

Deal Finder An Intelligent Price Comparison and Alert System for Online Shoppers

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Abstract—By providing a centralized platform to compare product prices across several e-commerce websites in real time, the Price Comparison Web App improves the efficiency of online shopping. It addresses the main drawbacks of current systems, including their limited filtering options, lack of updates, and restricted data sources. The platform integrates sophisticated search, sorting, and an alert system for price reductions and deals, and it uses web scraping and APIs to guarantee accurate and current pricing. Convenience is increased by enabling users to manage Wishlist's, track prices, and make direct purchases. The application, which was created with scalability, security, and user-friendliness in mind, revolutionizes the shopping experience by facilitating economical choices and establishing a new benchmark for price comparison tools.

I INTRODUCTION

Users can make well-informed purchasing decisions by comparing prices for a product across various online retailers thanks to a price comparison feature. Customers gain from it because it saves them time and effort when they shop, and businesses can increase sales and customer satisfaction. Businesses can create a custom system to collect and display pricing data from multiple sellers or integrate price comparison APIs to implement this feature. Effective comparison result presentation requires an intuitive user interface. Pricing is a problem for both individual sellers and website owners as e-commerce competition increases. Several sellers offer the same products at different prices on well-known platforms like Amazon. Price comparison tools are essential because buyers look for the best offers. To improve customer satisfaction, experts advise adding this feature to e-stores.

II OBJECTIVES

- To create a real-time price comparison system that uses APIs and web scraping to collect data from various e-commerce platforms.
- To add a sophisticated search function that lets customers sort products by brand, category, price range, availability, and ratings.
- To incorporate a price alert system that informs customers when prices on the items on their Wishlist drop or when discounts become available.
- To design an intuitive user interface that makes it simple to navigate and engage with features like price tracking, Wishlist's, and buying.
- To guarantee strong privacy and data security protocols to safeguard user data and transactions.

III SCOPE

The main goal of the project is to create a web-based platform that lets users compare prices in real time across a number of e-commerce sites. It will use web scraping and API integration to get and show the prices of products right now. Users can make wish lists, keep track of prices, and narrow down their choices by category, brand, ratings, and price range to help them make smart purchases. A price alert system will let users know when items on their wish list go on sale or drop in price. The platform will also let people buy things directly by linking them to e-commerce sites. Privacy and security measures will keep transactions safe and protect data. The system was made to be scalable, so it will be able to grow as more platforms and users join. It is aimed at people who shop online and wants to be a central, efficient way to compare prices, keep track of deals, and save money.

IV REVIEW OF LITERATURE

In 2021, S. Rajendar, K. Manikanta, M. Mahendar, and K. Madhavi Their research concentrated on price comparison websites and how they assist customers in making wise purchases.

M. Sowmiya, Sudheekshan Kumar S., Mugesh Raja M., and Srinandhan C.S. (2023)— With a focus on web scraping and user expectations, they investigated product price comparisons across multiple e-commerce websites.

Harsh Lalchand Kose, Aditi Chandekar, Abdul Malik Sheikh, Hrishabh V. Petkar, Faizan Raza Sheikh, and Vrushali Awale (2023)— Their study used data analysis and web scraping techniques to look at price comparison.

[1] Python

Guido van Rossum made Python, a high-level, interpreted, and object-oriented programming language, between 1985 and 1990. People use it a lot for automation, data analysis, machine learning, and web development. Developers and big tech companies like Google, Amazon, and Facebook like Python because it is easy to read, flexible, and has a lot of libraries. It works with both object-oriented and procedural programming styles and needs less code than languages like Java. The way Python uses indentation makes it easier to read. Its huge standard library has tools for things like machine learning, GUI apps, web frameworks (Django), image processing (OpenCV, Pillow), web scraping (Scrapy, BeautifulSoup), scientific computing, and text processing. Students and professionals in software engineering, especially web development, need to know Python. It is the most popular multi-purpose programming language today because it is easy to learn and use.

[2] Pandas

Pandas is a robust, open-source Python data analysis and manipulation tool. It offers adaptable data structures for effectively managing relational or labeled data and is built on top of NumPy. With support for CSV, JSON, SQL, and Excel, Pandas makes working with tabular data easier. It makes it possible to perform tasks like data wrangling, cleaning, selecting, merging, and reshaping. Pandas improves Python's structured data processing capabilities, drawing inspiration from R's

DataFrame functionality. It is an essential tool for practical data analysis because of its integration with NumPy, which guarantees effective array handling.

