper, the user can get a comparative study of the products of same brands of various e-commerce websites and simply they can compare and analyze the reviews of the products among four e-commerce websites after selecting the product they need. After comparing all selected products our website will respond to the user which product will be better and value for money.

#### 3.1 Workflow Diagram:

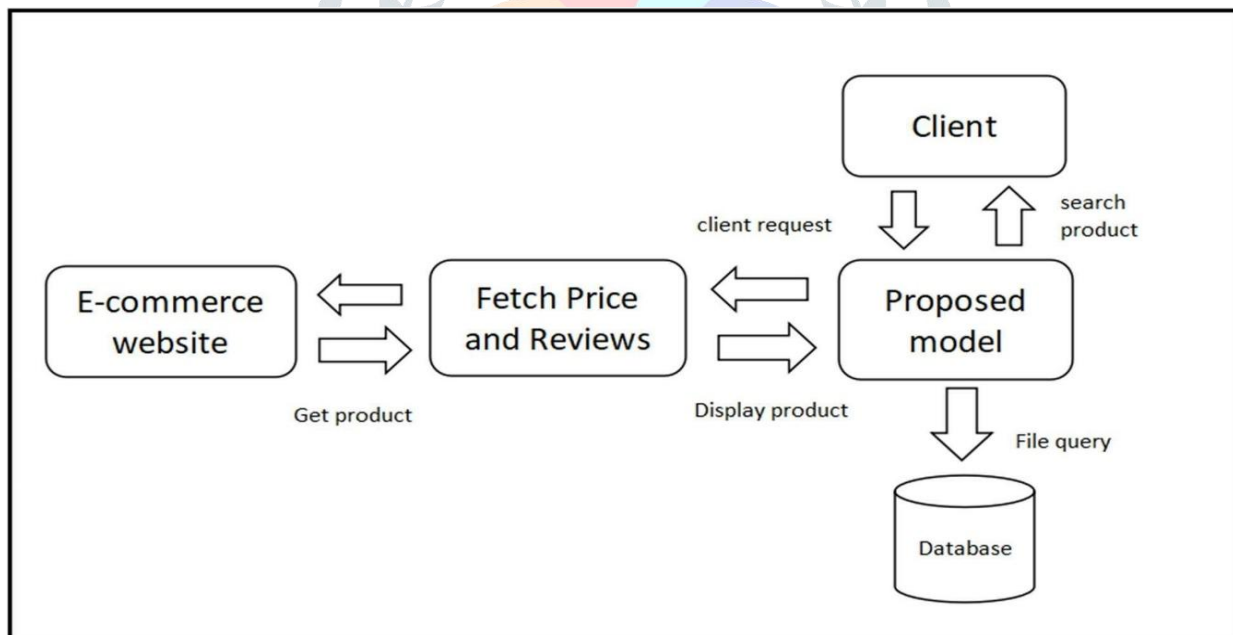


Fig.1: Workflow Diagram

#### 3.2 Flow Chart:

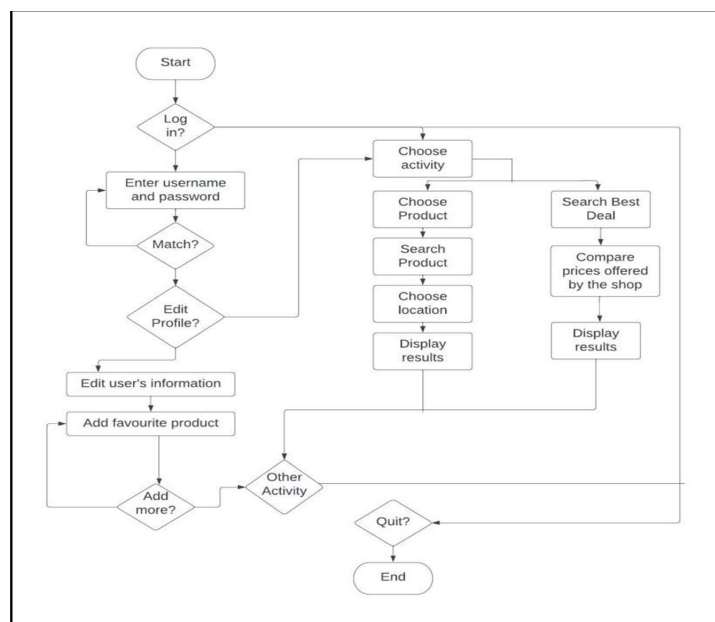


Fig.2: Flow Chart

### 3.3 Proposed Business Model:

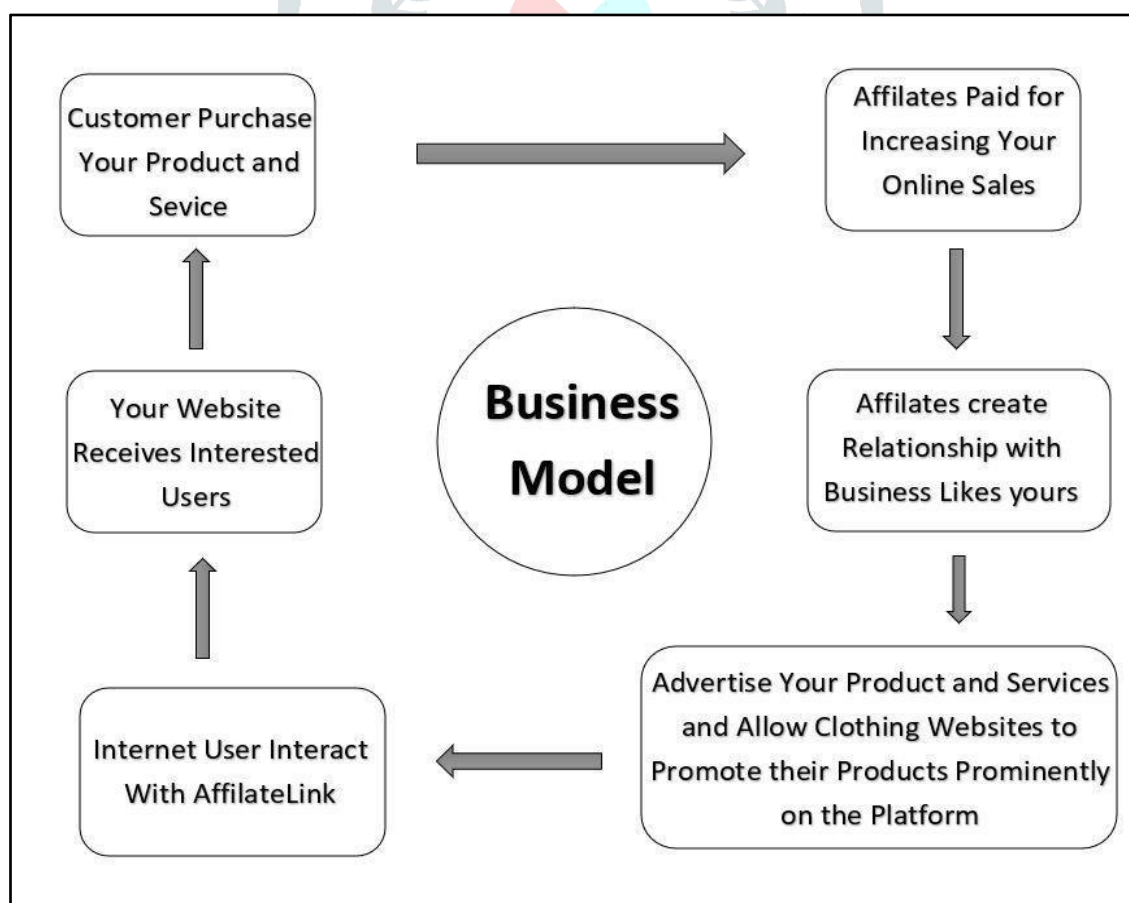


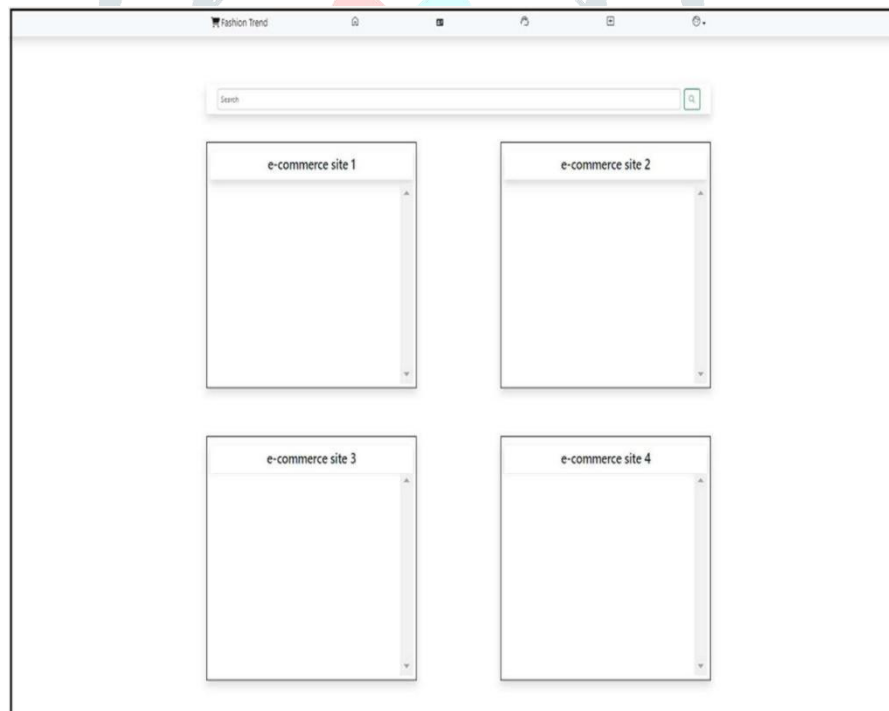
Fig.3: Proposed Business Model



**3.3.1 About business model:** Our websites don't sell any products. They collect data on the product prices, reviews. Also, they usually provide the user with additional information such as a brief description. Thus, consumers get to compare prices and analyze reviews