Group No: 28

Project Name: E-commerce price comparisons

Software Requirements Specification (SRS)

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1. 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.

1.1. 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 favourite 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 behaviour and market trends, which can be useful for online retailers and manufacturers.

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.

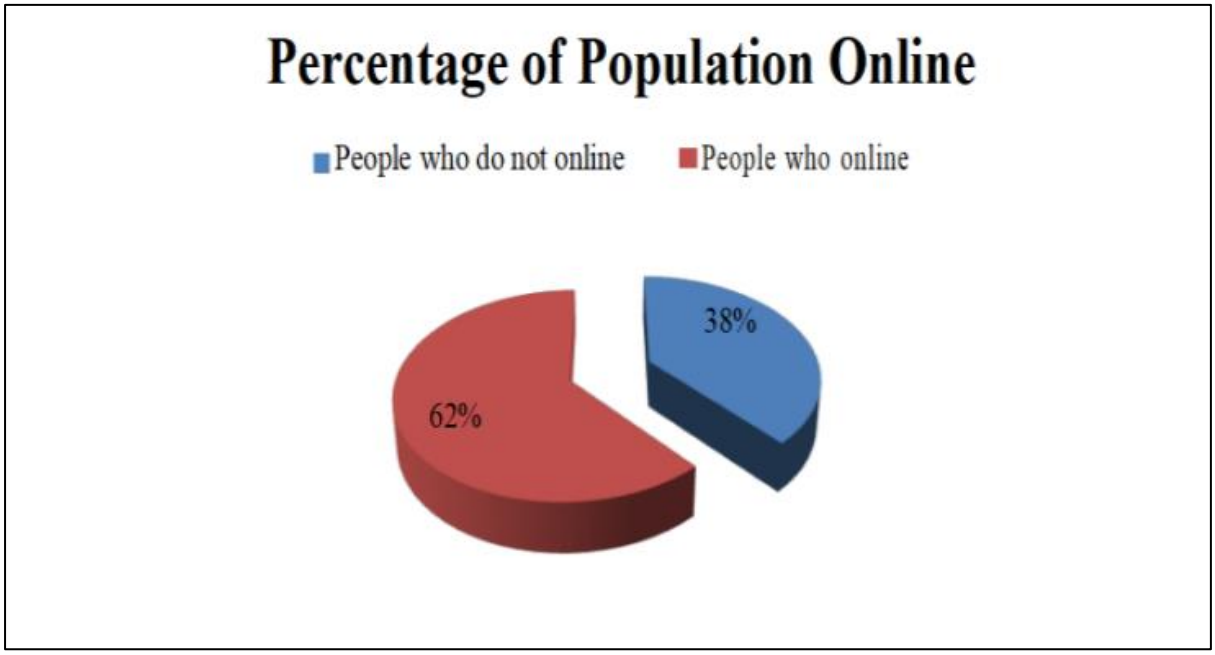
1.2. Purpose

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.

1.3. 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.

1.4. Intended Audience

The intended audience for e-commerce price comparisons can vary, but typically includes consumers who are interested in buying products online and want to compare prices across different e-commerce websites to find the best deals.

anyone who is interested in making informed purchasing decisions and finding the best deals online can benefit from e-commerce price comparisons.

1.5. 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 décor.
- 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.

2. Product Description

2.1. Product Function

2.1.1. Product Search

The product search function in E-commerce price comparisons is a crucial component of the overall user experience. It allows user to search for product using keywords or phrases that accurately describe what they are looking for. The search function is able to handle spelling variations as well.

2.1.2. Filter by one Store

To filter by one store, user must enter the correct store name in the search bar of an e-commerce price comparison website. Once user have filtered by one store, user can then compare prices and availability to informed purchase decision.

2.1.3. Sort by Prices

Sorting products by price is a common feature that allows shoppers to easily find products within their budget. Typically, this involves sorting products in ascending or descending order based on their listed price.

2.1.4. Comparing between two stores

This product Function is Compare prices between two e-commerce stores is to help user make informed purchasing decisions. By comparing prices between two stores, user can ensure that they are getting the best value for their money.

2.1.5. Direction to store

The purpose of providing directions to an e-commerce store is to help consumers easily locate and access the store they are interested in purchasing from. Additionally, providing directions to an e-commerce store can help consumers to ensure that they are accessing the correct website and not accidentally accessing a fraudulent or scam website.

