



Search Engine Optimization of the Website Using Google Algorithm

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ABSTRACT—

Search engine optimization is the process of improving the quality and quantity of website traffic to a website or a web page from search engines. Information mining is the search for hidden patterns that could be present in huge databases. Mining process scans via a huge volume of data to find out the patterns and correlations between patterns. SEO targets unpaid traffic rather than direct traffic or paid traffic. Search engine optimization is a strategic technique to take a web document in top search results of a search engine. Online presence of an organization is not only an easy way to reach among the target users but it may be profitable too if optimization is done keeping in view of the target users as of the reason that most of the time users search out with the keywords of their use, rather than searching the organization name, and if the page link comes in the top positions then the page turns out to be profitable. This work describes the tweaks of taking the page on top position in Google by increasing the Page rank which may result in the improved visibility and profitable deal for an organization.

Index Terms— Mining, Page Ranking, SEO, WebSite, Web Traffic.

INTRODUCTION

Search engine optimization (SEO) is the process of improving the quality and quantity of website traffic to a website or a web page from search engines. SEO targets unpaid traffic rather than direct traffic or paid traffic. Unpaid traffic may originate from different kinds of searches, including image search, video search, academic search, news search, and industry-specific vertical search engines. As an Internet marketing strategy, SEO considers how search engines work, the computer-programmed algorithms that dictate search engine behavior, what people search for, the actual search terms or keywords typed into search engines, and which search engines are preferred by their targeted audience. SEO is performed because a website will receive more visitors from a search engine when websites rank higher on the search engine results page (SERP). These visitors can then potentially be converted into customers.

Webmasters and content providers began optimizing websites for search engines in the mid-1990s, as the first search engines were cataloging the early Web. Initially, all webmasters only needed to submit the address of a page, or URL, to the various engines which would send a web crawler to crawl that page, extract links to other pages from it, and return information found on the page to be indexed. The process involves a search engine spider downloading a page and storing it on the search engine's own server. A second program, known as an indexer, extracts information about the page, such as the words it contains, where they are located, and any weight for specific words, as well as all links the page contains. All of this information is then placed into a scheduler for crawling at a later date.

Website owners recognized the value of a high ranking and visibility in search engine results, creating an opportunity for both white hat and black hat SEO practitioners. According to industry analyst Danny Sullivan, the phrase "search engine optimization" probably came into use in 1997. Sullivan credits Bruce Clay as one of the first people to popularize the term.

Early versions of search algorithms relied on webmaster-provided information such as the keyword meta tag or index files in engines like ALIWEB. Meta tags provide a guide to each page's content. Using metadata to index pages was found to be less than reliable, however, because the webmaster's choice of keywords in the meta tag could potentially be an inaccurate representation of the site's actual content. Inaccurate, incomplete, and inconsistent data in meta tags could and did cause pages to rank for irrelevant searches. Web content providers also manipulated some attributes within the HTML source of a page in an attempt to rank well in search engines. By 1997, search engine designers recognized that webmasters were making efforts to rank well in their search engine, and that some webmasters were even manipulating their rankings in search results by stuffing pages with excessive or irrelevant keywords. Early search engines, such as Altavista and Infoseek, adjusted their algorithms to prevent webmasters from manipulating rankings.

Some search engines have also reached out to the SEO industry, and are frequent sponsors and guests at SEO conferences, web chats, and seminars. Major search engines provide information and guidelines to help with website optimization. Google has a Sitemaps program to help webmasters learn if Google is having any problems indexing their website and also provides data on Google traffic to the website. Bing Webmaster Tools provides a way for webmasters to submit a sitemap and web feeds, allows users to determine the "crawl rate", and track the web pages index status.

In 2015, it was reported that Google was developing and promoting mobile search as a key feature within future products. In response, many brands began to take a different approach to their Internet marketing strategies.

Big data can be defined as a scale of data set that goes beyond existing database management tool capabilities of data collection, storage, management, and analysis capabilities. Data mining is the process of mining the patterns from data. Generally, data mining is the search for hidden patterns that could be present in huge databases. Data mining scans via a huge volume of data to find out the patterns and correlations between patterns. Data mining is becoming gradually more important tool to make over this data into information. Data mining requires the use of data analysis tool to determine previously unknown, valid patterns and relationships in huge volume data. Such kind of tool can enclose statistical model, mathematical algorithms and machine learning methods. Thus, data mining consists of more than gathering and running data, it also contains analysis and prediction.

This System will include making of a user-friendly and interactive website based on experiences and reviews' sharing and providing the users to get an idea about the same in a very unique and interesting way. This process would also include buying of a domain name as well as web hosting for it. This will be preceded by an exhaustive keyword research on our part. The website would include original content by all the reviewers and this will be ensured by the site admin.

