



THE NEW TREND FOR SEARCH ENGINE OPTIMIZATION, TOOLS AND TECHNIQUES

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Abstract: Any information on the internet may be found using search engines. Search Engines are used to search any information on the internet. Any website owner's primary goal is to have their site appear at the top of all search engine results pages (SERPs). The art of enhancing a website's exposure OR RANKING in Search Engine Result Pages is known as SEO. Apart from search engine ranking, it also allows websites to compete with their competitors' websites, as each website owner expects to see their own website first on the list. This paper presents some basic SEO ideas and tactics. It also expresses the various approaches used by search engines to improve their results.

Keywords: SEO, Techniques, Google, Google Ad-words, Tools.

INTRODUCTION

The internet is a widely used global information system in which users use Search Engines to find relevant information (SE). A search engine is an online tool that searches the internet for webpages that match a user's search query.

The SE is a sort of software that organises the information that has been gathered from all over the internet. Users that want to find information using SE merely need to type in a keyword.

They type in a term about what they'd like to view, and the search engine returns results with links to the content they're looking for. Google is the most popular and extensively used SE on the internet, accounting for 92% percent of all searches.

Google Search Engine is used by millions of people across the world to find information on the internet.

Aside from that, there are a number of other excellent search engines available on the internet.

The other different top Search Engine includes Baidu, Bing, Yahoo, Ask and DuckDuckGo.

Every web search engine is designed to find and organise material that is spread over the internet. Prior to the creation of any search engine, the internet was nothing more than a collection of File Transfer Protocol (FTP) websites where users could access certain shared files. As the internet grew in size, the requirement for organising and searching scattered data files on File Transfer Protocol (FTP) web servers grew as well.

As a result of the need to explore FTP web servers and material on the Internet more easily and efficiently, the creation of search engines began.

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Quantity of traffic: Once a website is receiving the correct visitors from Search Results who are truly interested in the company's items, SEO experts should attempt to increase traffic. More traffic means a higher ranking for your website.

Organic results: Ads might show above or below the search results in most SERPs. Only four advertisements are allowed to appear above the search results. Site owners also can pay to be on the first page of Google and it doesn't have to be a lot of money. This is called Google Ads. You can get your website to rank "organically" without having to pay for ads.



Organic traffic is the polar opposite of sponsored traffic. It refers to people who arrive on the website as a consequence of organic search results. Furthermore, there are some essential factors that can effect SEO, such as how a website is designed and developed, knowledge of search algorithms that demonstrate how they work, research on user's keywords that they may search, and smartly employed on-page and off-page SEO tactics. As a result, the purpose of this article is to provide a brief overview of how search engines works, what SEO is, and what tools and approaches are currently in use for SEO.

II.HOW SEARCH ENGINE WORKS?

SEO is the method of generating visitors from search engines through free, organic, editorial search results. It aims to improve your website's exposure in search engine results pages, with the idea that the higher the website's ranking, the more visitors it would receive.

Any search engine's primary purpose is to extract relevant information from large databases (DB) of internet resources. For locating useful information on the internet, search engines are essential. It makes no difference where the information is stored on the internet. Data can be retrieved from any location on the internet by search engines. As a result of user-friendly Search Engines, internet usage has increased considerably in recent days. It performs a variety of actions in order to provide consumers with results.

To illustrate how a search engine actually works, consider the Google search engine, which accounts for about 90% of the global search engine industry. Crawling, indexing, and serving search results are the three stages it goes through.

Crawling: Google uses automated programmes called crawlers to download text, photos, and videos from web pages it finds.

Indexing: Google analyses the text, photos, and video files on a website and stores the results in the Google index, a massive database.

When a person searches on Google, Google returns information that is relevant to the user's query, and this is how we achieve the intended results called serving search results.

