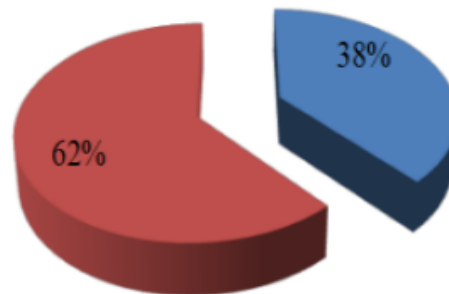


## Introduction :

The Price Comparison Website intends to provide a web-based platform that lets customers compare the costs of different goods and services from multiple websites. This website will compile data from many sources and present it in an approachable way so that customers can quickly and easily compare pricing and different product characteristics.

### Percentage of Population Online

■ People who do not online    ■ People who online



## Description:

Description The eCommerce price comparator is a web scraping project that aims to gather and analyze data from various online retail websites to provide consumers with the most up-to-date and accurate information on product prices. The project will use web scraping techniques to extract data such as product name, brand, model number, and price from several popular eCommerce websites. The data will then be stored in a database, where it can be easily accessed and analyzed.

The eCommerce price comparator will have a user-friendly interface that allows consumers to search for a specific product and compare prices from different online retailers. The results will be presented in a tabular format, making it easy for users to see the lowest and highest prices for the product they are interested in. The project will also include features such as price history tracking and price alerts, so that users can stay informed about price changes for their favorite products.

The eCommerce price comparator will be a valuable resource for consumers who want to save money when shopping online. By providing up-to-date and accurate

information on product prices, the project will help users make informed purchasing decisions and avoid overpaying for the items they want to buy. Additionally, the project will provide valuable insights into consumer behavior and market trends, which can be useful for online retailers and manufacturers.

Overall, the eCommerce price comparator is a comprehensive web scraping project that will bring together data from multiple sources to provide consumers with a one-stop-shop for comparing prices and making informed purchasing decisions.

### **Purpose:**

E-commerce price comparison is to develop and implement efficient algorithms and systems that can retrieve and analyze pricing data from different E-commerce websites. This data can then be used to provide consumers with accurate and up-to-date price comparisons for various products. E-commerce price comparisons is to help consumers make informed purchasing decisions by providing them with accurate and up-to-date pricing information.

### **Need:**

The eCommerce price comparator serves a critical need in today's online shopping landscape, where consumers are overwhelmed by the vast number of retail websites and the multitude of options available for any given product. With so many options, it can be challenging for consumers to determine the best price for a product, and they often end up paying more than they need to. The eCommerce price comparator addresses this problem by collecting data from multiple online retail websites and presenting it in a simple, easy-to-use format. By comparing prices from multiple sources, the project helps consumers find the best deal for a particular product, and avoid overpaying for items they want to purchase. This not only saves consumers money but also empowers them to make informed purchasing decisions.

The eCommerce price comparison tool will be a useful tool for customers who wish to cut costs when they shop online. The project will assist users in making knowledgeable shopping decisions and prevent them from overpaying for the goods they wish to purchase by offering current and accurate information on product costs. The research will also offer insightful data on market trends and

**consumer behavior that might be helpful to online manufacturers and retailers.**

**The eCommerce price comparator is an extensive web scraping project that will combine data from several sources to give customers a single location to compare costs and make knowledgeable buying decisions.**

#### Product scope

The scope in the present times is restricted to the e-commerce websites where we search for an item and find the best deal.

The scope of products that can be compared includes a wide range of products sold online, such as:

Electronics, including smartphones, laptops, and cameras

Home and garden products, such as furniture and home decor

Fashion and beauty products, such as clothing and cosmetics

Health and wellness products, such as supplements and fitness equipment

Automotive products, including car parts and accessories

#### Functional Requirements:

The functional requirements for e-commerce price comparator is the requirements that manage the core operations and functionalities such as:

**User Login and Authentication:** In order to use the price comparison functionality, users must be able to sign up for an account and log in.