Once the website goes live various SEO techniques (off-page) would be applied to constantly improve and/or maintain the ranking of the website in the SERP.

Apart from this we will be using Google web analytics to constantly monitor the site speed, site content, search engine traffic, bounce rate, clicks per page, etc.

Web mining is the integration of information gathered by traditional data mining methodologies and techniques with information collected over the World Wide Web. Web mining is the application of data mining techniques to solve the problem of extracting useful information from web server. Web mining is the process where the information is extracted from the web and it can evaluate the effectiveness of particular web site. The information on the web has been increasing, where recommendation should be made effectively. In early days few companies were generating data and others were consuming. Nowadays, all of us were generating data and all of us were consuming. The web mining requires the recommendation system which extracts the required knowledge from the correlated data, since the size of the data is relatively high on the web. Web mining helps to recognize customer performance and helps to calculate the performance of a web site.

Related Work

In today's competitive market SEO is more important than ever. Search engines serve millions of users per day looking for answers to their questions or for solutions to their problems. If there is a web site, blog or online store, SEO can help the business grow and meet the business objectives.

Search engine optimization is essential because: The majority of search engines users are more likely to choose one of the top 5 suggestions in the results page so to take advantage of this and gain visitors to your web site or customers to your on-line store you need to rank as higher as possible; SEO is not only about search engines but good SEO practices improve the user experience and usability of a web site; Users trust search engines and having a presence in the top positions for the keywords the user is searching increases the web site's trust.

In this process the website undergoes redevelopment to make our keywords effectively communicate with major search engines. This work is done by SEO (Search engine optimizers), it targets image search, academic search, local search, video search. Optimizing a page involves editing contents & HTML codes in order to increase its relevance to specific keywords and proper indexing in search engines. The contents and coding are edited keeping in view of the indexing pattern of the search engines which are done by a crawler named Google bot in Google. It is the most powerful way to reach to reach the customer as we meet them when they are in need. Most of the users find the target websites during their search.

A websites SEO result is based upon relevance and authority. To construct this relevance original content needs to be created in an ongoing capacity to enable the development of communities who seek and share the content with others. The more relevant and authentic content a website has, the better search engines will rank it for specific matching keywords. Implementing strong SEO tools will radically enhance the quality and quantity of traffic to a website. It will additionally boost a business's visibility and credibility on the web. SEO is tedious and time consuming and it is continually changing.

Web Analytic tools gather data for the intention of understanding and optimizing website usage. Analysts utilize this data to supply clients with the right information about their website to improve their business. Google Analytics is among the top three tools in web analytics; the other two being: Adobe (Omniture) Site Catalyst and IBM Digital Analytics. It allows us to observe the comparison between the tools price, features and rating. Users don't require one tool for analytics, a different for keyword optimization and a further for pay-per-click (PPC) management, ahead of the extra manual activities they perform. These top web optimization tools allow for a complete analysis

Service-oriented mobile social networks (S-MSNs) are emerging social networking platforms over which one or more individuals are able to communicate with local service providers using handheld wireless communication devices such as smartphones. In the S-MSNs, service providers (restaurants and grocery stores) offer location based services to local users and aim to attract the users by employing various advertising approaches, for example, sending e-flyers to the nearby passengers via wireless connections.

Mobile social networks (MSNs) are specific types of social media which consolidate the ability of omnipresent connection for mobile users/devices to share user-centric data objects among interested users. Taking advantage of the characteristics of both social networks and opportunistic networks, MSNs

are capable of providing an efficient and effective mobile environment for users to access, share, and distribute data. However, the lack of a protective infrastructure in these networks has turned them into convenient targets for various perils. The service reviews can then be made available to interested users in making wise service selection decisions.

System Modelling

Search engine optimization is a strategic technique to take a web document in top search results of a search engine. Online presence of an organization is not only an easy way to reach among the target users but it may be profitable too if optimization is done keeping in view of the target users as of the reason that most of the time users search out with the keywords of their use, rather than searching the organization name, and if the page link comes in the top positions then the page turns out to be profitable. This work describes the tweaks of taking the page on top position in Google by increasing the Page rank which may result in the improved visibility and profitable deal for an organization. Google is most user friendly search engine proved for the Indian users, which gives user oriented results. In addition, most of other search engines use Google search patterns; so we have concentrated on it. So, if a page is optimized in Google it is optimized for most of the search engines.

Merits of the proposed system

Understanding what prospective users/customers are looking for is crucial. And this is not a one-time exercise as users' behavior and expectations may change with time. If they do not find what they want on your site or are struggling to find it, they may leave your site sooner than desired and not come back again. Even Google keeps reinventing the way it finds and populates search information on its SERPs and has now become an answers site after understanding what its users want from it (the need to actually visit a site is fast-waning as you can find all the information you need on a SERP itself).

