

## Price Comparison with Sentimental Analysis

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### Abstract

*The price comparison website is designed to compare the prices of the products from various websites, which will help users to choose products that save money and time through online. Considering the customer's busy life especially those who are living in the city area, most of them prefer online shopping to save their time. Customers always prefer to buy products for low prices and compare prices from different e-commerce websites, so this platform is used for price comparison. The project name is price comparison with Sentimental Analysis where the users get the best deals on the products. To obtain the best deals from the websites we use web scrapping to fetch the data. It includes key features like displaying product details, specifications, price history, price alerts, multiple prices from various e-commerce websites, and a close comparison of similar products. The platform includes sentimental analysis to provide user opinions and sentiments related to products. With an easy interface and robust features, this website aims to drive inside shopping the experience streamlined and empowers users with valuable information to make informed purchasing choices.*

**Keywords:** Price comparison, sentiment analysis, similar products, price alerts, decisions, price history.

### INTRODUCTION

A website that compares expenses serves as a medium for bringing buyers and sellers together. By permitting customers to select the preferred items from its pricing list, viewers' grow viewers' focus on shops that falsely declare to be handing over the best offers. The number of online users has increased, making it useful for those who have busy office schedules and aren't able to check the current prices of products they want to purchase [1]. We Are Social's Social, Digital, and Mobile in India research revealed that Internet penetration in India stands at 59% and Indians spend an average of 19.8 hours per week using the Internet (We are Social et al., 2019). Also, 21% of

Internet users access the Internet through mobile devices in India, facilitating this kind of access from anywhere [4]. A survey conducted in 2019 indicated that Brand Thoughts were shared by Seventy-seven percent of Indian users on social media. The study shows in figure 1. how linked Indians are with the Internet

in general terms.

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Received Date: June 05, 2024

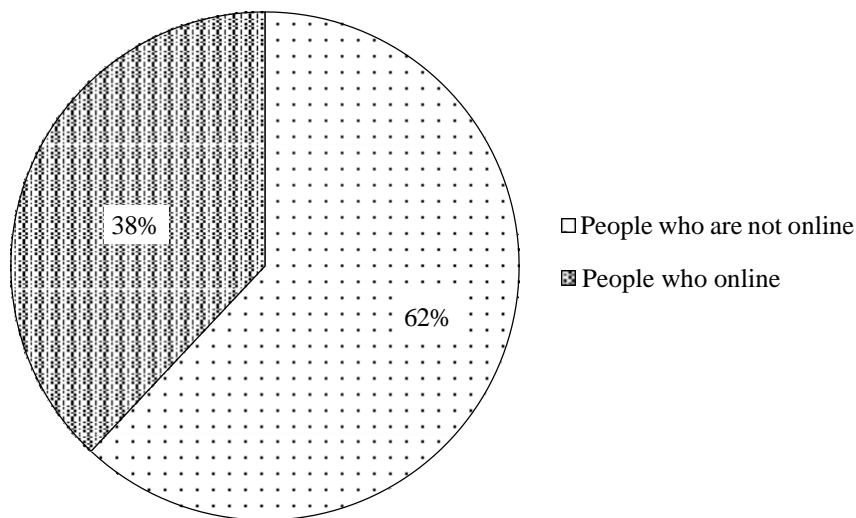
Accepted Date: June 20, 2024

Published Date: July 10, 2024

**Citation:** G.R.S. Murthy, L. Vidya Sri, V. Prem Suraj, K. Om,  
U. Sathanand. Price Comparison with Sentimental Analysis.  
International Journal of Electronics Automation. 2024; 2(1):  
20–27p.

As was shown before, PriceComparison.com is an intermediary between customers and producers that makes it possible for the former to buy from specific producers online. Or, conversely, this price comparison site also serves as a mode of advertising the seller to consumers (retailer, store, hypermarket, or supermarket). Due to time pressures and financial difficulties as suggested by Brown (2014), customers stand to gain a lot from websites like PriceComparison.com, especially in the current times when people's costs of living are increasing while they scarcely have time for house shopping. It can be further noted that today's consumers are

highly web-savvy and have various networking programs at their disposal that give them all sorts of links.



