

Design and Development of Affiliate Tracking Application for Real-Time Price Comparison on E-Commerce Platform

Prashant Dahiwale¹, Aishwarya Shinde², Pawan Verma³, Vikas Rathod⁴, Avantika Munghate⁵,
Ashwini Kamble⁶

Asst. Prof., Department of Computer Science and Engineering,

Rajiv Gandhi College of Engineering and Research (RGCER), Wanadongri, Nagpur¹

Rajiv Gandhi College of Engineering and Research (RGCER), Wanadongri, Nagpur^{2, 3, 4, 5, 6}

Abstract: There is a huge necessity of E-commerce websites in day to day life. The business-to-consumer aspect of e-commerce is the most visible business use of World Wide Web. Electronic Commerce, known as e-commerce which consists of buying/selling of products over Internet based on browser/server system. This paper focuses on the benefits of affiliate marketing as a tool for increasing business profitability. This paper is an attempt to compare the prices of the products from multiple E-commerce sites and display the least price of products from all available e-commerce sites. Thus it helps buying the products through the online shops such as flipkart, snapdeal, etc anywhere through internet by using an android device. It also resolves the problem of internal memory space of an android device.

Keywords: E Commerce, Affiliate marketing, Affiliate tracking, World Wide Web, JSON.

I. INTRODUCTION

E-commerce usually refers to the trade in global business activities, the Internet environment based on browser/server application mode, achieving consumer on-line shopping[1], on-line transactions between merchants and on-line electronic payment and a variety of business activities.

E-commerce has grown rapidly in past few years. In order to keep successful, an e-commerce website need to attract new customers and keep existing ones, as extended customer relationships will lead to direct rising profits.[2] E-commerce website is one type of web applications, most web systems have to provide transaction service, state maintenance, and reliable storage functions [3], so these rules also apply to e-commerce applications. A transaction activity is involved to plenty of database operations and some third party interactions, such as shipping and payment service [4].

E-Commerce contributes to economic efficiency in five important ways [5]. They are as follows:

- Reducing distances and required time
- Lowering distribution and transaction costs
- Speeding product development
- Providing more information to buyers and sellers
- Enlarging customer choice and supplier reach.

E-Commerce provides the capacity to buy and sell products and information on the Internet as well as other online services.

With the increase in new communication and interaction technologies progressively creeping in our everyday life and pervasively influencing it, many companies have already established e-commerce web sites, and in the next

few years, many more e-commerce sites will come online. Companies develop e-commerce web sites for different reasons:

- To reach new customers.
- To stay abreast with their competitors.
- To meet their customers' expectations and needs.

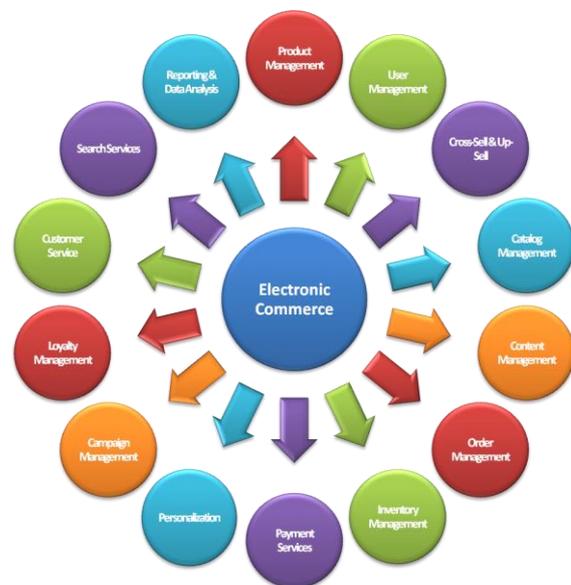


Fig 1.1 :E-commerce services

Although in the present scenario, more than 30% of the Indian population who shop online relies on frequently visited and most populated sites only. But there are many other marketers also that tend to build their competitive

edge in E-commerce market. Many marketers work too hard to be “super” affiliates. They try to juggle too many balls and wind up losing some of their competitive edge. Most of their reasons can be huge investment on promotions and advertisements, reputation and goodwill.