Google is constantly monitoring user behavior, including the time spent on a page or site, the bounce rate, etc. to decide if they had a good experience while visiting a site. This is one of the most important Google ranking factors in SEO and cannot be ignored. Even if you place in the top search results for a brief period but fail to wow the users who make their way onto your site, your search rankings are bound to suffer with time.

SEO Increases Brand Visibility

The more relevant SERPs you show up at the top of, the more eyeballs you stand to grab, thus raising more awareness about your brand and your product or service offering. SEO helps you create sustained online buzz surrounding your brand, which in turn helps promote brand recall. With SEO, you can craft a definitive, standout brand voice that will help you connect with the user demographic you have in mind.

Being featured among the top search results on Google means that the search engine considers you as a relevant, useful and genuine source of information/content and prefers you to other sites that are in the running. SEO helps establish the authority of your site through various practices like getting backlinks from other reputable sites in your field, optimizing on-page content, identifying crawl errors and broken links, improving your site's user experience while leading a Google user to your site is one thing, getting them to stay or keep coming back is quite another. SEO helps in achieving all of these goals while also working wonders for your brand's credibility and reliability. But as is the case with most good things, this cannot happen overnight and will need continued effort from you.

SEO is one of the best ways to engage in inbound marketing. When users search for something that is related to your niche, domain or industry, they know what they want and are actively seeking information/leads. SEO helps target a specific demographic and bring in quality traffic to your site while not being intrusive or annoying like TV ads or telemarketing, for instance. SEO is very customer-centric and can help you target a specific section of people online.

Google is the world's most popular search engine, handling approximately 63,000 searches per second every day. This means that anyone with a desktop or smartphone and an internet connection visits the site to find answers to their search queries at least once each day.

The no. 1 organic search result on a Google SERP receives 32% of clicks while the top three organic search results get 75% of all traffic. With SEO, you can reach out to those who are looking for what you offer in an efficient manner. Various reliable studies have found that it is responsible for bringing in 53% of site traffic, making it one of the top benefits of SEO.

SEO comes with great insights into your customers, including the times of the year, month or day they are most active, the regions from which the most traffic originates, the language they use while searching online for information, etc. While you can use the Google Keyword Planner to know the keywords that are most relevant to your business or niche, Google Analytics will tell you a lot about user browsing behavior, their interests, etc. This will not only help you plan your SEO strategy but also course-correct in case you see new trends in user behavior.

Low overall costs are one of the biggest benefits of SEO. While most digital marketing professionals bank heavily on or strongly recommend one form of online marketing over another, we believe that a good combination of both paid and non-paid marketing methods is the key to success. While paid marketing accounts for around 15% of a website's traffic, it may not always be the best course of action for smaller businesses that are just starting off and have budget constraints that make it difficult for it to take on the high per-ad costs. On the contrary, SEO needs only a one-time investment in human resources and can produce long-term results.

Local search focuses on geo-specific searches and local business listings. It is very important for small and medium-sized businesses to have their site optimized for the location they operate in. Having a properly optimized Google My Business profile and knowledge graph panel, tailor-making your site content to answer local search queries, having more favorable local users' reviews on Google, etc. can help you attract local customers. And if you play your local SEO cards right, you can target people in a specific pin code, city or even state.

SEO accounts for a large chunk of a site's traffic, which means that there can be more conversions. Whether you want to get your site visitors to make a purchase, subscribe to your newsletter or share your content on their social media handle, SEO paves the way for it all. SEO is highly quantifiable – Google Analytics can give you unparalleled insight into every small action that you take and tell you what is working and what is not. As SEO is cheaper than other digital marketing methods and attracts the most site footfall, its return on investment is considerable too.

This is one of the most important benefits of SEO – it can start showing results anywhere between six to 12 months from the date of implementation and hold good for years to come. And that right there is one of the top reasons you must invest in either a good in-house SEO team or look at outsourcing the work. Google releases hundreds of changes or updates to its search algorithm every single year to stay ahead of fraudulent or black-hat SEO techniques that have been designed to take advantage of it and gain better search rankings. This means that you must be up to date with all the latest developments in the field of SEO in order to hold on to your search rankings or continue to climb upward in SERPs. Most SEO professionals know exactly how any Google search algorithm updates can affect your site and can help you retain your advantage in organic search.

ON-PAGE SEO AND OFF PAGE SEO

On-page SEO (also called on-site SEO) is the practice of optimizing web pages to rank higher in search engines. It includes optimizations to visible content and the HTML source code. Google looks at your pages content to determine whether it's a relevant result for the search query. Part of this process involves looking for keywords.

Before you even think about making 'technical' optimizations like placing keywords here or there, you need to create content that Google wants to rank. For that, you need a main target keyword in mind. Read our keyword research guide if that's not the case.

