



E-Commerce Analysis and Product Price Comparison Using Web Mining

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ABSTRACT

Web mining is an application data-mining technique used to extract information from web services. E-commerce websites nowadays have become one of the most important sources for buying all kinds of products. Many strategies have been developed by analyzing customer's behavior so as to attract more business and participation of people. As there are many e-commerce websites available it becomes difficult for users to choose best deal for desired product amongst these websites. Comparison of E-commerce products using web mining enables users to analyze prices and get desired product at minimum price. Users can also select multiple products that belong to same category for comparing its features. To obtain best deals from e-commerce websites web crawlers and web scrapping techniques are used to fetch detailed information. This way, paper aims to provide solution for online customers to buy products at good deal and save their valuable time, effort and money.

Keyword: Web mining, E-commerce analyze prices

1. INTRODUCTION

In the current era of online business, e-commerce have become a huge market for the people to buy goods online. Increasing use of smart devices and other mediums has paved the way for users to buy products almost from anywhere. This has increased involvement of online buyers evolving e-commerce business. These large numbers of e-commerce websites put users in turmoil to search and choose to buy a single product from multiple e-commerce websites. The proposed solution helps online users to grab best deal for their product from multiple e-commerce websites on single web interface. This will in turn save users time, money and efforts to find the same product prices on different e-commerce websites. Proposed system uses web scrapping technique to extract data from e-commerce web pages and also web crawler to links for products. This will also allow users to analyse prices and select products from same category for comparing its features. This system uses the following technologies:

2. LITERATURE REVIEW

Y. Thushara [1] Analyzed and also identified whether Google Analytics can be considered as a state-of-the-art alternative to collect data for web usage mining. The principle is to cluster customer segments by using automatic discovery and analysis of patterns in E-Commerce website which input data comes from web log of various e-commerce websites. The authors analyzed one of the leading E-Commerce Software (OPENCART) to track the information of the web users. The authors implement into the Google Analytics Tool for the report of traffic information of the users.

Jawahire Nakash [2] E-commerce is globally increasing business with increasing revenues every year manifold times. This is simple indication of more people moving online for shopping. They have developed many strategies by carefully analyzing the behavior of customers and overcoming the risk involved in online transactions to attract more business and participation from people. The Real Time Product analysis using data mining enables the buyers to compare products from different. Then comparison among products of different E-commerce websites is made by using techniques such as inverted indexing. This way the paper aims to provide a solution which grants power in the hands of the users to purchase genuine products at genuine deal and saving user's time, money and efforts.

Arti [3] E-commerce is all about carrying out business on the Web. It is about carrying out transactions, essentially buying and selling products and services by consumers and businesses respectively, on the web. Web is one of the largest sources of information, collection of many files stored in different web servers and its size is also growing rapidly. E-Commerce not only keep your business up and running but also make it tough to stand in the competitive world of e-business. E-commerce has provided a cost efficient and effective way of doing business in the web. Web mining is the application of data mining techniques to discover and extract useful and interesting information from the Web.

3.A PERSONALIZED RECOMMENDATION SYSTEM

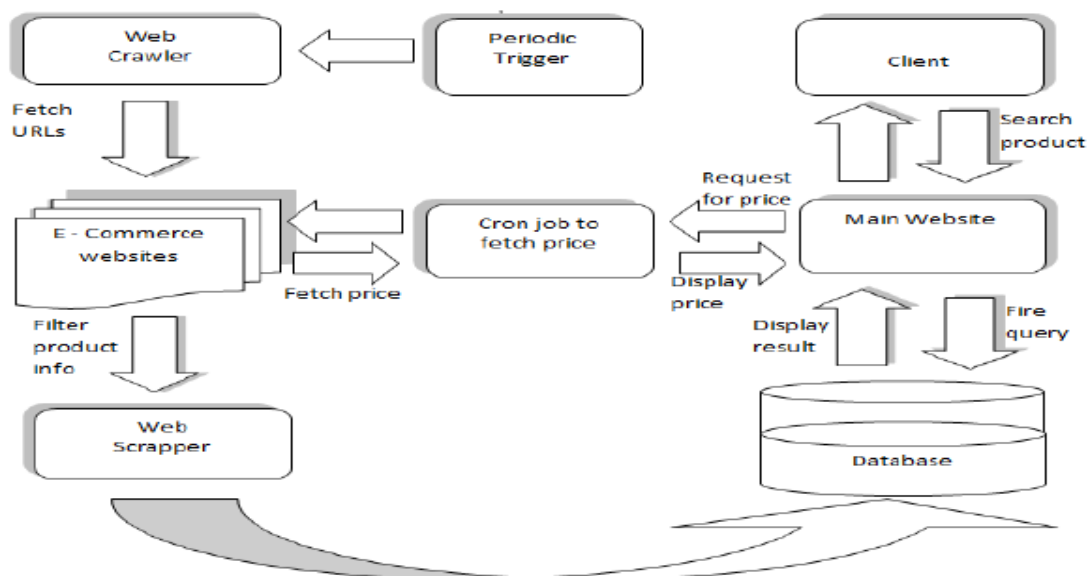
Personalized recommendation system not only satisfies the customers by offering relevant recommendations, but also helps the seller to increase their revenue and improve the overall quality of the shopping platform. Different types of recommendation systems were studied, including Contentbased, Rule-based and Collaborative-filtering recommendation systems. We found that integration of semantic in recommendation techniques can provide better recommendation

Web mining

Web-scraping and web-crawling are the techniques of extraction of data from web pages. These techniques were implemented by various researchers for different purposes [4]. Scrapping a web page using python request, BeautifulSoup, Selenium provides high accuracy in providing the best e-commerce deals for customers from different websites

The proposed system is as follows: The backend system consists of two important techniques web crawling and web scrapping. Web scrapping is a technique that is used to extract information in the human readable format and display it on destination terminal. But before scrapping the output, Web Crawlers are responsible to navigate to the destination once the crawler reaches the correct page and matches up with the products, scrapping process starts. Crawler periodically fetches information from e-commerce websites so as to check for updates .If updates are available crawlers carries those updates and makes necessary changes in the database.

