ORIGINAL ARTICLE

ROLE OF SEARCH ENGINE OPTIMIZATION IN WEB TECHNOLOGY FOR COMMERCIALIZATION RATIONALE

VIKASH KUMAR SINGH

Ph.D. Computer Science & Engineering
UGC-NET-Computer Science & Applications Assistant Professor, Dept. of Computer Science

Abstract

Realizing the importance of links and link analysis in search engine results, several link farms and Free for All sites have appeared that offer to provide links to your site. Web usage mining is the automatic discovery of user access patterns from Web servers. By Analyzing server's data we can capture behaviour and interests of user. By monitoring web user's browsing behaviour, we can discover reliable knowledge about user's general preferences and needs. Online advertising is a form of promotion that uses the Internet and World Wide Web for the purpose of delivering marketing messages to attract customers. Examples of online advertising include contextual ads on search engine results pages, banner ads, Rich Media Ads, Social network advertising, interstitial ads, online classified advertising, advertising networks and e-mail marketing. Every advertising model is based on the mutual requirements of content creators (online advertisers/web publishers), content aggregators and content consumers (users). Advertisers/web publishers invest heavily in advertising to market many products and services. Search engine acts as content aggregators and work for providing accurate and speedy information to its users. They work as potential source for providing content consumers to the content creators by luring users to use their search technology for informational needs. User plays an important role as they are the potential source of revenue for the search engine and the advertisers. Hence there is a cyclic dependency between the three components i.e. web-users, advertiser and Search engine. This Paper presents a new advertising model for commercialization of web, which performs customization of advertisements and customization of users, with that we are enable, relevant adds to be shown to relevant web users on user more interested web pages .

KEY WORDS:

Web Mining, Web Advertising, User Patterns.

1)INTRODUCTION

With the rapid rise of the World Wide Web in the early and mid-1990s, an unprecedented commercialization of the Internet has taken place, turning the former academic network into a mass medium for information gathering, shopping and communication. Different sources on the Web1 state that the first paid, large-scale advertising campaign was a Web banner ad from AT&T placed on Hot Wired, one of the first commercial magazines on the Web, in 1994. The Web advertising business model was born and the struggle for users' attention began. Existing pay models are based on the number of ad impressions, clicks or subsequent orders triggered by the ad. Every advertising model is based on the mutual

requirements of content creators (online advertisers/web publishers), content aggregators and content consumers (users). Advertisers/web publishers invest heavily in advertising to market many products and services.

1.1) FORMS OF WEB ADVERTISING

The aim of Web advertising is to attract potential customers to the advertiser's Web site and/or to strengthen brand recognition by placing promotional content and a link on other Web sites. In the constant struggle for attention ,Web advertisers tend to be creative with respect to how they design and present their message. However, the requirements of the advertising mass market lead to a standardization of the formats and technology in use. Generally speaking ,ads on the Web are becoming larger, more interactive and media rich, reflecting the advances in both Web browser technology and broadband Internet penetration. The currently most used ad formats are as follows.

1.1.1) Banner Ads

Banners are integrated rectangular ad units consisting of static or animated images. Banners currently come in various standardized and non-standardized sizes. Originally, banners were non-interactive and relatively unintrusive. Nano-site banners consist of a small HTML page (IFRAME) that can contain an HTML form for interaction. Flash-based banners can play animations and sound, and often interact with the user. Some intrusive Flash-based banners play a full-screen overlaid animation when they are loaded and then shrink to their original size. Some banners expand when the user hovers over them with the mouse.

1.1.2) Video Ads

Video ads are often found on Web sites offering online videos, and are played in front of the main video. Video ads resemble conventional TV spots and usually cannot be skipped. A newer form of video ad is integrated into ordinary Web pages like a larger banner ad. Playback is either started automatically or when the mouse hovers over the embedded video player.

1.1.3) Text Ads

When used sparingly, text ads (which are usually noninteractive) are the most unintrusive form of advertising. Currently almost all the revenues of Google Inc. come from text ads, which are integrated either alongside Google's search results or into its ad network of participating sites. Google's text ads are HTML-based banner ads that are available in various sizes and forms. Another approach to text ads turns related words in the primary content into links to advertiser's Web sites. These ad links are usually underlined twice to distinguish them from normal links. Additionally ,a small bubble describing the underlying site appears when the user hovers over such links.

1.1.4) Popup

Pop-ups are intrusive, non-integrated, HTML-based ads that are opened in a different browser window when the user enters or leaves a page. A slightly less intrusive form are pop-unders, which open in the background and do not acquire focus. Pop-ups are initiated by the JavaScript methods window.open or window.showModelessDialog (IE-specific). Pop-up blocking Web browser add-ons have become so popular that the feature was adopted by all major Web browsers. A newer form of pop-up is the layer ad, which opens inside the main window and has to be closed by clicking on a close button that is sometimes hard to find.