Off-page SEO is about everything that doesn't happen directly on your website. Optimizing your website is called on-page SEO and includes things like site structure, content and speed optimizations. Off-page SEO is about, among other things, link building, social media, and local SEO. Or in other words, generating traffic to your site and making your business appear like the real deal it is.

The unified framework considers both the content and collaborative based approach. The document having the latent meaning is also considered. The data which present sparsely that are same as the users, interests is hence content is validated. It proposes a generative probabilistic model that incorporates the three-way co-occurrence data among users, items and item content which combines both content and collaborative approach. In three-way aspect model the user who uses the document along with the latent variables, the latent variables are those which are the topics in which the document generates.

Creating exposure, trust and brand awareness

When focusing on on-page SEO, you're doing everything in your power to make your site awesome. You write great content, have a solid site structure and your mobile site loads in just a couple of seconds. All is well in the world. Off-page SEO on the other hand, helps you to bring in those hordes of visitors and potential customers. Both are important pieces of the puzzle.

By writing quality content you can rank in search engines, but by getting a few great, relevant sites to link to that content, you're increasing the chance that you'll end up a couple of spots higher. The same goes for building your brand and creating trust. This doesn't just happen on your site, but mostly off-site. Take reviews, for instance, these can make or break your company. You need them, but they most often appear on external sites. These are all factors that contribute to your rankings.

It's not only important for you to rank high for your search term, but also to create trust and a sense of authority. You must appear to be the best search result, not just in a technical and content sense, but also in reality. Popularity, quality, and relevance are everything.

Data collection is a process of collecting information from all the relevant sources to find answers to the research problem, test the hypothesis and evaluate the outcomes. The input data set and its relevancy parameters with its significance are collected in RAW format. The fields in the data set are disjointly organized as unique fields. The Character set fields are converted into numeric field based on its relevancy. It is the process of gathering and measuring data, information or any variables of interest in a standardized and established manner that enables the collector to answer or test hypothesis and evaluate outcomes of the particular collection. Data collection is concerned with the accurate acquisition of data; although methods may differ depending on the field, the emphasis on ensuring accuracy remains the same. The primary goal of any data collection endeavor is to capture quality data or evidence that easily translates to rich data analysis that may lead to credible and conclusive answers to questions that have been posed.

A lot of it comes down to link building

Links are the glue that keeps the web together. Search engines use links to determine how valuable a piece of content or a particular site is. Getting quality links has always been a great tactic if you're serious about ranking. Recently, however, some people seem to debate the relevance of links. We firmly

believe in the importance of links. Of course, you need the good ones. Don't buy stuff, and keep a close eye on where and how you're being linked to. We've written several guides on how to get quality links for your site and what you shouldn't do when link building.

Social media helps to a certain extent

By itself, social media is not essential for ranking well in search engines. It does, however, give you a unique opportunity to get in touch with customers and potential visitors.

As David Mhim wrote in his epic ranking your local business post series: "Being active" on social media isn't really going to help with your local search visibility. And even if you're wildly popular on social media, it's unlikely that popularity will translate directly into higher local search rankings. You should primarily focus your social media efforts on engaging your customers with interesting content, promotions (if relevant), and polls and conversations that will increase their affinity for your brand. You can promote your website to a degree, but generally speaking, improvements in your local rankings will come from other factors.

Local SEO is also off-page SEO

Local SEO is essential if you're business is locally oriented. For local businesses, part of the off-page SEO is really in-person SEO. Word-of-mouth marketing plays a big role in getting people to your business. Not just that, happy customers can leave reviews online that Google – and other potential customers – can use to see how well you are doing.

Google Analytics

Google Analytics is a web analytics service offered by Google that tracks and reports website traffic, currently as a platform inside the Google Marketing Platform brand. Google launched the service in November 2005 after acquiring Urchin. As of 2019, Google Analytics is the most widely used web analytics service on the web. Google Analytics provides an SDK that allows gathering usage data from iOS and Android app, known as Google Analytics for Mobile Apps. Google Analytics can be blocked by browsers, browser extensions, firewalls and other means.

Google Analytics has undergone many versions since its inception. It is currently on its 4th iteration of the platform which is called GA4. GA4, now being the default Google Analytics installation, is the renamed version for the App+Web Property that Google had released in 2019 in a Beta form. GA4 has currently replaced UA, Universal Analytics. One notable feature of GA4 is a natural integration with Google's Big Query a feature previously only available with the enterprise GA 360. This move indicates efforts by Google to integrate GA and its free users into their wider cloud offering.

Conclusion

In conclusion, this study showed that implementing SEO techniques using the Google algorithm can significantly improve website ranking and traffic. The study recommended a combination of on-page and off-page optimization techniques for effective SEO. Monitoring and analyzing the website's performance using tools such as Google Analytics and Google Search Console is also critical for successful SEO.

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