The business-to-consumer aspect of electronic commerce (e-commerce) is the most visible business use of World Wide Web (WWW). Affiliate Analytics is an analytic engine that supports storage of large amount of data from E-commerce web sites for analysis purpose. The key goal is to compare the prices of the product from multiple E-commerce sites and analyze the least price of the product. More specifically; collecting, reporting and analyzing Ecommerce data focused on details about the product purchase.

Many E-com sites exist who cater to the growing needs of online users who shop many products from them. From the prospect of online users, product cost, price, market competitor’s price, its availability, quantity, shipping and tracking, etc are the measurements that are directly proportional to purchase of the products[5].

Affiliate tracking: An affiliate program is a form of internet advertising that rewards marketers for driving traffic to a company's website and producing sales. The company gives its affiliates a personalized tracking link that the marketer can use in their promotions. This link enables the company to track where traffic and sales are coming from and pay their affiliates accordingly. It is very important to be armed with up to date information and technical knowhow if you are going to run such a program successfully and with the minimum stress[6].

The affiliate tracking will act as social proof for customers to make buying decisions based on multiple factors like: Price, rates and reviews, shipping and tracking, merchandising, quality, delivery and other services. This project is based on the principle of e-commerce data handling which enables the user to achieve the zenith that how to purchase online. Although customer is novice about the structure and trends of the online markets, the structure of project in a sophisticated manner that seems a little simple but very difficult to deal with because of the large data values present in this.

II. LITERATURE REVIEW

There were some price comparison websites that tried to achieve the price comparison:-

Junglee.com

Junglee.com is the price comparison website by Amazon. Search for a product, see its price on various Indian online retailers, get contact link and product shopping page direct from junglee.com listing page.

PriceDekho.com

PriceDekho.com is also a website that allows users to compare prices of Tablets, mobile phones, camera, mp3players and many other things. It provides option to put a price alert on any product, so that when the price drops to that value, you will be notified by an email.

Mypriceindia

Mypriceindia.com is also a price comparison website. You can compare prices of mobile, laptop and camera. So, Compare prices and select the online retailer which if offering product on lower price.

Mysmartprice

MySmartPrice.com is one of the online price comparison engine which let you find the best price of products in Mobiles, Books, Cameras, Electronics, Computers, Appliances and Personal Care products, etc in India. MySmartPrice also provides the user with Deals and Coupons making the online shopping more rewarding.

Pricecheckindia

pricecheckIndia.com helps you finding the best deal(not just the best price) in categories such as Mobiles, Tablets, Cameras, Laptops, Computers, Home Appliances and Kitchen Appliances etc.

BuyHatke

A price comparison portal that gives a price comparison between different websites offering the same product so that a consumer can decide which website is offering the lowest price. Its a good shopping portal for online buyers. All the above websites works in the following manner:

- Get the product name from the users
- Fetch all the details related to product from their own respective database to the application.

Example: Buyhutke uses its own web services (buyhutke.com) to get the details of the product.

As per the approach of the existing methods there are following flaws in the successful retrieval of information.

- Delay in information fetching
- Less accuracy of the information
- Requires more memory

In order to overcome these flaws Affiliate Tracking uses the following strategies:

- Get the product name from the users
- Fetch the details of products from each e-commerce sites(snapdeal.com,flipkart.com, amazon.in, ebay.in)

Benefits of Affiliate Tracking:

1. Low cost

Running an affiliate program is very cost effective. The affiliate bears most of the cost of promoting the product; affliater provides them with the necessary tools, such as banners and other promotional material. Of course, this arrangement is mutually beneficial, affliater get low cost advertising; affiliates get the opportunity to make money from a product that they haven't had to spend time and money developing [6].

2. Affiliate programs produce unlimited income through leverage

With affiliate marketing, affiliates do all of the work in getting traffic to affliaters site. Once affliater has provided them with their ad copy and links they don't lift a finger, especially if their product is a digital one. Although

not everyone earns limitless amounts of money, running an affiliate program greatly increases your chances [6].

3. Go worldwide

With affiliate marketing, there is a direct deal with global market place. All has to be done is to choose a niche product and prepare all the necessary tools for affiliates to lead traffic from just about anywhere to website [6].

