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* **Introduction :**
  + The Product Search and Comparison Web Application is designed to allow users to search for products across multiple e-commerce platforms such as Amazon and Flipkart and compare their prices, ratings, and other details. This document outlines the functional and non-functional requirements, system architecture, and user interface specifications of the application.

**Software Requirements Specification**

* **Functional Requirements:** 
  + **Search Functionality** :
    - FR1: The system shall provide a search functionality where users can enter the name of the product they want to search for.
    - FR2: Upon submitting the search query, the system shall retrieve and display relevant product information from Amazon and Flipkart.
* **Product Information Retrieval :**
  + FR3: The system shall retrieve the following information for each product: Title Price Rating Image (optional)
  + FR4: The system shall handle variations in HTML structure and class names on Amazon and Flipkart websites to ensure accurate retrieval of product information.
* **Comparison:**
  + FR5: The system shall present the retrieved product information from Amazon and Flipkart side by side for easy comparison.
  + FR6: Users shall be able to compare the title, price, rating, and other details of the products.
* **Non-Functional Requirements :**
  + **Performance :**
    - NFR1: The system shall retrieve search results and display them to the user within 5 seconds.
    - NFR2: The system shall handle a concurrent user load of at least 100 users.
* **Usability :**
  + NFR3: The user interface shall be intuitive and easy to use, with clear navigation and search functionality.
  + NFR4: The system shall provide appropriate error messages and feedback to users in case of search failures or errors.
* **Reliability :**
  + NFR5: The system shall be robust and handle errors gracefully, ensuring minimal downtime.
  + NFR6: The system shall employ retry mechanisms for fetching data from Amazon and Flipkart to mitigate network errors.
  + **Security :**
    - NFR7: The system shall not store any user data or search history.
    - NFR8: The system shall use HTTPS for secure communication with external websites.
* **System Architecture:**
  + **Components :**
    - Web Server: Responsible for serving web pages and handling user requests.
    - Web Scraper: Component responsible for fetching product information from Amazon and Flipkart.
    - User Interface: Front-end component where users interact with the system.
* **Interaction Flow :**
  + User enters the name of the product in the search bar and submits the query.
  + The web server receives the search query and triggers the web scraper component.
  + The web scraper fetches product information from Amazon and Flipkart.
  + Retrieved product information is sent back to the web server.
  + The web server formats and displays the product information on the user interface.
* **User Interface Specifications :**
  + **Homepage :**
    - Contains a search bar where users can enter the name of the product.
    - Upon submitting the search query, the user is redirected to the search results page.
* **Search Results Page :**
  + Displays the search results with product information retrieved from Amazon and Flipkart.
  + Products from both platforms are presented side by side for easy comparison.
  + Each product listing includes the title, price, rating, and optional image
* **Glossary :**
  + Amazon: A popular e-commerce platform.
  + Flipkart: Another popular e-commerce platform.
  + User Agent: A string that identifies the user's browser to web servers.
  + HTML: HyperText Markup Language, the standard language for creating web pages.
  + Python: A high-level programming language known for its simplicity and readability, commonly used for web development, data analysis, and automation tasks.
  + Flask: A lightweight web framework for Python that provides tools and libraries to build web applications.
  + CSS: Cascading Style Sheets, a style sheet language used for describing the presentation of a document written in HTML or XML. It enhances the appearance and layout of web pages.
* **Conclusion :**
  + The Product Search and Comparison Web Application aims to provide users with a convenient way to search for products across multiple e-commerce platforms and compare their prices and other details. By adhering to the outlined requirements and specifications, the application will offer a reliable and user-friendly experience.