**Figure 1.** Percentage of Population online.

Fewer rate evaluation websites are available in India than in different countries. Many of them make pricing comparisons between cell telephones, lodge prices, excursion packages, and other purchases. For customers to receive what they need, a contrast internet site wishes to show consequences for affordable prices that correspond with their preferences. However, its accuracy is similarly essential. Customers might also turn out to be confused while evaluating it on every other website if the database isn't up to date frequently sufficient. For the most part, employees are too busy to head grocery shopping. You have the freedom as a patron to pick the store that offers the best deal on the precise gadgets that capture your eye. All organizations want quite a little time to pick out the pricing they provide because it is not possible so you can evaluate expenses and decide now not to buy specific things at an extra fee during the limited time you have got.

Machine learning is used to analyze customers' behaviors and interests, the company can render personalized product recommendations which both keep the client happy and likely will not win. At that, machine learning can be also employed to study the emotions that inspire consumers' perceptions and attitudes toward brands, giving additional knowledge about consumers' perceptions and experiences with brands keeping in mind that we can explore the emotions behind research to make informed purchasing decisions. Also, machine learning-enabled algorithms can extrapolate future price trends using historical data and market trends, enabling users to perform cost factor analysis and time their purchases at moments when they will find the best options for the future. Sellers can include this facility even more when they are orientated to thrifty customers who strive to save their budget. Moreover, the machine learning engines of search engines make it possible for sites to provide visitors with the results that are most appropriate as well as accurate, thus enabling them to find what they are looking for quickly and decreasing their level of frustration. This makes their shopping experience smooth and convenient.

Likewise, machine learning divides customers based on their habits, preferences, or demographics which provides the system with the scope of sending different customers precisely relevant innovations or recommendations. The main function of machine learning in the method of fraud conducting is the plating of the role of fraud detection in identifying fake checks or cases of payment fraud as well the website thus can undertake analysis of consumer behavior and anomalies to detect errors before turning here possible to carry out any countermeasures to protect users' security and privacy other than giving customers a nice time while shopping.

## LITERATURE SURVEY

### **E-commerce Price Comparison with Review Sentimental Analysis**

The paper titled “[5] E-commerce Price Comparison with Review Sentimental Analysis” discusses the importance of price evaluation websites in helping customers make informed decisions while shopping online. The authors have developed a project called Click & Find.com, which highlights the best deals on household grocery products. The paper also mentions that consumers have the right to know whether the prices they see in stores are good deals or not. The literature review section of the paper discusses the importance of price comparison sites in improving market efficiency and price competition. The review mentions that price comparison sites have become aggregators of product information and attract all stakeholders, including suppliers and consumers, to their platform. The review also highlights that price comparison sites are the second type of search technology that helps users find products and services of their choice and reduces their search costs. Overall, the literature review section of the paper provides an overview of the importance of price comparison sites in the current market scenario and how they have evolved to become more efficient and user-friendly.

### **E-commerce with Price Comparison, Price Alerts, and Fake Review Detection**

This paper presents a study on e-commerce with price comparison, price alerts, and fake review detection. The authors aim to develop a prediction model that can determine the legitimacy of an e-commerce website before making payment. The paper also discusses the use of machine learning algorithms such as J48, Naïve Bayes, and random forest, and provides a Model Tree (LMT) to predict the legitimacy of a website. The accuracy of these algorithms is analyzed using different parameters such as [5] TP Rate, FP Rate, Precision, Recall-Measure, MCC, Monster House, and the People's Republic of China House [2]. The paper also includes a literature review of related works, such as a study on the automatic identification and extraction of product value info from e-shop websites, a proposal for a smartphone application named Virtual Cart for facilitating a simple and convenient technique for buying in wanting malls, and a modified Senti WordNet algorithm that is mainly used for machine learning to get the alternatives of the product.