1.1.5) Sticky Ads

This very annoying form of integrated advertising overlays an ad of any form in a fixed position in the browser window, in such a way that it is not affected by scrolling and has to be manually closed by pressing a small close button that is often hard to find. These ads are often based on an IFRAME or DIV element that is automatically repositioned in IE, since IE still does not support the position:fixed CSS property.

1.1.6)Ad Games

A more creative and highly interactive way to lure users away from the primary content is to embed Flash-based games into Web sites. This can be combined with a lottery at the end of the game, which brings the user to a questionnaire that collects personal information.

1.1.7)Interstitials

Like commercial breaks on TV, interstitials are Web pages which are loaded in front of the page the user has

navigated to and which contain any of the above-mentioned ad formats. In order to view the intended content, the user must either actively click on a link to proceed or wait until the end of the presentation, which makes this quite an annoying form of advertising.

1.1.8)Content Sponsoring

Content sponsoring is a business model that works, for example, for news sites or tourism portals where advertisers pay for the inclusion of a self-written article or a sponsored entry that does not differ much from the rest of the site. This very unintrusive and seamlessly integrated form of advertising can also be problematic if the paid content is not adequately marked as advertising.

In this paper, Web Index Recommendation(WIR) collects the interest and needs of all users. In case of Web Index Advertising model(WIA), WIR acts as content aggregators and work for providing accurate and speedy information to its users. WIR work as potential source for providing content consumers to the content creators by luring users to use their search technology for informational needs. User plays an important role as they are the potential source of revenue for the search engine and the advertisers. WIA applies an automatic discovery of user access patterns from Web servers. It will capture behaviour and interest levels of user by analyzing server's data. WIA can construct reliable knowledge about user's general preferences/needs by monitoring web user's browsing behaviour and processing custom navigating patterns. WIA maintain a trusted relational database of user's interests to dynamically process, discover and analyze to learn user behaviour patterns. User behaviour patterns like Login/Logout times will be successfully identified and archived in to the database. WIA will effectively mine the database archives to conclude and share useful recommendations and assert decisions for other information systems.

The rest of this paper is organized as follows. Section 2 presents Literature Survey. Section 3 describes Web Index Advertising Engine and Methodology. Section 4 describes Representation of Application. Section 5 presents Conclusion and Future work.

2) LITERATURE SURVEY

Online advertising is a form of promotion that uses the Internet and World Wide Web for the expressed purpose of delivering marketing messages to attract customers. Examples of online advertising include contextual ads on search engine results pages, banner ads, Rich Media Ads, Social network advertising, interstitial ads, online classified advertising, advertising networks and e-mail marketing, including e-mail spam. One major benefit of online advertising is the immediate publishing of information and content that is not limited by geography or time. To that end, the emerging area of interactive advertising presents fresh challenges for advertisers who have hitherto adopted an interruptive strategy. Another benefit is the efficiency of advertiser's investment. Online advertising allows for the customization of advertisements, including content and posted websites.

As the number of sites on the Web increased in the mid-to-late 90s, search engines started appearing to help people find information quickly. Search engines developed business models to finance their services, such as pay per click programs offered by Open Text[4] in 1996 and then Goto.com[5] in 1998. Goto.com later changed its name[6] to Overture in 2001, and was purchased by Yahoo! in 2003, and now offers paid search opportunities for advertisers through Yahoo! Search Marketing. Google also began to offer advertisements on search results pages in 2000 through the Google Ad Words program. By 2007, pay-per-click programs proved to be primary money-makers[7] for search engines. In a market dominated by Google, in 2009 Yahoo! and Microsoft announced the intention to forge an alliance. The Yahoo! & Microsoft Search Alliance eventually received approval from regulators in the US and Europe in February 2010.[8]Search engine optimization consultants expanded their offerings to help businesses learn about and use the advertising opportunities offered by search engines, and new agencies focusing primarily upon marketing and advertising through search engines emerged. The term "Search Engine Marketing" was proposed by Danny Sullivan in 2001[9] to cover the spectrum of activities involved in performing SEO, managing paid listings at the search engines, submitting sites to directories, and developing online marketing strategies for businesses, organizations, and individuals.

Some of the latest theoretical advances include Search Engine Marketing Management (SEMM). SEMM relates to activities including SEO but focuses on return on investment (ROI) management instead of relevant traffic building (as is the case of mainstream SEO). SEMM also integrates organic SEO, trying to achieve top ranking without using paid means of achieving top in search engines, and PayPerClick SEO. For example some of the attention is placed on the web page layout design and how content and information is displayed to the website visitor.