of the products. In these cases, it's hard to make a choice without deep research, here our web app will help to figure out which product is good in quality by analyze all the reviews (may be 1000 to infinite). In our proposed business model, we highlighted about affiliate marketing strategy. Our business model will work in a very sequential way such that, we will promote different products of various e-commerce websites. Customers will visit that online store after checking our product analysis and e-commerce websites will pay us commission. By our research work the price ranges, reviews and quality of the various products will be shown of different e-commerce sites to generate traffic or leads to the company's products. It will enrich the business of the ecommerce websites. We the website administrators will be paid for increasing the online sales of the e-commerce websites. The internet users will interact with affiliate link and interested users will visit the e-commerce site to buy that product according to their need. Through this website we can keep track on the most purchased product by the consumers and promote those product's name to make the process of buying products easier for the customers.

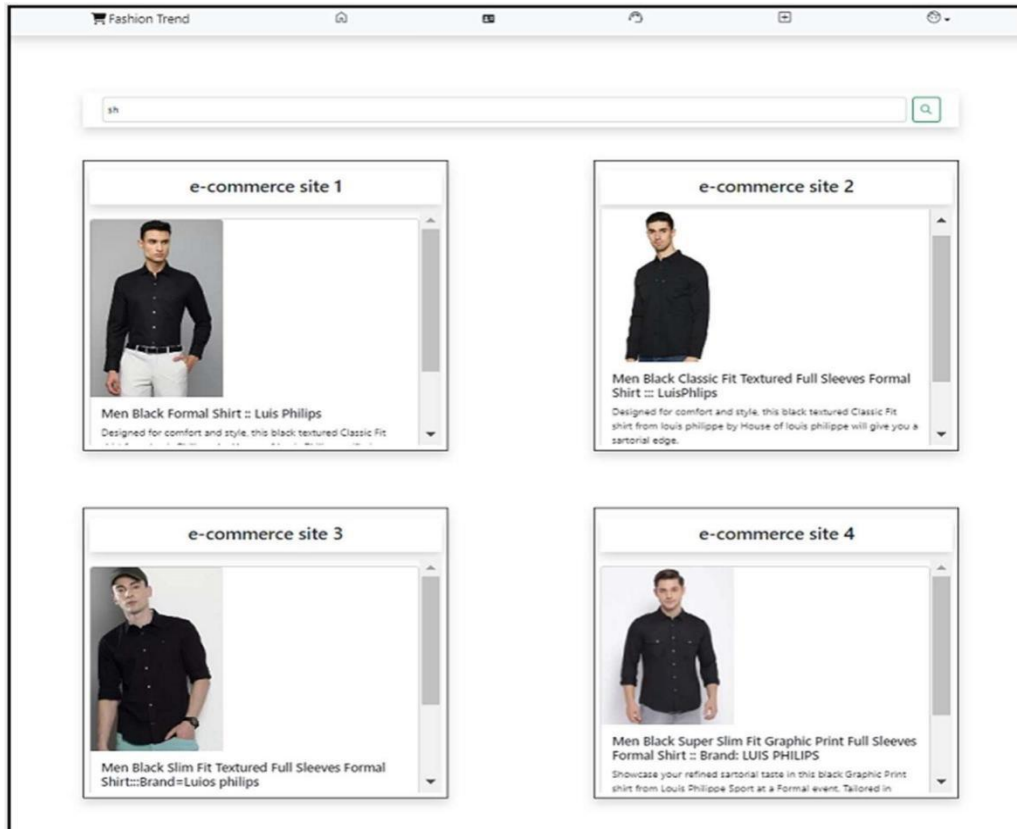
#### IV. RESULTS AND DISCUSSION

**4.1 Search Bar:** A search bar typically appears as a single-line text box and is usually accompanied by a search button that initiates the search command. The search query is entered into the search box and then the search button is clicked. Some applications also allow the user to press the Enter key to initiate the search. The application acquires the text from the search box and matches it with the items in its database and returns the search results. Search bars help consumers find what they need, faster. By this consumer to tell you what they are looking for, to express their "tastes and preferences" and they expect result