## PROBLEM STATEMENT

Anyway, online buying involvement remains in the preferences of the people who are content with established selection whilst being assisted by apps, friendly platforms, and overall price comparison. Existing websites may additionally lack intuitive navigation, certain product information, and superior capabilities, leading to a fragmented and time-consuming shopping experience. Users struggle to effectively compare costs across one-of-a-kind websites, track fee histories, and acquire well-timed indicators for ability reductions.

The absence of a platform that seamlessly integrates variant options indicates similar merchandise and includes sentiment analysis consequences in an opening inside the marketplace. Additionally, customers leave out the advantages of records analytics-driven charge predictions that would help in watching for destiny fee developments. Therefore, the desire for an answer arises to deal with those pain factors and offer customers a streamlined and empowering online purchasing level, in the end enabling them to make nicely informed and assured purchasing selections. This venture aims to bridge these gaps by way of developing a person-centric, function-rich, and intuitive fee assessment internet site to decorate the general online shopping enjoyed by customers.

## PROPOSED SYSTEM

This website makes it easy to shop online by offering an interface that provides comfort and good decisions. Its natural navigation machine permits users without problems to discover merchandise both through seeking functionality and through surfing diverse classes. This platform contains complete product records, ratings, and specifications. The middle capability revolves around green fee assessment across different websites, supplying customers with a clean, aspect--via-side view of prices for identical merchandise. Customers rate products and set price alerts, making sure not to lose a good deal. The platform caters to users in search of variety by allowing assessment of charges for distinctive

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product variations and suggesting alternatives for a greater thorough assessment. User reviews and sentiment analysis offer valuable insights. Overall, this internet site targets to decorate the online buying level via combining user-centric design with strong functions, in the end empowering customers to make nicely- informed shopping decisions effects [7].

## **SYSTEM ARCHITECTURE**

A system architecture is the conceptual model that defines the structure, behavior, and more views of a system. An architecture description is a formal description and representation of a system, organized in a way that supports reasoning about the structures and behaviors of the system is shown in Figure 2.

## **METHODOLOGY**

### **Project Planning**

At this point, the project's issue is acknowledged and the importance of looking at is mounted. It is ensured that the task paintings can be completed in the allotted time frame with the aid of mentioning the objective and supplying extra scope for the exam. The approach for the problem announcement is tested, and literature research is utilized to perceive the styles of machines that must be increased as well as the gadgets that must boom the device.

### **Research on any Existing Similar Systems**

The next step is to check for comparable machines that exist like our idea. The predominant objective of conducting studies on similar contemporary machines is to discover how the system features, what concept is being done within the gadget, what is being computed with the help of the system, and how the gadget helps trouble fixing.

### **Develop System Architecture**

The system's operational framework is expanded within the following segment. This will provide a clear photo and knowledge of the way the tool will work, stopping the development of a device that fails to clear up the issue it was supposed to clear up.

### **Web Scrapping**

HTML statistics may be extracted from URLs and utilized for private motives through internet scraping. Since that website evaluates prices, records are taken from a couple of e-commerce websites [1]. This tool uses Python modules beautifulsoup4 to perform web scraping as shown in Figure 3. A Python module referred to as BeautifulSoup4 is used to parse HTML pages. This is used to scrape product details from e-commerce websites and store them in a database [3, 6]

### **Sentimental Analysis**

Sentiment analysis of the use of the Natural Language Toolkit (NLTK) entails the software of computational techniques to figure and evaluate the feelings expressed in textual records. NLTK, an effective Python library, enables the implementation of sentiment evaluation by way of imparting tools for textual content processing, tokenization, and analysis [8]. To extract relevant statistics, the process first involves gathering and making textual data, like customer opinions or comments from social media. NLTK's tokenization abilities assist in breaking down the textual content into personal words or phrases, enabling a greater granular analysis. The library gives get right of entry to pre-trained sentiment analysis models and lexicons, allowing builders to leverage current expertise bases for sentiment classification. Additionally, NLTK supports the schooling of custom fashions primarily based on unique datasets, enabling a greater tailored method for sentiment evaluation [9]. The integration of NLTK's sentiment analysis equipment offers treasured insights into user reviews, supporting agencies and researchers to apprehend the emotional tone and delight levels related to their services or products. However, it is essential to notice that even as NLTK is a versatile tool for sentiment evaluation, its effectiveness may be encouraged via factors such as language nuances, context, and the variety of expressions in textual statistics [10].