2.1.6. Search History

The search history function plays a critical role in enhancing the user's shopping experience by providing them with relevant and personalized information, and improving the E-commerce website's ability to meet the needs and preferences of its users.

2.1.7. Feedback via Mail

User can give feedback to admin by mail about their desired product experience and this Feedback should be used to improve the e-commerce platform. This could include making changes to the user interface, improving the accuracy of information provided, or addressing any issues that customers have reported.

2.2. Constraints

Real-time pricing: An ecommerce price comparison website needs to display accurate pricing information in real-time. This can be challenging if retailers do not update their prices frequently, resulting in inaccurate comparisons and frustrated users.

Security and privacy: Ecommerce price comparison websites handle sensitive customer information, such as personal information, which makes security and privacy a major constraint. Ensuring the website is secure and compliant with relevant regulations can be a challenging task.

2.3. Assumption

Accurate product data: E-commerce price comparisons assume that the product data used for comparison is accurate and up-to-date.

Users have access to all information: E-commerce price comparisons assume that users have access to all information needed to make an informed decision, such as Product descriptions, reviews, etc.

Price is the only deciding factor: E-commerce price comparisons assume that price is the only deciding factor for User.

2.4. Dependencies

The system depends on the availability and reliability of the internet connection to access the database and display information to users.

The system depends on the proper functioning of the software used to access it, such as the user's device and web browser.

The system depends on the accurate and timely input of Product information by the admin to ensure that the information displayed to users is up-to-date and accurate.

2.5. User Classes and Characteristics

2.5.1. Customers (Users):

Characteristics: Customers (Users) who are engaged in Price comparison websites are typically price sensitive and they want to get the best deal on the product they are purchasing and they do research before making a purchase.

Need: Customers want to get access to get a price comparison of products at one place so that they can save their time, money and they can do informative purchases.

2.5.2. Admin:

Characteristics: Admin is responsible for managing the websites and helping users.

Need: Admin should reply to user feedback so that users can solve their query.

3. Requirements

3.1. 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 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.

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

Delete Search History: System has provided this feature if users search history gets too many stuffs so users can delete it.

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

Visit Ecommerce Website: The system has provided a feature that if users want to buy a particular product, then users can visit that ecommerce site by the link which is provided on the screen.

3.2. Non-Functional Requirements

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.

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.

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.

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.

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.

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.

4. Use Case:

4.1. Login into website

Actors: Users (Customer), admin

Goal: To Search for a Product or access personal account

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:

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

2. **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 search for a product, Compare Product Price, Search history, etc.

4.2. Search Product

Actors: Users (Customer)

Goal: To find the product of choice

Pre-conditions:

- Users must 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:

1. **Search queries with ambiguous keywords:** If the user's search query contains ambiguous or vague keywords, it may not produce accurate results.
2. **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.

4.3. Apply filters by given Store name and Price order

Actors: Users (Customer)

Goal: To find the product with given criteria

Pre-conditions:

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

Description:

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 order:** Users can set a minimum and maximum price range to filter out products that are too expensive or too cheap.
- **Store:** Users can filter results by a specific online store or multiple stores.

Exceptions:

1. **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.
2. **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 filters into the system.

Post-conditions:

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

4.4. See The Product Details

Actors: Users (Customer)

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

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:

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

Post-conditions:

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

4.5. Compare Price between two Store

Actors: Users (Customer)

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

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 with two store names.
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:

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

4.6. Visit the ecommerce website

Actors: Users (Customer)

Goal: To purchase user's desire product

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:

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

4.7. Give feedback via mail

Actors: Users (Customer)

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

Pre-conditions:

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

Description:

1. User can give feedback to the admin through email service provided in the system.
2. Using user feedback service providers can improve their service.

Exceptions:

1. If the majority feedback received are positive or neutral and we get extremely negative reviews may be an exception.

Post-conditions:

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

4.8. Reply to feedback via mail

Actors: Admin

Goal: To provide solutions for problems faced by users.

Pre-conditions:

- Admin email authentication is required to reply to feedback.

Description:

1. Admin can see the comments/feedback from the user through mail.
2. Admin can reply to particular mail.

Exceptions:

1. 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.

Post-conditions:

- User query must be resolved by administrator.

5. Process Model

We will be using an Incremental model for E-commerce price comparisons.