4. Low risk

The main reason that so many internet companies rely on affiliate marketing is that the risks are relatively low. This is especially true for those with little money available to set aside for advertising. An affiliate program is just the way to do it[6].

5. No closing time

With affiliate marketing, business works every single second of the day while targeting a worldwide market![6]

III. MODULES

The main modules of this project are:

Server/Admin Module: Server/Admin is the affiliate provider who has complete rights to generate different affiliate policies, affiliate benefits rates, keeping track records of different registered affiliates and the customers. Deciding different rules for the policies and updating it on its generation. Providing affiliate commission and track record of registered affiliates are been managed by the admin. This module contains response query that will be sent to the client/application module in JSON format as a response.

Client/Application Module: Client/Application module is the main interface between the affiliate provider and users registered as affiliate who will be provided commission on the basis of the traffic they generate on affiliate provider sites. It can be a website or mobile application. This module contains GUI, request query, JSON parsing code.

IV. PROPOSED ARCHITECTURE

The proposed architecture of Affiliate Tracking consists of overall flow of the structure, how it works and the interdependency which exists among the different modules. The proposed system focuses on the sequential flow of the processes been executed in the implementation of the system. The overall architecture is shown in fig.4.1, where we are fetching the data using Java API from multiple e-commerce websites. So for the particular website, it need to be register through affiliate program. The proposed system will work on buying factor of products so that customer can make buying decision easy and profitable. The system is reliable and usable as per its ease provided. It can follow latest trends of products. It will work according to the architecture prescribed below. The architecture is been developed extracting and using certain features and working ability of already implemented and existing systems. Affiliate program is a e-commerce program that is used for getting access of database of various e-commerce site. For registering multiple e-commerce websites it need to follow some

procedures of the particular websites. Visit to that particular website, it will contain two options, contact and about us. Choose option contact which will give another option as to be an affiliate/become an affiliate. Then the log in page will occur, then according to the developer it need to give detail information. The complete information is successfully verified by the e-commerce websites. Then it will provide API function, private key, user id along with complete procedure about how to use this API function including syntax, input parameters and result. Data return by API will be used by application. And this data will be store into back end SQL database.

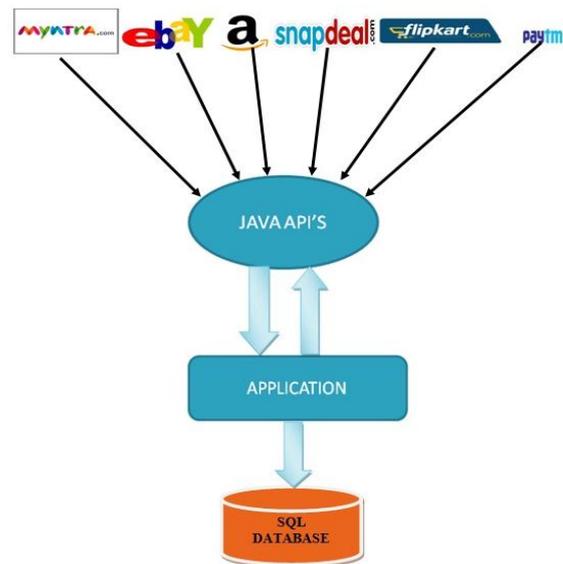


Fig 4.1 : Proposed Architecture

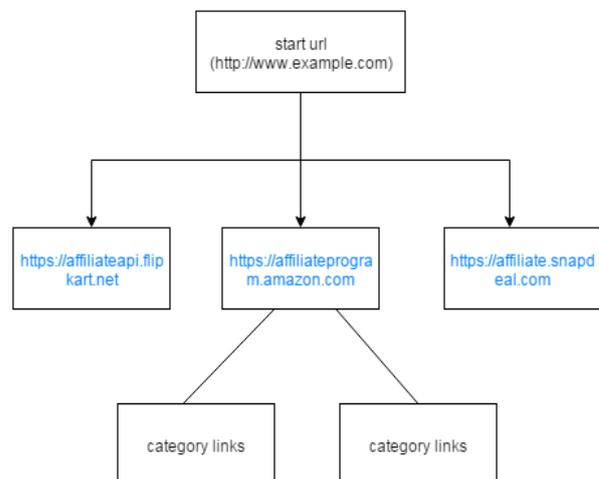


Fig 4.2: Extracting data from dynamic web pages

V. DESIGN

The design model shows the different entities and the attributes connected to the entities of Affiliate Tracking. The implementation of this modules include development of the overall architecture of the system which include handling request query, response, commission generation, developing user interface, JSON parsing and basic focus on developing the different modules.