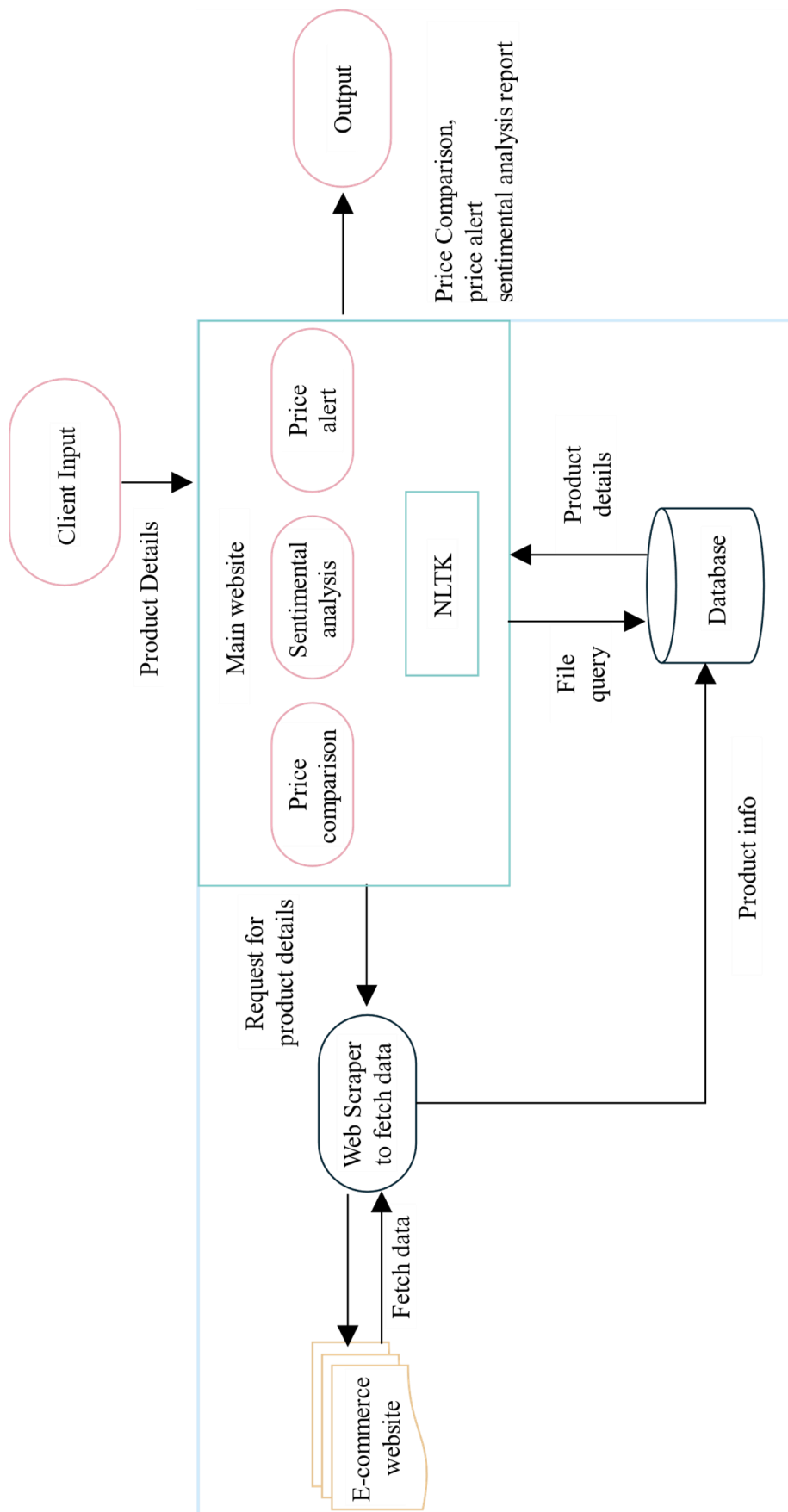
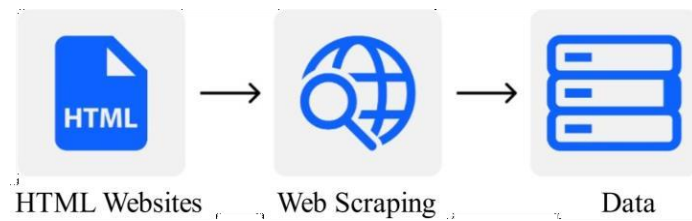