SYSTEM ARCHITECTURE



4.WEB SCRAPPING ALGORITHM

- 1 Taking product name as input which is to be searched across different websites.
- 2 Passing the product name in the form of URL to BeautifulSoup and Selenium.
- 3 Scrap product label, price, image and hyperlink for every product from each website.
- 4 Compare the product price and match them to the search query.
5. Display the website in ascending order of the product's price while being filtered on accuracy basis.
 - 1) For Flipkart website: Flipkart uses asynchronous loading techniques for showing products so it becomes difficult to get the data using BeautifulSoup. That's why an alternative, Selenium, is used which allows to scrap data, even when the data to be scrapped from is loaded using asynchronous techniques or Ajax. Algorithm 6: Flipkart Algorithm 1 Pass the name of the product to be searched is to Selenium driver.
 - 2) Scrap the product label, price and image using the web elements' XPath and class.
 - 3) If the product belong to a type of distinctive cases, then for each special case, the product details are scrapped using the respective web-elements' XPath.
 - 4) Append the product details in a list.
 - 5) Repeat Steps 2 and 3 for each product displayed on page.
 - 6) Return the list of product details. The products are differentiated in the way they are displayed on the basis of their categories. Hence for distinct types of products, the web element which stores product details is changed. To include such change in web elements, distinctive cases have been made to make the algorithm functional

5. RESULT AND DISCUSSIONS

The proposed system compares and displays the prices of a product from different e-commerce websites. Top search results are displayed to the user on a single interface. Visualization of product prices helps the user in determining the best price for a product. The system redirects the user to the original website of a particular product, in case the user chooses to buy any product. The average time taken by a user to manually search and compare price of a product on different websites is quite high, whereas the time taken by our system to fetch the price of product on the same websites is 5.8 seconds on average. So, the user can get the best price of a product within 5 seconds. Also, the user gets notified about the price drop of an interested product by the notification system via email. Hence, our application saves time and inconvenience caused to user while searching and comparing prices of products online.

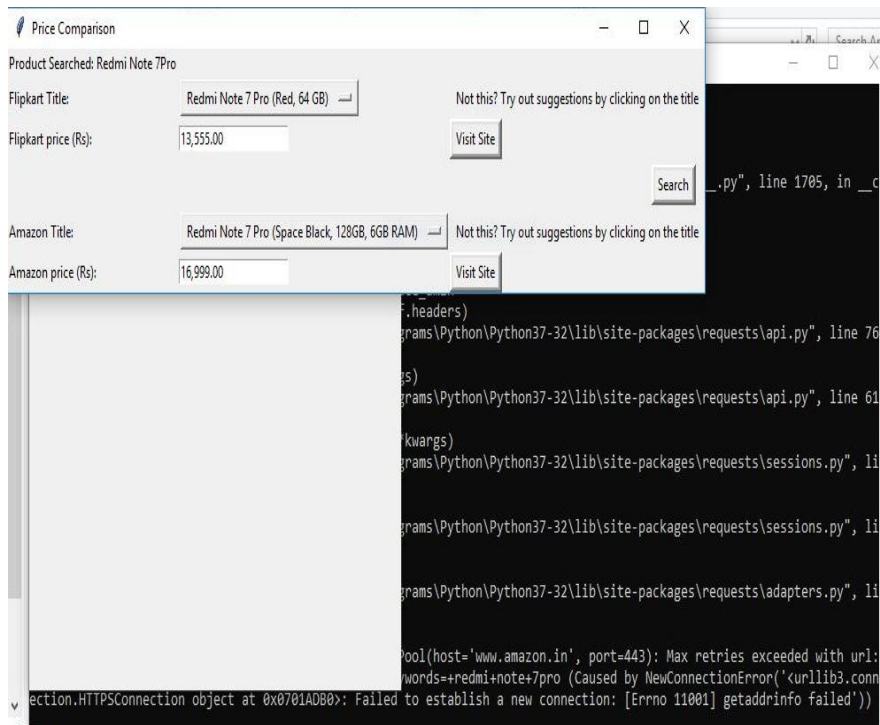


Figure:A3.2 Price Comparison

6.CONCLUSION

Comparison of E-commerce products using web mining is web based system which will help users in decision making while buying products online. This website will facilitate users to analyze prices that are present on different e-commerce shopping websites so that they get to know the cheapest price of product with best deal. The website will also have the facility of comparing products with all its specifications that belong to same category. This will surely save buyers efforts and valuable time. Ultimately, this will bring together strategies, best offers and deals from all leading online stores and will help buyers to shop online.

FUTURE ENHANCEMENTS

In the future, the product aims to include several features like suggesting the user about the expected future changes in prices on products on the basis of business analytics that can predict the situation and demand of the products in the market.

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