The below figure shows how a Google search engine actually works:

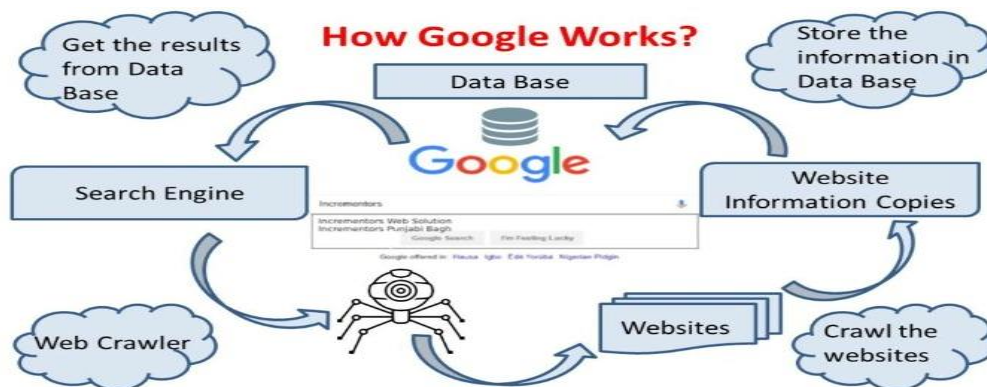


Fig.1 working of Google search engine

Classification of search engines based on categories:

Based on categories search engines are classified into 3 types:

Crawler-based search engines (CBSE)

Human-powered directories (HPD)

Hybrid search engines

Other types of search

Crawler-based search engines (CBSE)

Crawler-based SEs use a crawler, also known as a spider, to crawl and index new information in order to search the database. Before showing any website in SERPs, any crawler-based SE performs the four basic processes they are Crawling, indexing web page contents, calculating the relevancy and Retrieving the result.



The process of finding up - to - date pages to add to Search engine is known as crawling. The page is requested or analyzed by one of the Google crawling engines.

Crawling is the process through which search engine web crawlers, sometimes known as bots or spiders, explore, download, and extract links from a website in order to find more site.

Pages crawled by the search engine are crawled on a regular basis to see if the page's content has changed from the previous time it was crawled. After crawling, if it finds changes to a page, it will update its index to reflect these changes.

Human-powered directories (HPD)

Human-powered directories are a special sort of search engine. The directories are smaller than other search engines, and they don't include the entire content of the webpages they connect to. Such search engines are only useful for individuals who are searching for a broad topic. It is also known as open directory system. Humans manually list webpages in such directories. The listing website's procedure is also pretty straightforward. All that is required of the website owner is to submit the URL, a brief description, and keywords to human-powered directories. The submitted website is manually reviewed by the administrators of these directories, who may add it if it is appropriate or reject it for directory listing. The words provided in a search box are used to assess the relevancy of a website's description.

Hybrid search engines

Hybrid SEs employ both human-based indexing and crawler-based indexing approaches. For listing websites in SERPs Google uses crawlers as a primary mechanism and hand listing as a backup. The same listing processes are used by other crawler-based SEs. When SE detects that a website is engaged in spamming activities, manual screening is required before the site may be reintroduced to the SERPs. Google.com and Yahoo.com are two examples of hybrid search engines.

Other types of search

There are various more types of SEs that are sub-niched based on their usage, such as shopping, news, and so on. There are various varieties of SEs, some of which contain a variety of bots that solely display news, photos, and local listings. The best example is Yahoo Shopping solely used for shopping purposes, Google News, which allows you to search for news from a variety of publications all around the world. Other types of SEs, such as Dog pile, are used to aggregate Meta data from other directories and SEs in order to present it in the search results. Metasearch Engines are the name for these types of search engines. In a specific area of semantic SEs, such as Google, they deliver accurate search results by learning the context of the search query.

III. HOW SEARCH ENGINE OPTIMIZATION WORKS?

It refers to the various different strategies used for improving a website's organic SE ranking. To gain organic traffic, one needs to use rare list of keywords that users might search for in their desired SE. There are two types of keywords namely short keywords and long-tailed keywords that are nothing but phrases that sometimes users even search for. Always updating the content can also result in good ranking. Google always wants to give users the best experience the more up-to-date the content the more it will be accurate and the more will be searched. Focusing on long tail keywords instead of short ones can also be a plus say SEO experts.

Despite the fact that search engines are constantly upgrade their webpage ranking algorithms, high webpage ranking is still based on two essential features. There are two approaches to search engine optimization in terms of concept that are: On-page SEO and off-page SEO.

On-Page Search Engine Optimization

On-page SEO is concerned with a website's content and infrastructure. It comprises a good keyword selection, offering valuable, educated, and exceptional content, putting keywords in the right places, and giving each page on a website the right page title. It also synchronises current content with target keyword clusters and targets the best keyword clusters. If the contents are written to target specific keyword clusters, the website architecture and infrastructure are deemed to be the finest.