2.1) Pay per click model.

Pay per click (PPC) is an Internet advertising model used on websites, where advertisers pay their host only when the ad is clicked. With search engines, advertisers typically bid on keyword phrases relevant to their target market. Content sites commonly charge a fixed price per click rather than use a bidding system. Cost per click (CPC) is the sum paid by an advertiser to search engines and other Internet publishers for a single click on their advertisement, which directs one visitor to the advertiser's website. This model depends on the search engine for analysing and publishing advertisements.

2.2) Search engine model.

This model lacks performance efficiency. The prime reasons that motivate or necessitate the need for an evolutionary system are the ineluctable drawbacks tangled to it. Pay per click model suffers heavily due to the fraud clicks. The advertiser is bound to incur heavy costs for each such click as it depends on the search engine. Search engine meant to be used for more critical purposes is also taxed for publishing advertisements.

Google, Yahoo!, and other companies vying for a piece of the lucrative search-engine market continue to transform the sponsored-search model, linking results to other information media such as telephones and TV. However, click fraud undermines this process by reducing the value of Web site traffic to content providers and thereby decreasing revenue for the search engines. Threats to the search engines' underlying business model are also threats to the free search services that these companies provide to millions of users, making click fraud a concern for all.

3) WEB INDEX ADVERTISING ENGINE

The internet browsing becomes tedious when the user is interested in a page that is webbed inside other links and it takes a long chain to get to it. To facilitate a better browsing when the user wishes to view the same page again the time period the user spent on the page on the previous visit is measured and compared to the rest to give it high preference until a stipulated period. As user interests are fluctuating and dynamic in nature the analysis must be repeated accordingly. Online advertising allows for the customization of advertisements, including content and posted websites. We propose a Web Index Advertising engine which performs customization of users and customization of advertisements. By this work we can increase Return On Investment for Search engine. We can provide accurate and more related adds and information to users. And lastly we can increase advertising market to many products and services.

3.1) Basic Routines of Web Index Advertising Engine

User , Advertiser and Web Advertising Engine are Three Components of Our Web Index Advertising Engine.Initially , Our Web Index Advertising Engine performs Customization of Users using WIR. It achieves through , classification of users using k-Nearest Neighbour algorithm based on interested web pages. Next it performs , Customization of Advertiser by making classification of Adds using K-Nearest Algorithm through the Classification of Relevant Adds using K-Nearest Neighbour algorithm based on interested web pages. Next it Scroll down the relevant Adds on relevant and more interested web page browser. Finally, compute discount (Actual price for Advertiser) , Per each sec of Scrolling.
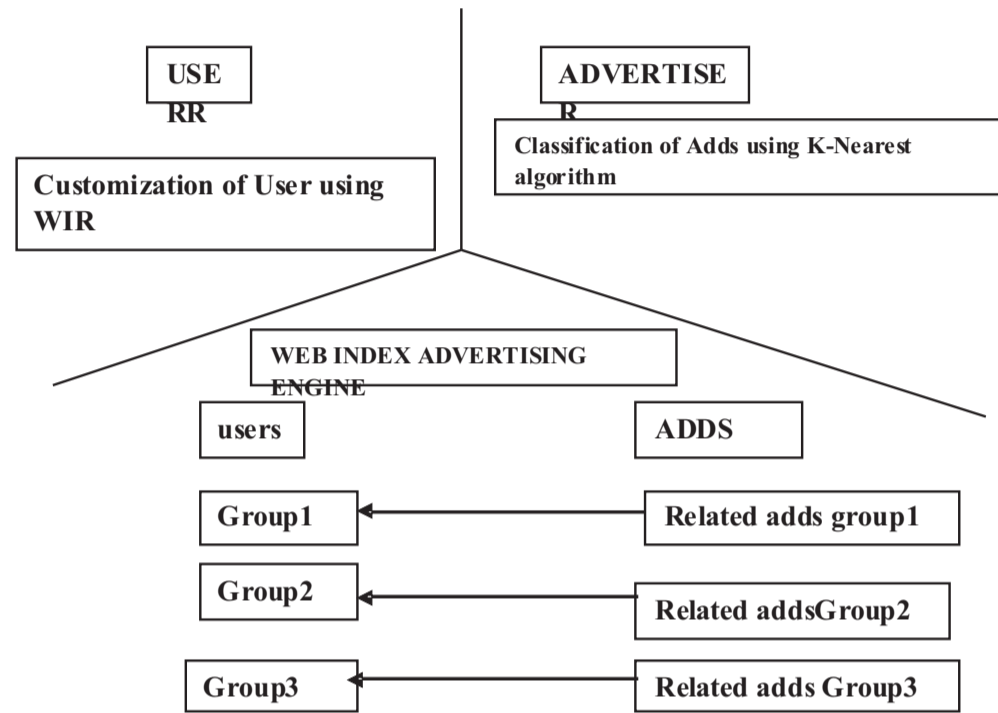
3.2) Architecture of Web Index Advertising Engine