**Product Search:** The system needs to support keyword, category, and brand searches for products.

**Product Comparison:** The system must enable users to contrast the costs of comparable goods available from various e-commerce sites.

**Product Specifications:** The system must offer comprehensive details about the products, including descriptions, features, and user opinions.

Product ratings: The rating is the best way to get the overall rating of any product to compare the price as well as quality.

Product Availability: The system must show which e-commerce websites may not have the product information or pricing data for a particular product or product may not be sold by any of the retailers listed on the website.

Product wishlist: The system wishlist allows users to save products they are interested in for future reference on an ecommerce price comparison website.

Search History: The system has to track and store the user's past searches on an ecommerce price comparison website.

Apply Filters: The system enables users to refine their product search results based on specific criteria.

Product Recommendations: Based on the users' search histories and preferences, the system must suggest products to them (not implemented in our system).

Product tagging: In order to make search more convenient, a proper tagging of information related to the product is added (not implemented in our system).

Price Alerts: Users must be able to set price alerts for particular products in the system and receive information when prices change (not implemented in our system).

## Non Functional

The quality attributes of any system which makes the overall user experience and sets the expectations includes:

Usability: The website should be easy to use, and users should be able to find the products they are looking for quickly. The website should also have clear navigation and should be mobile-friendly.

Performance: The website should load quickly, and product information should be displayed promptly.

Scalability: The website should be scalable and able to handle an increasing number of products and users as the website grows.

Security: The system must make sure that user data and transactions are private and secure (not implemented in our system).

**Availability:** To ensure that users may access the system at any time, it must be accessible around-the-clock.

**Compatibility:** The system needs to work with a variety of browsers and hardware.

**Responsiveness:** The system must be responsive in order to provide a smooth user experience across a variety of devices and screen sizes.

**Localization:** To serve a global audience, the system must handle multiple languages, time zones and currencies (not implemented in our system).

**Non-Functional:**

1) **Usability:** The system ought to be simple for all users to use and comprehend.

- **Justification:** The system is for a vast variety of user base and so the design should be such that it is easily understandable and easy to use for everyone irrespective of their technological literacy. Thus, making it usable for everyone.

2) **Performance:** To offer a seamless user experience, the system must deliver quick and dependable performance.

- **Justification:** As mentioned, the system is for everyone and by so, it can be used in any device which has internet connectivity and so the performance should be optimized for every device.

3) **Scalability:** System scalability is necessary to meet growing traffic and data storage demands.

- **Justification:** As the website grows, the number of users interacting with the system increases and so the servers should have capabilities to handle the traffic so that it gets close to 24 hours of uptime. This can be achieved by using the optimized code with less bugs and less cluttered server architecture.

4) **Security:** The system must make sure that user data and transactions are private and secure.

- **Justification:** The payments made through the website must be secure so that there are no security issues from the system side with proper APIs and security framework provided by the bank or any other payment services. Also the data of the user logging in and signing up in the database should be secure as they contain many important data related to the user, and to protect against any data breaches. (not implement)

5) **Availability:** To ensure that users may access the system at any time, it must be accessible around-the-clock.

- Justification: As discussed earlier, the system should be available 24x7 for the user as the location of the user accessing the system is not fixed. The user can access the system as per his/her convenience.

6) Compatibility: The system needs to work with a variety of browsers and hardware.

- Justification: Various users have different devices, architectures and different operating systems and so the system should be compatible with all the kinds of device possible. The coding language should be chosen in such a way that there should not be any kind of exclusivity among any group of users.

7) Responsiveness: The system must be responsive in order to provide a smooth user experience across a variety of devices and screen sizes.

- Justification: It is not certain that users would access the system on a particular device and so the system should be responsive as much as possible so that many users can access and in as many ways as possible.

8) Localization: To serve a global audience, the system must handle multiple languages, time zones and currencies.