Off-Page Search Engine Optimization

Off-page SEO is concerned with how other websites relate to a certain website. This technique is concerned with backlink building strategies, which can be achieved through a variety of methods such as submitting links to search engines, submitting the website's link to open access web directories and discussion forums, creating open access pages, and creating business pages on social media sites such as Twitter, Google Plus, LinkedIn, and Facebook, among others.

The presence of active social media accounts for a significant portion of a webpage's ranking. When a search engine examines a webpage, it considers over 200 distinct signals, which means that search engines refine their algorithm over



400 times every year. As a result, the greatest SEO approach is to continually modifying the website in response to changes in the Search Engine's SEO algorithm.

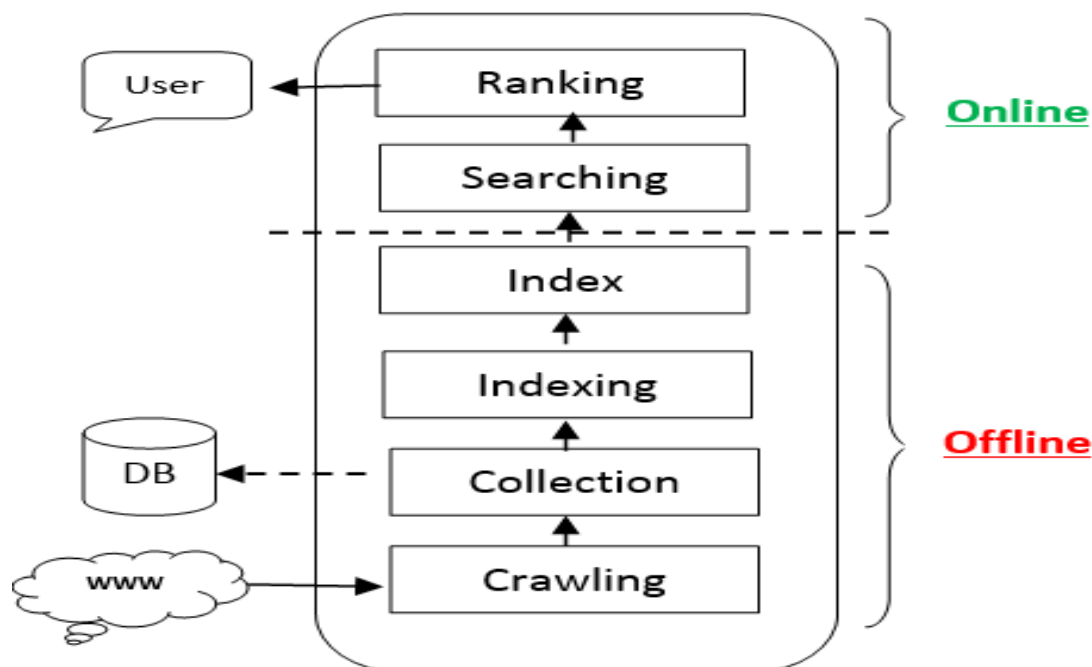


Fig.2 online and offline section in search engines

Optimization Techniques

To stay up with the current technology, SEOs employ three main sorts of Optimization strategies. The following below are 3 methods as follows:

White, Black and Gray hat SEO.

1. White hat SEO:

White Hat SEO is a highly fair and genuine kind of SEO, whereas Black Hat SEO is aggressive and insecure. White hat SEO refers to a set of permitted search engine optimization techniques for improving a website's ranking in search engine results pages (SERP) sometimes resulting in slow results. Organic search results come on search engines as a result of legal techniques rather than paid or deceptive methods. Sites that are easy to navigate. It's simple to use. Fast loading times and high-quality content contribute to a positive user experience.

2. Black hat SEO:

SEO using black hat techniques is feasible to improve a webpage's position quickly using black hat SEO, Google will eventually blacklist the website. Black hat SEO is a method of boosting a website's search engine rankings by breaching search engine regulations or stealing content from higher-ranking websites. These unethical practises affect users and frequently result in search engine penalties. Black hat techniques include keyword stuffing, Stuffing, keywords, cloaking, and the use of covert link.

