

# Online Product Price Comparison Website

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**Abstract:** *This project introduces an Online Product Price Comparison Website developed to help users find the best deals across various e-commerce platforms. The site aggregates and compares prices of products from multiple online retailers, allowing users to make informed purchase decisions. Key features include real-time price tracking, product filtering, visual comparisons, and smart recommendations. The platform aims to enhance the online shopping experience by saving users time and money while ensuring transparency and efficiency.*

*The system is built to support both casual and frequent online shoppers by providing comprehensive data in a structured and user-friendly manner. It can monitor price fluctuations over time and offer historical price charts. Users can also create wishlists to track specific items and receive price drop alerts via email or SMS. The ultimate goal is to empower buyers with knowledge to make economical choices without switching between multiple websites or apps.*

**Keywords:** Online Product Price Comparison

## I. INTRODUCTION

With the rise of e-commerce, consumers often struggle to identify the best prices for the same product listed on different platforms. Manually checking each site is time-consuming and inefficient. This project addresses that issue by offering a centralized platform that fetches and compares product prices across multiple online stores.

Additionally, as online marketplaces expand and new platforms emerge, users face increasing difficulty in comparing product prices and features efficiently. This website consolidates that information, enabling comparison across categories like electronics, fashion, household items, and more. By reducing information overload and simplifying the decision-making process, this solution makes online shopping more transparent and user-centric.

## II. LITERATURE SURVEY

While existing platforms offer useful features, they often lack deep customization, efficient real-time scraping, and user account capabilities. Our solution addresses these gaps with:

User dashboards

Price history graphs

Faster, more reliable updates

Custom alerts and smart recommendations

The platform emphasizes simplicity, speed, and an engaging visual experience to retain users.

## III. METHODOLOGY

### A. Requirements Gathering

Define target users (online shoppers, deal seekers)

Identify product categories (electronics, fashion, books, etc.)

Determine key features (price comparison, filters, alerts)

### B. Design

Create wireframes (Figma or sketches)

Develop consistent and modern UI/UX

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Ensure mobile responsiveness

#### **C. Development Frontend:**

HTML: Structure of product and comparison pages

CSS: Styling and layout

JavaScript: Dynamic content updates, filters, interactivity

Backend:

Node.js / Python Flask / PHP

Database: MySQL or MongoDB for product data caching

APIs/Scraping: Fetch prices from e-commerce sites

#### **D. Testing**

Unit testing for modules

Integration testing for APIs and scrapers

Cross-browser and mobile testing

#### **E. Deployment**

Host using Netlify, Firebase, or Vercel

Domain integration (optional)

#### **F. Data Handling**

Implement cron jobs for periodic data fetching

Use Redis for caching frequently accessed product data

Normalize data from different sites for consistency

#### **G. Security**

HTTPS for secure transmission

Input validation and sanitation

API authentication and rate limiting

#### **H. Performance Optimization**

Lazy loading of images

Asynchronous API calls

Optimized database queries and indexing

### **5. Block Diagram Modules**

User Interface

→

Product Search & Filter Module

→

Comparison Engine

→

Price Fetching (API/Scraping)

→

Data Parsing & Storage

→

Comparison Display Module



→

Recommendation System

→

Alert/Subscription System (for price drops)

Each module is designed for modularity and scalability. The system supports adding new sources, enhancing existing modules, and scaling backend processes for more users, while keeping the frontend intuitive and fast.

#### **IV. CONCLUSION**

The Online Product Price Comparison Website bridges the gap between price awareness and convenient online shopping. With real-time tracking, a clean interface, and powerful filters, it provides a valuable tool for cost-conscious users. The scalable design supports the addition of new features like wishlists, user dashboards, and personalized recommendations.

The platform stands out for its user control, customization, and intelligent insights. It has the potential to evolve into a smart assistant that analyzes trends and offers future price predictions. User feedback and behavioral data will drive further enhancements to keep it competitive and user-focused.

#### **V. ACKNOWLEDGMENT**

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We also acknowledge the role of e-commerce platforms that offer APIs or allow public data access, making this comparison tool possible. Their openness fosters innovation and integration that benefits users globally.

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