- Justification: To make users more accustomed to the system and to make them feel less alienated, adding localization would be a great tool. It reduced ambiguity and less confusion. It makes interaction for the user very easy and reduces the learning curve. (not implement)

Use Case:

1) Name: Login into website

- Actors: Users(Customer), admin

- Goal: To Search for a Product or access personal account

- References to requirements:

- Pre-conditions:

- Users must register an account with the website (with valid email-address and password).

-Description:

1. The user must provide their login credentials, such as their email address and password, to authenticate their identity and gain access to their account.

2. the system verifies the authenticity of the user's login information against the database.

3. Once the user is logged in, they can access various features and functionalities of the eCommerce price comparison website

-Exceptions:

1a. Incorrect login credentials: If the user enters an incorrect email address or password, it will show an error msg to the user.

3a. Network or system issues: If there are network or system issues such as server downtime or connectivity issues then users will not be able to login into the system.

- Post-conditions:

- Users must be able to take advantage of various features and functionalities like wishlist, search for a product, search history, etc.

Name: Search product

- Actors: Users(Customer)

- Goal: To find the product of choice

- References to requirements:

- Pre-conditions:

- Users must be logged in.

-Description:

1. The user inputs the name or description of the product they are looking for on an e-commerce price comparison website.
2. The website retrieves the relevant search results from multiple e-commerce websites.
3. The user can then browse through the search results and compare the prices of the product from different e-commerce websites.

-Exceptions:

- 1a. Search queries with ambiguous keywords: If the user's search query contains ambiguous or vague keywords, it may not produce accurate results.
- 3a. Outdated or incorrect data: The website may not have updated data on product prices or inventory, leading to incorrect search results. Sometimes, product information provided by e-commerce websites can be inaccurate, causing discrepancies in the search results.

- Post-conditions:

- Users must be able to see the product details after executing the search operation.



Name: Apply filters (not implemented)

- Actors: Users(Customer)

- Goal: To find the product with given criteria.

- References to requirements:

- Pre-conditions:

- Users must be logged in.
- Users must enter the clear product name.

-Description:

1. The user can apply filters to narrow down the search results based on their preferences. The available filters can vary depending on the ecommerce comparator, but some common filters include:

- Price range: Users can set a minimum and maximum price range to filter out products that are too expensive or too cheap.
- Brand: Users can filter results by a specific brand or multiple brands.
- Store: Users can filter results by a specific online store or multiple stores.
- Availability: Users can filter results by products that are in stock or available for delivery.

2. Apply filters: The user selects the filters they want to apply and clicks on the "apply filters" button. The comparator then updates the search results to show only the products that match the selected filters.

-Exceptions:

No products found : If the filter criteria are too narrow or invalid price range then the system will not produce accurate results for user desired input.

Network or system issues: If there are network or system issues such as server downtime or connectivity issues then users will not be able to apply filter into the system.

- Post-conditions:

- The result of the search must stand within the criteria provided by the user.

Name: See product details

- Actors: Users(Customer)

- Goal: To get enough information before purchasing the particular product.

- References to requirements:

- Pre-conditions:

- Users must be logged in.
- Users must enter the clear product name.

-Description:

1. By clicking the 'See product details' option next to a certain result will direct them to a page with additional details about the item, such as its features, specifications, pictures, and reviews.
2. By viewing the product details, the user can make an assured decision about whether to buy the product from a particular retailer or to look for it elsewhere.

-Exceptions:

2a. Inaccurate product information: If the system provides inaccurate or outdated product information, the user may have incorrect expectations about the product.

-Post condition:

The user is able to add the product to their wishlist, continue shopping, or leave the website.

Name: Compare prices

- Actors: Users(Customer)

- Goal: To obtain the best deal possible and make informed buying decision selections.

- References to requirements:

- Pre-conditions:

- Users must be logged in.
- Users must have a clear understanding of their own needs and preferences.

