

Search Engine Development to Enhance User Communication

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Abstract: Search Engine Optimization (SEO) is important for websites to improve the rank for search results and get more page views requested by the user. A search engine ranks provide the better and optimized result to user, which will help them to view the popular page among the number of pages available in the search results. Apart from this search engine ranking, it also enables the websites to compete with other rival's website as each website owner expects to see their own website on the list before other's websites. This paper puts forward idea about SEO principles and basic strategies. It also expresses different techniques that are employed by search engines to improve its results. In addition, it presents the observation section, which gives the comparative analysis of SEO techniques. Update concepts sent to concern SEO search member.

Keywords: Search Engine Optimization (SEO), Search engine ranking.

1. INTRODUCTION

Today Internet has become a vast source of information with many websites being added every day. To manage the access and data integration of this vast resource has been a challenge these days. Since search engines handle 93% of internet traffic, so exploring the potentials of search engines is crucial. Search Engine Optimization is a tool that is used by website owners to defeat its competitors by placing its link before others website links in search engine's results. Since internet is full of raw data, the job of directing towards relevant and exact data lies in the hands of search engine. Due to this reason, Search Engine Optimization Techniques has become an important topic for researchers and academicians and business organizations. SEO techniques make use of original results, which are analyzed by search engines to increase the popularity of website. These techniques help government and business organizations to promote their websites and increase the movement of traffic in and out of their websites. Through the discovered search results, SEO improves the ranking of a website or a web page in search engine websites list. Also, to increase the ranking of website, SEO considers various parameters such as, the response time of search engine for a particular website, frequently being visited websites by users, type of search terms entered into URL and type of search engines preferred by users. Through SEO one can ensure that a particular site is accessible through search engine, which improves the chances of quickly discover a site by the search engine. Search Engine Optimization is typically a set of best practices that adopted by webmasters, web developers and web content producers to achieve a better ranking in search engine scenario.

2. METHODS AND MATERIAL

Literature Survey

Page Rank Algorithm Page Rank

Algorithm was proposed by founders of Google Larry Page and Sergey Brin in 1996. Page rank algorithm calculates the rank of the web pages based on its importance. Page importance is depends on the number of occurrences of the web page. In most of the cases, the page rank algorithm follows the link structure of web page to calculate the rank.

Link structure of web page is mainly depends on the number of incoming and outgoing links for that web page. Consider the pages A and B. A is having incoming link for B and B is having outgoing link for A. So to calculate the A's rank we require rank of B and to calculate B's rank we require rank of A. If the page is having more number of incoming and outgoing links, then it is having highest vote or rank. Page rank algorithm is easy to understand as it considers the parameters like the rank of the web page, which depends on the occurrence of the web page as well as the number of incoming links to the webpage. But the calculation doesn't give exact answer, if they performed only once. Accurate ranks are obtained through multiple iterations. A concept called 'Page Dependency', which is used in Page Rank algorithm to calculate the page rank. This page rank depends on the rank of other pages that are linked to it. For calculating the rank of page, the algorithm considers the probability of web page's rank, which is already stored in the database instead of taking the current rank status, which is required by the query. It always divides the page rank of incoming links equally among the web page, which is not important or relevant

Weighted Page Rank Algorithm

This algorithm was introduced by Wenpu Xing and Ali Ghorbani. This algorithm also follows the link structure of web pages that is the incoming and outgoing links to or from web pages. Weighted Page Rank algorithm (WPR) calculates the rank of the pages based on both incoming and outgoing links. The page has a highest rank, if it is having more number of outgoing links associated with it. The popularity of page depends on both incoming and outgoing links. Weighted Page Rank algorithm (WPR) considers the current status of page rank at the time of user query as against the probability of page rank, which is considered in case of Page Rank algorithm.

HITS Algorithm

Hypertext Induced Topic Search (HITS) algorithm was proposed by Jon Kleinberg to rate a webpage based on link

structure of the web pages [4]. This algorithm analyses the structure of web pages links based on the concept called Authority and Hubs. An authority page contains the useful information based on the user query whereas hubs are the pages that provides links to the authority pages. HITS algorithm mainly has two steps. 1) In sampling step the algorithm collects the number of relevant web pages based on user query. 2) In iterative step the authority and hub pages are calculated in order to serve user query in efficient time. These steps performed in HITS algorithm to calculate the page rank of the webpage. Authority and Hub pages collects the samples of the pages from ranking model and based on the incoming and outgoing links of webpage page rank is calculated.

Query Dependent Algorithm

Query Dependent Algorithm was proposed by Lee, Jiang, et al.. This algorithm mainly focuses on links (incoming and outgoing links) as well as the contents of user query. This algorithm measures the similarity between the user queries. Based on the similarity between queries, this algorithm builds the ranking model also called training set. Depending on the contextual features of user query, this algorithm extracts the relevant documents to the ranking model. Then the “probability function” of the document is calculated to find the rank score of the web page. This algorithm sometimes considers the occurrences of documents in the ranking model and assigns the page rank to the pages as in Time ranking algorithm. Once the user query is fired to find the equivalent content on the web page, the query evaluation engine extracts the query from web page and does the query optimization to meet the desired results.