Figure 2. System Architecture.



**Figure 3.** Process of Web scraping.

Continuous refinement and adaptation of the sentiment analysis version primarily based on actual international comments contribute to its accuracy and relevance in shooting personal sentiments. See below in Figure 4: Sentiment Analysis of neural language.



**Figure 4.** Sentiment Analysis of neural language.

### Price Alert

Price alerts are personalized notifications that customers obtain when a product reaches a distinctive rate. They offer timely statistics, helping customers capitalize on discounts, make informed funding selections, and streamline their tracking procedures. Price indicators contribute to greater green and knowledgeable buying or investment enjoy, offering users autonomy to align strategies with their options and monetary dreams.

### Expected Outcome

Comparison of product prices from different e-commerce websites and the results are displayed on the single web interface. This website aims at providing the best possible deal to the users for the required product by comparing the product price and displaying the minimum price from various e-commerce websites such as Amazon, Flipkart, Snapdeal, and Croma, which are some of the best websites to shop.

### Output

Figure 5 shows the available categories present in the database. The products which are fetched from different e-commerce websites are shown to the user.

Figure 6 shows the complete details of the product like the name and image of the product with the description of the product.

Figure 7 shows the features of the website like view reviews, write reviews of the product and price history of the product which shows the prices of product from past days, and it also contains price alerts which helps users to set alert notification of any product. It contains recommendations for similar products.

## CONCLUSION AND FUTURE WORK

This creative price comparison website's user-friendly, smooth platform simplifies online shopping. Users can navigate via a wide range of merchandise, benefitting from distinctive product scores, specifications, and green price comparisons throughout various websites. The platform consists of superior features including price history, customized alerts, and product versions, enhancing character

selection-making. Going a step similarly, it integrates sentiment evaluation for user opinions and utilizes information analytics to provide charge predictions based on historical statistics and marketplace developments. As a destiny enhancement, the internet site should encompass the characteristic of price prediction, similarly empowering customers to assume and make nicely knowledgeable purchasing choices. With everything considered, the website seeks to simplify the shopping experience and enable users to make more informed purchases with its robust features and focus on user design.