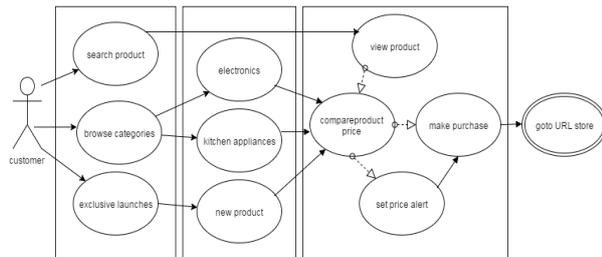


Fig 5.1: Use-Case Diagram

STEP 1: Application needs internet connection so that it can access various products on multiple e-commerce website.

STEP 2: The first page of application contains home screen in which it has search bar, categories which contains multiple appliances and exclusive launches.

STEP3: client can search the product or can access various categories

STEP 4: after searching the product it will have two option as compare or alert set.

--if compare option is selected then that item will be compared with multiple e-commerce websites in least price.

--or else alert option is selected then for that particular item user will get notification about the price of the product which is convenient to the users budget.

STEP 5: The selected item from the client will directly forwarded to URL.

STEP 6: after the completion of the purchased order affiliate gets commission as per the percent-rate specified by the affiliate provider.

VI. WORKING

When the user types about the products items in the search label field of the browser, find product function calls which contains three parameters product Id, key, product name which request to e-commerce sites such as flipkart.com, snapdeal.com, etc using http client request and check these sites whether the request is affiliated or not. If request is affiliated then particular websites provide API's i.e. inbuilt functions using which we can extract data from multiple e-commerce websites. In a dynamic Web page, content varies based on user input and data received from external sources.

The application works on the basis of request and response method. Each time the application is launched with the http request made by http client internally to the network (server) handle by request handler [7].

In response, network (server) initializes the request of the client by authenticating the affiliate id and password .The server responses every request in XML/JSON format which is handled by the response handler [8].

Customers ordering from an e-commerce application need to be able to get information about a vendors/retailer's products and services, select items they wish to purchase, and submit payment information. Vendors need to be able to track customer inquiries and preferences and process their orders [9].

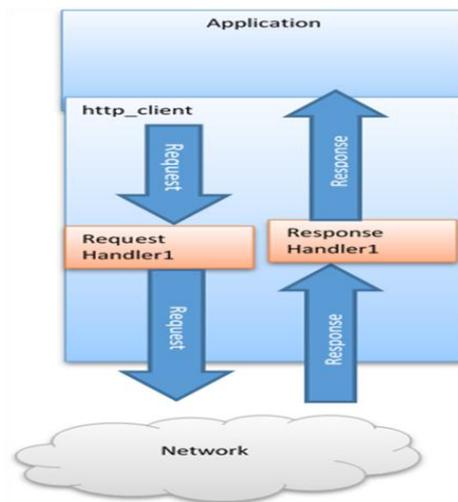


Fig6.1:Structure of request & Response message on Server

VII. IMPLEMENTATION

MODULE 1: MAIN MODULE

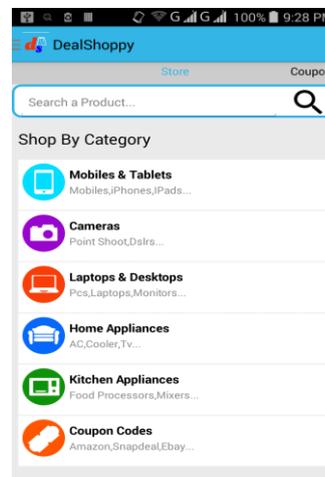


Fig.7.1 Main module

Affiliate Tracking app start with the main module. The main module provides the complete GUI to the end user in terms of sliding menu, search bars, buttons, images, and etc. The main modules has three sub functions named as home screens, sliding menus, categories, and exclusive launches. Home screen contains search bar where end user will be able to search the product on the basis of product name, category, or feature. In order to start the search user has to press the search icon.

