IT 314 SOFTWARE ENGINEERING

LAB 3: SPECIFYING FUNCTIONAL AND NON-FUNCTIONAL REQUIREMENTS

64. E-COMMERCE PRICE COMPARATOR

GROUP: 28

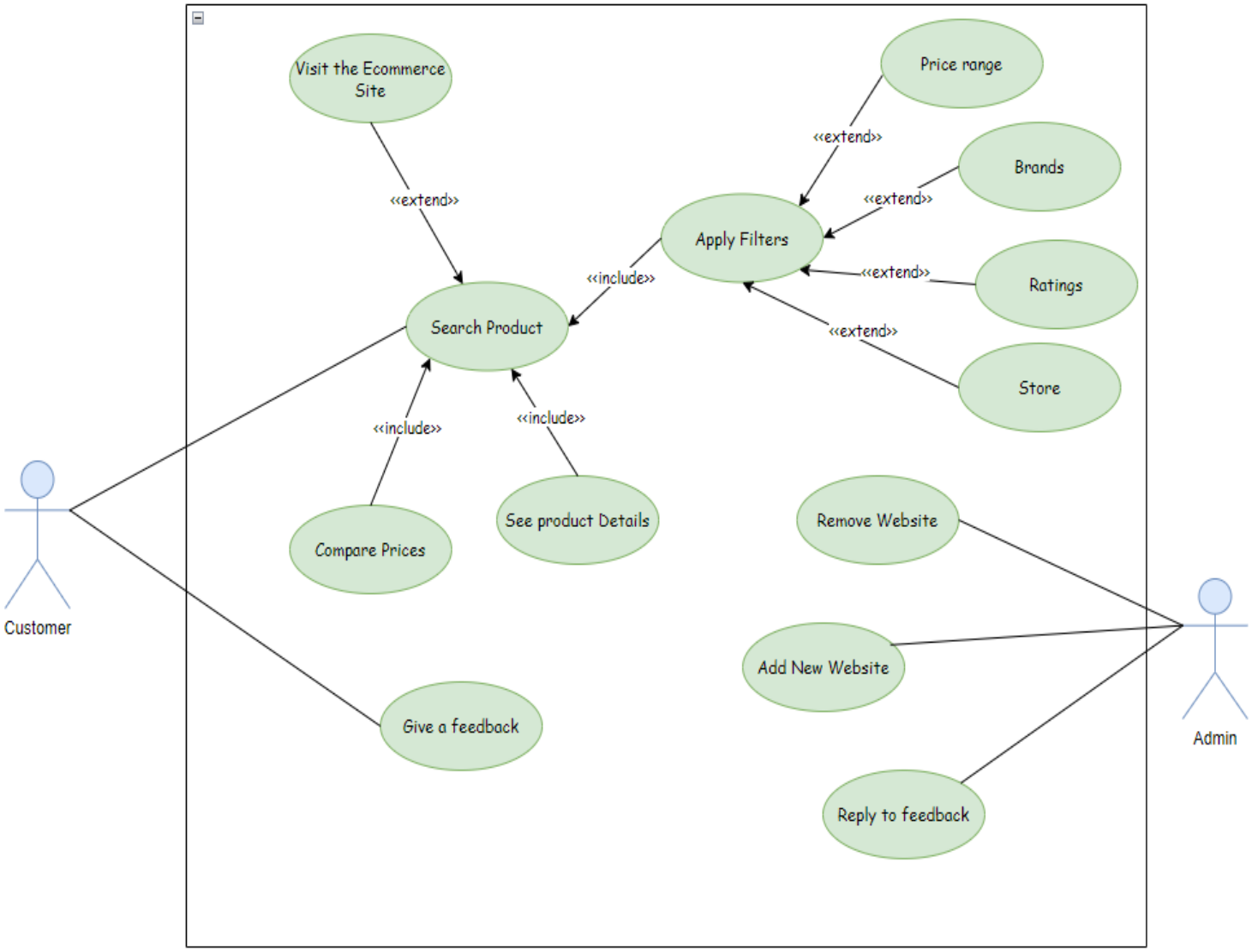
Use Case Diagram

Actors

- User (Customer)
- Admin

Use cases

- Search product
- Apply filters
- See product details
- Compare prices
- Give a feedback
- Visit the ecommerce website
- Remove Websites
- Add new websites
- Reply to a feedback


Visit the Ecommerce Site
Price range
«extend»
Brands
«extend»
«extend»
Apply Filters
«include»
Ratings
«extend»
Search Product
«extend»
Store
«include»
«include»
Compare Prices
See product Details
Remove Website
Customer
Add New Website
Give a feedback
Admin
Reply to feedback

Use case Description

1) **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 Outdated or incorrect data: The website may not have updated data on product prices or inventory, leading to incorrect search results.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.

2) Name: Apply filters

- 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 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:

None.

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

3)Name: See product details

- Actors: Users(Customer)
- Goal: To get enough information before purchasing the particular product.
- References to requirements:
- Pre-conditions:
    - Users must enter the 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. Details might be outdated.

4) 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 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 price range or for branded products .

5) Name: Give a feedback

- Actors: Users(Customer)
- Goal: To meet the requirements and expectations of Customers and To help admin to improve their services and also to improve Ecommerce platform services
- 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. Admin doesn't react to the comment from the customer.

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

6) Name: Visit the ecommerce website

-Actors: Users(customer)
-Goal: To purchase particular product

-References to requirements :
-Pre-conditions:

- 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.

7) Name: Remove Websites

- 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.

8) Name: Add new websites

- Actors: Admin
- Goal: to allow new website to be in the list
- Referenceto requirements:
- Pre-conditions:
    - Admin authentication is required to add a website.

-Description:

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

-Exceptions:

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

- Post-conditions:
    - The search results should include items from added websites.

9) Name: Reply to a feedback

- 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.

Non-Functional Requirements

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

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.

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.