[3] Numpy

Numerical Python, or NumPy, is a library that includes multidimensional array objects and several processing routines. NumPy can be used to perform logical and mathematical operations on arrays. A general-purpose array processing package is called NumPy. It offers tools for working with multidimensional arrays as well as a high-performance array object.

[4] Matplotlib

Matplotlib is a complete Python visualization toolkit for making static, animated, and interactive visualizations.

Matplotlib makes difficult things possible and easy things easy. Matplotlib is a plotting library for NumPy, a numerical mathematics extension for the Python programming language. Using general-purpose GUI toolkits such as Tkinter, wxPython, Qt, or GTK, it offers an object-oriented API for integrating plots into applications.

[5] Scikit Learn

The 3-Clause BSD license governs the distribution of scikit-learn, a Python machine learning module built on top of SciPy. Scikit-learn, formerly known as scikits. Learn, sometimes referred to as sklearn, is a free machine learning library for Python. Support-vector machines, random forests, gradient boosting, k-means, and DBSCAN are just a few of the classification, regression, and clustering algorithms it offers. It is also made to work with the Python scientific and numerical libraries NumPy and SciPy.

[6] MySQL

Based on Structured Query Language (SQL), MySQL is a popular open-source relational database management system. It is supported by Oracle Corporation and is available for free under the GNU license. With the help of SQL queries like INSERT, UPDATE, DELETE, SELECT, CREATE TABLE, and DROP TABLE, MySQL facilitates effective database administration. For web applications, it is preferred over Oracle Database and Microsoft SQL Server due to its scalability and speed. MySQL was created in C and C++ by the Swedish company MySQL AB and is frequently used with PHP for dynamic server-side applications. It works with

languages like C, C++, and Java and supports a number of operating systems, including Windows, Linux, and macOS. Although "My Ess Que Ell" is the official pronunciation, there are other variations. MySQL is used by many businesses for their database management needs.

[7] WampServer

WampServer is a web development environment for Windows. It enables you to use PHP, MySQL, and Apache2 to create web applications. Additionally, phpMyAdmin makes database management simple. WampServer is a dependable web development tool that enables you to build web applications using PHP, Apache2, and MySQL databases. The application has many features and an easy-to-use interface, which makes it the go-to option for developers worldwide. There is no cost or subscription required to use the software.

Flask

Flask is a Python microweb framework that lets programmers create anything from straightforward web pages to intricate business platforms. Its minimal yet extensible core design enables users to add essential components through extensions.

Flask is lighter and requires fewer dependencies to maintain than full-fledged frameworks because it lacks integrated database handling and validation support.

Although this simplification lowers maintenance costs and security issues, developers might have to add more functionality themselves.

Flask has grown in popularity despite being a more recent Python framework because of its adaptability and user-friendliness.

Because it is classified as a micro-framework, it has few external dependencies, making it simple, but more complex features require manual extension. Flask is a promising Python tool because of this balance.

V CONCLUSION

The Price Comparison Web App is built with the user in mind, using Flask for fast backend processing and MySQL for safe data storage. It uses APIs and real-time price scraping to compare prices across many e-commerce sites in real time. Advanced search, filtering options, price tracking, and price-drop alerts are some of the most important features that help users make smart decisions about

how to spend their money. The app makes shopping easier by letting you manage your wishlist and buy things directly from the platform. It makes e-commerce more open by having a scalable architecture, an easy-to-use interface, and built-in notifications. It helps online shoppers by making it easier to buy things and making sure they get the best deals. Improvements in the future could include adding more integrations and making user personalization even better for a better experience.

VI FUTURE ENHANCEMENT

One way the Price Comparison Web App could get better in the future is by working with more e-commerce platforms to give users more options for price comparisons. Machine learning could make it possible to give people personalized product recommendations, which would keep them more interested. Keeping track of price history would help users figure out trends so they can make better buying decisions. A mobile app for iOS and Android would make it easier to use and let you compare prices on the go. International users would be able to use multi-currency and geo-location-based comparisons. Extra features like product reviews, discount codes, voice search, and a browser extension would make shopping easier. Social sharing would get people to tell their friends about deals, which would help the platform reach more people. The goal of these changes is to make the app easier to use, more transparent, and more efficient, which will make it a better tool for shopping on a budget.

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