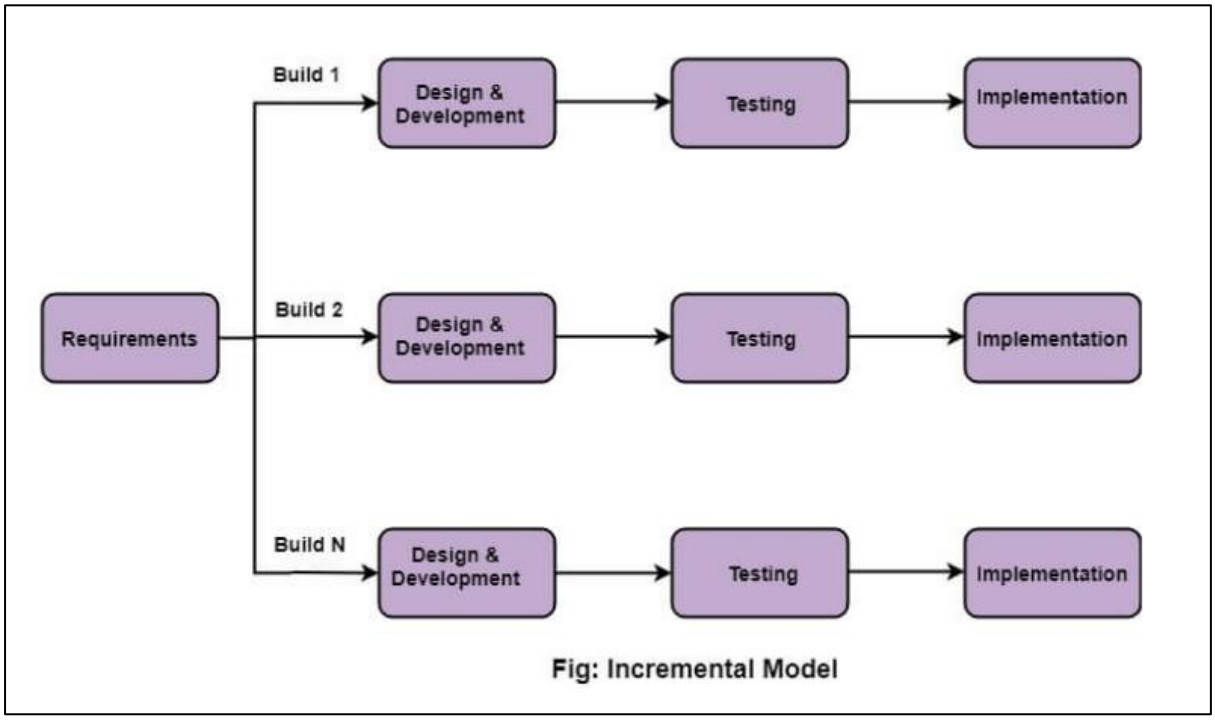


Fig: Incremental Model

- **Why?**

There are various advantages to using an incremental model for e-commerce price comparisons:

Incremental approach: Software development using the incremental model divides requirements into numerous independent system development cycle modules. Each module in this model undergoes the phases of requirements, design, implementation, and testing. The module's functionality is increased with each new release. Up till the full system is achieved, the process is continued.

Faster time to market: The incremental model enables the rapid release of a minimum viable product (MVP), which enables the development team to gather early feedback and make necessary improvements. The e-commerce pricing comparison system's time to market may be reduced as a result.

Better user involvement: Users can begin using the system and offering feedback when a working product is delivered early. This promotes better user engagement and a more user-centered development process.

Risk reduction: The incremental model lowers risk by enabling a more phased development process. If issues arise during development, they may be dealt with and fixed quickly, lowering the possibility of expensive delays or failed projects.

Improved quality: A higher-quality output is produced as a result of the incremental model's ability to test and improve the system.

6. User Story

In an **incremental model** of software development, the project is divided into multiple increments or phases, where each increment builds on the features and functionality of the previous increment. The requirements and design of the system are typically defined upfront, and each increment delivers a working version of the system with additional features and functionality.

User stories are used in Agile software development model, which are designed to be flexible and adaptable to changing requirements and priorities. User stories are typically written at the beginning of each iteration or sprint, and they are used to capture the requirements and needs of the users in a concise and understandable format. The development team then works on implementing these user stories in the next sprint or iteration.

Here, we used Incremental model which is contrast to Agile model so that user story is not part of our project.