MODULE 2: SEARCHING PRODUCT MODULE

Sliding menu provides various categories including mobile and tablets, cameras, home appliances, laptop and pc, kitchen appliances, home theaters. Clicking on any of the menu will forward the end user to the selected categories screen. After entering the product on search bar as soon as the user clicks on search icon, the searching of the product starts. While searching the product the user is redirected to a new screen showing a progress dialog box “searching for the product”.

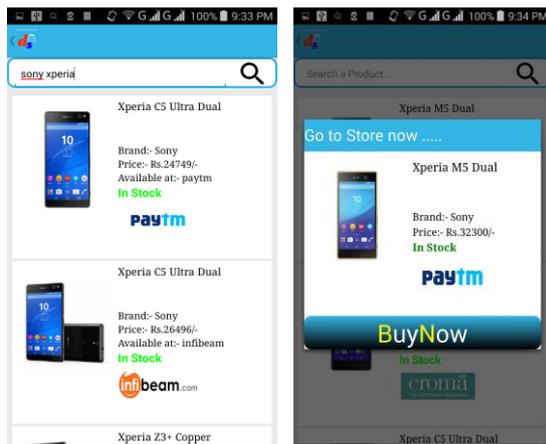


Fig7.2. Searching Products

As the searching is completed the progress dialog box is hidden and searching result is displayed in the form of list containing product name, product price, product store, and product image.

The displayed list is filtered from low to high price. As user clicks on product store button, end user is redirected to the actual website of the product. After the successful purchase of the product by the customer the affiliate/advertiser gets commission.

VIII.CONCLUSION

The paper explicates on Affiliate tracking system that will help end user to have updated comprehensive price list of products within short span of time. The proposed system would help user to have better understanding about the pricing trend of a product so that they can be prepared from which store to buy the product. The system would have exclusive launches of products from various e-commerce stores which will make the application more meaningful to users

IX.FUTURE SCOPE

- Create a platform to develop / launch e-commerce web site.
- Create a new interface to compare with various price comparison engines like Nextag, price Grabber, theFind, Shopping.com, etc.
- Develop browser extensions, plug-ins & add-ons like compare Hatke, Price Blink, Makkhi Chosse, Invisible Hand & so on[10].

REFERENCES

[1] Marshall Brain, "How e-commerce works". <http://communication.howstuffworks.com/ecommerce.html>, 2000 accessed Apr. 2009.

[2] M. Arlitt, D. Krishnamurthy, and J. Rolia, "Characterizing the scalability of a large web-based shopping system". *ACM Transactions on Internet Technology*, 28:50–56, 2001.

[3] G. Gama, W. Meira Jr., M. Carvalho, D. Guedes, and V. Almeida, "Resource placement in distributed e-commerce servers". *The Evolving Global Communications Network*, 3:6–8, 2001.

[4] U. Vallamsetty, K. Kant, and P. Mohapatra, "Characterization of e-commerce traffic", Fourth IEEE International Workshop on

Advanced Issues of Ecommerce and Web-Based Information Systems, 3:167–192, 2003.

[5] A .Gunasekaran, H. B. Marri, R. E. McGaughey, M .D. Nebhwani, "E-commerce and its impact on operations management", page 185-197, *International Journal of Production Economics*, 2002.

[6] Paul Winter, "Affiliate Marketing: Cost effective way to advertise your business", http://ezinearticles.com/expert/Paul_Winter/23100,Submitted On July 14, 2006.

[7] Jie Zhang, "Design of E-commerce Application using Wamp", http://sdsudspace.calstate.edu/bitstream/handle/10211.10/640/Zhang_Jie.pdf, 2010.

[8] Kubilus, N. J, "Designing an e-commerce site for users", *Crossroads*, Volume 7 Issue 1, September 2000.

[9]"Ecommerce Tracking", From Developers google http://developers.google.com/devguides/collection/analyticsjs/ecommerce_tracking

[10] "Affiliate Marketing", From "Wikipedia", http://en.m.wikipedia.org/wiki/Affiliate_Marketing.