-Description:

1. The user should enter the product name to compare prices. Users can add filters like price range, brand, size, etc.
2. The website retrieves the query results from various e-commerce websites using web scraping and gives the best options for the user's desired product.
3. The user can then browse through the query results and see what is the best deal to purchase which matches its needs and expectations.

-Exceptions:

2a. Product availability: The price comparison may be impacted if the product is out of stock or discontinued on one website.

2b. Compatibility issue: The price comparison tool may not work properly if there is an issue with the website's API or the data feed is incompatible with the price comparison engine.

- Post-conditions:

- Users must get the best options for purchasing the product like for price range or for branded products.

Name: Add product to wishlist

- Actors: Users(Customer)

- Goal: To save product they are interested in for later consideration and receive notification

- References to requirements:

- Pre-conditions:

- Users must be logged in.
- Users must be selected a product that they are interested in.

-Description:

1. The user should select the product to add to the wishlist. The website then saves the product to the user's wishlist for future reference.

2. The user should be able to view and manage their wishlist, and to receive notifications about updates to the products they have saved

-Exceptions:

2a. Product already in wishlist: If the user tries to add a product to their wishlist that is already on the list, the website may not allow them to add a duplicate entry.

Network or system issues: If there are network or system issues such as server downtime or connectivity issues then users will not be able to add product into the wishlist.

- Post-conditions:

- Users must be able to see selected products added in the wishlist successfully.

Name: Give a feedback (not implemented)

- Actors: Users(Customer)

- Goal: To improve ecommerce website or product features and user experience.

- References to requirements:

- Pre-conditions:

- Users must be logged in.
- Users must have used the platform service.

-Description:

1. Users can give feedback to the service provider using feedback service.
2. Using user feedback service providers can improve their services.

-Exceptions:

2a. None

- Post-conditions:

- Users should get an appropriate response from the admin or the service provider.

Name: Visit the ecommerce website

- Actors: Users (customer)

-Goal: To purchase user's desire product

-References to requirements :

-Pre-conditions:

- Users must be logged in.
- User must have searched the product

-Description:

1. After searching the product there will be an option to visit the ecommerce website.
2. Users can click on the link to visit the product in that store.

-Exceptions:

2a. Store service down: There can be a possibility that the store server is down. The link can't open in that case.

2b. Product unavailability: The product could occasionally not be accessible. On one website, a product appears to be for sale, but when we try to buy it, it indicates that the product is out of stock.

- Post-conditions:

- On that specific website, users must be able to see all the product details and can make the payment.

Name: Remove Websites (not implemented)

- Actors: Admin

- Goal: Remove a website

- References to requirements:

- Pre-conditions:

- Admin authentication is required to remove a website.

-Description:

1. Admin removes a particular website from the list.

-Exceptions:

1a. The search result is still showing products from the removed website.

- Post-conditions:

- Products from removed websites shouldn't be displayed in the search results.

Name: Add new websites (not implemented)

- Actors: Admin

- Goal: To compare prices from a wider range of online retailers

- Reference to requirements:

- Pre-conditions:

- Admin authentication is required to add a website.

-Description:

1. This feature will include a platform for an e-commerce website.

2. users are able to search and compare prices for desired products from a wider range of online retailers.

-Exceptions:

1a. The added website's products are not displayed in the search results.

- Post-conditions:

- The search results must include products from added new websites.



Name: Reply to a feedback (not implemented)

- Actors: Admin

- Goal: To provide solutions for problems faced by users.

- References to requirements:

- Pre-conditions:

- Admin authentication is required to add a website.

-Description:

1. Admin can see the comments/feedbacks from the user.
2. Admin can select the particular comment and reply to the comment.
3. Admin can also make the announcement.

-Exceptions:

2a. We might run into an internal server error exception when attempting to respond to a user's query if there is an internal server error, such as a problem with the database or server setup.

2b. We can experience an out of memory exception when attempting to respond if there isn't enough memory to handle the request.

- Post condition:

User query must be resolved by administrator.