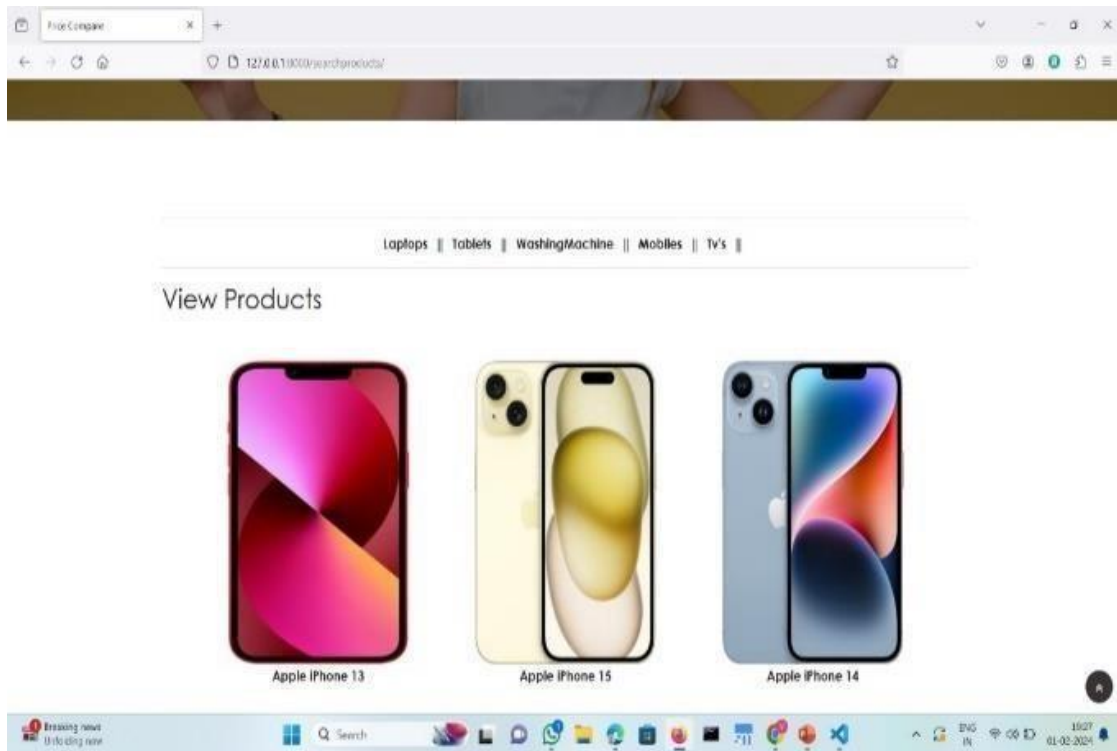
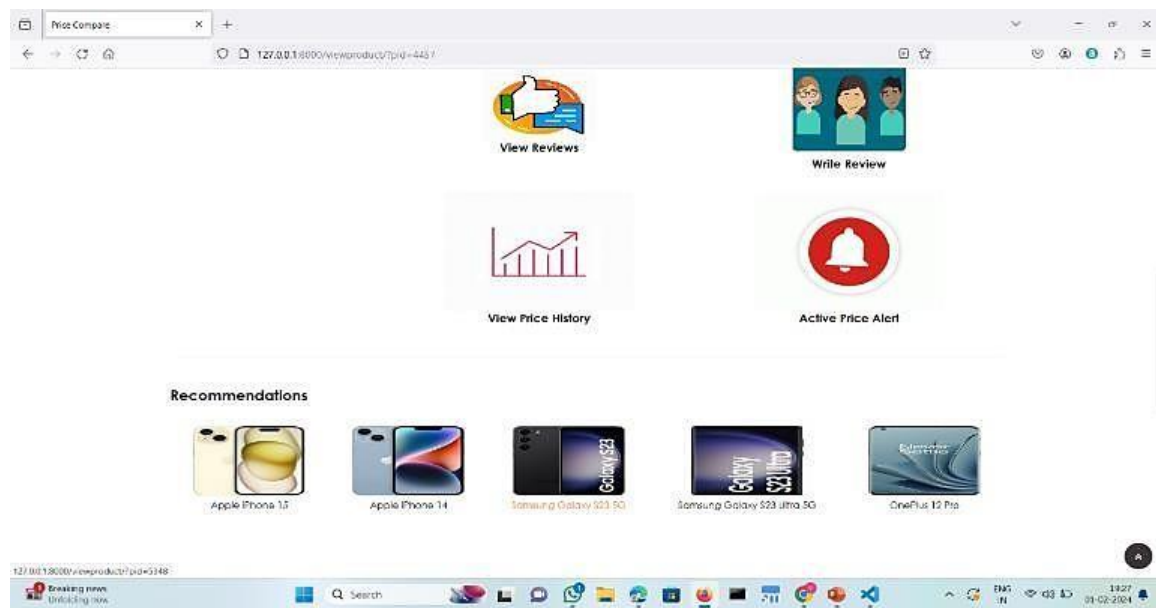


Figure 5. Available Categories in database.



Figure 6. Product Details of the product.



**Figure 7.** Product details with price alert and price history.

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