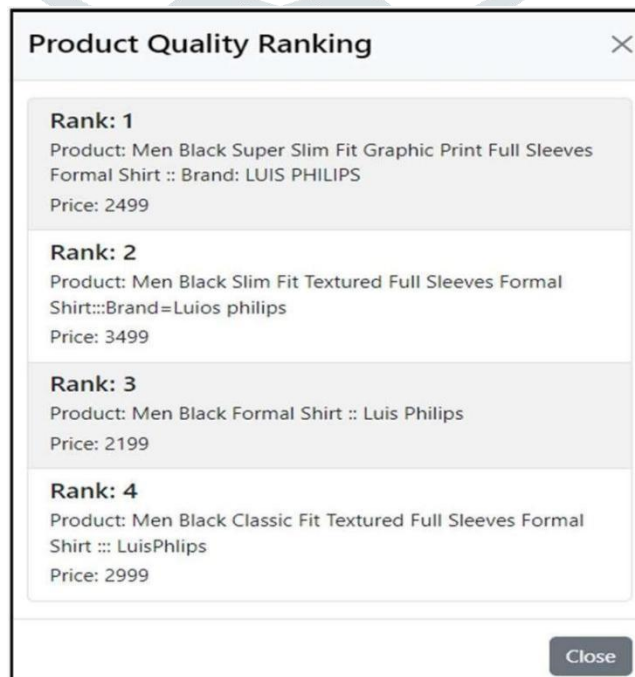
**Fig.4:** Search Bar for searching products

**4.2 Product Dashboard:** A product dashboard displays key information about a product's performance in a single, centralized report. Generally, it includes information on user behavior, sales activity, and marketing impact. Think of the dashboard as a sort of summary that gathers data from different sources in one place and presents it in a digestible. We have created our own website. There, these four websites – e-commerce site 1, E-commerce site 2, E-commerce site 3, E-commerce site 4 are being compared together. Consumers can check anytime from four different platforms within the same platform and enjoy the things they want. Also, they can compare the same product from these four websites at the same time.



**Fig.5: Product Dashboard**

**4.3 Product Analysis:** Product analysis is the evaluation of a product for the purposes of product development, review or purchasing. It involves examining product features, costs, quality, appearance and other aspects. As I said that in our paper four different websites are compared together and then four different results are shown in this product analysis part with their names and prices. As a result, consumers can verify four different websites under the same roof and get the desired product easily. Generally, it is quite hard for a user to visit different websites individually and check their price and reviews, so in our research work we have implemented AI tools and Machine Learning to rank the products according to their quality and provide a analysis report, so that the user can easily choose the best one.



**Fig.6: Product Analysis**

#### IV. CONCLUSION

The 'A Comprehensive Composite Business Model for Price Comparison in Different E-Commerce Sites' is designed to provide a web-based application that would make searching, viewing and analyzing the reviews of a product easier. The search algorithm provides an easy and convenient way to search for products where a user can search for a product interactively and it would refine the products available based on the user's input. The user can then view the complete specification of each product. They don't have to go through all the detailed reviews as our website will perform the analysis for them and figure out which product is good in terms of quality. Its price comparison feature would make it easy to choose and analyze the price ranges of different products and buying them. Price comparison sites for e-commerce have a bright future as more and more consumers turn to online shopping. These sites could expand to new geographical markets and cater to more countries and regions, allowing consumers to compare prices and analyze reviews across borders. In future, this app could integrate with emerging technologies such as voice assistants and smart devices, making it easier for consumers to compare prices without having to physically interact with their devices. Price comparison sites could use data and artificial intelligence to offer more personalized recommendations to consumers based on their past purchase history and preferences. With the advent of more advanced technology, price comparison sites could offer more streamlined and user-friendly interfaces, making it easier for consumers to find what they are looking for and make informed purchasing decisions and also, we can keep track on the products which will be purchased much by the consumers and we can observe the traffic on each e-commerce websites and promote them accordingly. Overall, price comparison sites for e-commerce have a bright future, and as the ecommerce industry continues to grow, these sites will continue to play an important role in helping consumers make informed purchasing decisions.

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