Study on Website Search Engine Optimization

With the rapid development of information technology, search engine optimization (SEO) technology has attracted more and more attentions. In order to improve their website visit quantity, SEO techniques can make a better ranking in the search result using the keyword selection and deployment, high quality back links, rational website constitution, and rich content, etc. This paper discusses in detail the technical process of website search engine optimization in terms of the search engine work principle, factors affecting search ranking, and website search engine optimization method.

Existing Process

Search Engine Optimization (SEO) is important for websites to improve the rank for search results and get more page views requested by the user. This search engine ranks provide the better and optimized result to user, which will help them to view the popular page among the number of pages available in the search results. Apart from this search engine ranking, it also enables the websites to compete with other rival’s website as each website owner expects to see their own website on the list before other’s websites.

Proposed Methodology

This paper puts forward idea about SEO principles and basic strategies. It also expresses different techniques that are employed by search engines to improve its results. Also it presents the observation section, which gives the comparative analysis of SEO techniques. SEO techniques make use of original results, which are analyzed by search engines to increase the popularity of website. These techniques help government and business organizations to promote their websites and increase the movement of traffic in and out of their websites. Also, to increase the ranking of website, SEO

considers various parameters such as, the response time of search engine for a particular website, frequently being visited websites by users, type of search terms entered into URL and type of search engines preferred by users.

3. RESULTS AND DISCUSSION

Research

There are many keyword finders available, which will take input in the form of keywords and gives the output in the form of how many times that keyword was entered by users i.e. the number of occurrences of that keyword. However, if a particular keyword has the highest number of occurrences in the search results, that keyword will become the greatest competitor within the search results.

After the keyword analysis phase, competitive analysis of the subject website is performed against its competitors websites. To perform competitive analysis of websites, different parameters are considered such as, incoming and outgoing links, ranking of website on search results, number of visitors for the website, view rate or bounce rate, appearance of web contents on webpage etc.

Reporting & Goal Setting

Most important step in Reporting and Goal Setting is to analyze the sites traffic. Site’s traffic mainly depends on type of search engine, number of occurrences of keywords in search engine, popularity of web contents, number of visitors etc. Sometimes the parameters from SEO metrics are also used to calculate the site’s traffic. Most important factor considered while calculating site’s traffic is the number of incoming and outgoing links. If the site has more number of outgoing links to other website as well as incoming links from another websites, the number of visitors will be more for that website. This will ultimately increase the bounce rate, which will result in high traffic rate.

Content Building

Content is the important factor of search engine optimization. The website with the high-quality content will provide the better competitive environment in search engine optimization. Content building phase is divided into two steps. First, a site is loaded with high-quality content, which gives reason to user to stay on the website and to come back to the website. If user finds most relevant information on particular website, then instead of visiting other sites, he/she always stick to that particular website. The main aim of the user to stay or to come back on site is just to find or search information.

Webpage Optimization

This phase considers all the parameters, which are related to Graphical User Interface (GUI) of the website. Along with the Content building phase, the appearance of the media components on the webpage is equally important. The webpage optimization is carried out in four steps, namely, webpage titles, web content exploration, prominence of targeted keyword phrases and site outline.

Social & Link Building

Now a day’s billion number of users are using social media for various purposes. In marketing, sharing of web contents through various social media provides number of options for organizations to establish a best customer relationship and also emphasize on other clients to use those social media for

sharing of site contents and improves connectivity with other potential customers

Maintaining Progress Report of SEO Plan

At the start and end of each SEO phase, progress report is generated to analyze the activities performed in particular SEO phase. The outcome of the phase is recorded for further analysis. Rankings, site's traffic levels and some other parameters are considered to measure the ranking results.

Conclusion

Search Engine Optimization come from more advanced technologies in traditional web search engines such as Google search engine. One of the important aspects of search engine is to improve the performance and usability of search engines through various techniques so that user interaction will be increased to that particular web site. In this paper, we analysed search engine results depend on the various algorithms, which improves web page rank. Web pages are displayed according to their rank, which is calculated by using factor like content, number of incoming and outgoing link etc. This analysis will help to improve the overall performance of search engine in competitive world.

Future Enhancement

Google's all algorithms are focused on improving the user experience. If you love your users, Google will love your website. If you have ever cared to closely look at the Google's algorithms, you already know that they will rank a website that takes care of the user's needs first.

Initially, SEO was considered to be a profile for IT department. As it was believed that SEO involves too much of technicalities. However, if you understand SEO or have worked as an SEO professional, you would know it is an art to its core. The SEO professionals today understand that mere technical knowledge is not enough in this user-friendly virtual world. Creativity is required for an SEO professional to catch the interest of a user.

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