USE
RR

ADVERTISE
R

Classification of Adds using K-Nearest algorithm

Customization of User using WIR

WEB INDEX ADVERTISING ENGINE

users

ADDS

Group1	←	Related adds group1
Group2	←	Related addsGroup2
Group3	←	Related adds Group3

Fig 1: Block Architecture of Web exposure Engine

3.3) Web index Recommendation software

Web Index Recommendation software is based on the client server architecture and for that we have a module that performs the functions of a client i.e. USER and the role of server is handled by the ADMINISTRATOR. Thus the modules involved in our project are.

4) REPRESENTATION OF WEB INDEX ADVERTISING ENGINE

4.1) Pseudo code Representation of web Index Advertising Engine.

4.1.1) Connection with database

```
cnn = new SqlConnection("user id=sa;pwd=;database=hbpc");
cnn.Open();
 Response.Write("connected");
```

4.1.2) Values Updating

```
cn1 = new SqlConnection("user id=sa;pwd=;database=hbpc");
cn1.Open();
   cmd1 = new SqlCommand("update page1_time set date_of_exit= '" + DateTime.Now + "' where user_id='"                       + Session["user_id"] + "'", cn1);
   dr1 = cmd1.ExecuteReader();
```

```
        dr1.Close();
        cn1.Close();
```

4.1.3) Evaluating User Time

```
 SqlCommand cmd;
        SqlConnection cn;
        SqlDataReader dr;
        //TimeSpan ts;
        cn = new SqlConnection("user id=sa;pwd=;database=hbpc");
        cn.Open();
        Response.Write("Connected ");
        //Label1.Text = " " + " " + " " + Session["user_id"];
        cmd = new SqlCommand("select * from page1_time where user_id='abc' ", cn);
        dr = cmd.ExecuteReader();
        while (dr.Read())      {
          DateTime startDate = Convert.ToDateTime(dr.GetValue(2));
          DateTime endDate = Convert.ToDateTime(dr.GetValue(1));
          TimeSpan dateDifference = startDate.Subtract(endDate);
          //int days = dateDifference.Days;
          int seconds_page1 = dateDifference.Seconds;
          //ts = Convert.ToDateTime(dr.GetValue(2)) - Convert.ToDateTime(dr.GetValue(1));
          Label1.Text = Convert.ToString(seconds_page1);
        }     Response.Write("You are now on the Result's page");
        dr.Close();        cn.Close();
```

4. 2) Statistical Representation of web Index Advertising Engine.
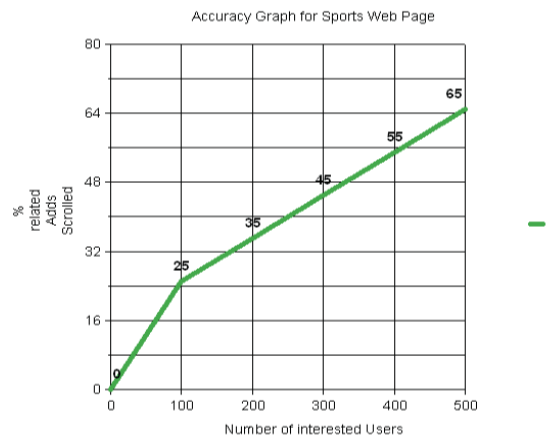

Fig 2: Accuracy Graph forSports web page

Fig 2 illustrates accuracy of our application. We are successfully scroled relevant Adds above 1 sec, per each relevant interested web page browser.If the group of relevant Adds are more, and number of interested users are more then Advertiser can gain the more profit and at the sane time we can charge more from advertiser.This graph explains the relevancy between user and Adds.

5) CONCLUSION AND FURTHER ENHANCEMENTS

5.1) Conclusion

I have included all requirements while developing this package. The system has been implemented and tested successfully. It meets the information requirements specified to a great extent. We performed Customization of Users using WIR by making classification of users based on interested web

pages.and we performed Customization of Advertiser by making Classification of Relevant Adds based on interested web pages. We have seen that relevant Adds will be scrolled to relevant and more interested web page browser.and finally I charge Per each sec of Scrolling compute discount (Actual price for Advertiser).I have tested our applcation and succeded upto 80%.

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