3. Gray hat SEO:

Gray Hat SEO has a moderate effect on page rank. Both humans and search engines benefit from white hat SEO tactics. Grey material includes three-way linking and copied content across multiple websites. SEO tactics that are considered to be unethical. Unnecessary and unrelated link building, as well as a keyword density that is artificially high. Using Gray sites include expired domains, bogus sites for lubricating personal information, and money-making fake sites.

IV. TOOLS FOR SEARCH ENGINE OPTIMIZATION

To improve a webpage's natural search ranking, use the following tools and discover new methods for creating content that will effectively market any little or large business, SEO strategies should be practiced on a regular basis. The search



ranking will suffer if the webpage is not checked on a regular basis. If a person runs an event blog, such as a corona virus blog, the data must be updated on a regular basis to reflect current conditions such as the number of patients who died, suffered, were admitted, the number of seats available, vaccine updates, and so on. Thus, if the blog is updated, a huge number of people will be engaged since the data is current. The engaged population will be quickly bled to other sites that provide accurate data if the blog is not kept up to date. As a result, monitoring SEO tools on a frequent basis is crucial. On the internet, there are a range of paid and free SEO tools, each with its own set of capabilities and meeting certain common requirements. Some of the tools are practical, easy to use, and fast. Here are some essential SEO tools to consider:

- Google Search Console
- Semrush
- Ubersuggest
- Spy Fu
- Google AdWords
- Google trends
- Google recommendation
- Google analytics tool

Google search console

Google's Search Console was known as Google Webmaster

Google Search Console is a free service that allows anyone with a website to track and report on the status of their site in Google SERPs (search engine results pages) on Google. It's as simple as going to Google Analytics and submitting your sitemap for indexing. Despite the fact that You don't need a Google Search Console account to appear in Google's search results, but you may use it to customise what is indexed low fee, but if you want more complex features or the ability to do more with it, you'll have to pay a regular subscription.

Google Analytics

Google Analytics is a tool that allows you to track your website. For search engine optimization (SEO) and marketing, Google Analytics provides fundamental analytical tools and data. Anyone

The tool, which is part of the Google Marketing Platform and is free, is available to anyone with a Google account.

Google Analytics is a free service, which means that small companies may use it without paying a monthly price, but there is a recurring subscription if you want more sophisticated capabilities or the capacity to do more with it.

Google AdWords

Ads on Google's SERPs are purchased using Google AdWords. These adverts will display at the top of Google Search Engine Result Pages in the sponsored links area. It's crucial to note that these adverts will only display on the front page of the Google Search Engine, not in the results of other engines like Yahoo! or on Google-affiliated websites.

The following are some of Google AdWords' key benefits:

There's no need to wait for Google to list your ads; they'll start running right now. Changes to the advertising may be changed at any moment, and the advertiser can receive the greatest results by altering the advertisement and keyword selection.

It includes a keyword research tool that may be used to identify AdWords campaign keywords.

Google Recommendation

Google also gives some basic tips for improving the ranking of a webpage and making it more optimised. The following are the guidelines:

- a) Using the link <http://www.google.com/addurl.html>, a webpage may be uploaded directly to Google Search Engine.
- b) A webmaster can use Google Search Console to submit a webpage and an XML sitemap. The XML sitemap will be used by Google to identify the website's structure and expand the coverage of web pages.
- c) Black Hat SEO techniques such as cloaking, hidden text or links, scraped content, automatically generated content, doorway pages, populating pages with irrelevant keywords, automated query submission to Google, sneaky redirects, and building web pages with malicious behaviour such as installing viruses or phishing, should be avoided by a webmaster.

**V.CONCLUSION**

A search engine is a vital tool in today's digital environment. There are numerous other search engines on the market, such as Baidu and Ask.com, but Google is the most well-known. White Hat SEO is the safest, most secure, and longest-lasting of the three Search Engine Optimization strategies: white, grey, and black. Additionally, White Hat SEO techniques are the most successful for getting high positions on search engine result pages while remaining safe. On-page and off-page Search Engine Optimization tactics, as well as the use of appropriate SEO tools, are essential for excellent search results. A SE spider downloads a webpage and saves it on a Search Engine server, where an indexer gathers various bits of information about the webpage, such as the words on the page, their placement, the weight for specific terms, and incoming and outgoing connections. All of this information is entered into a crawling scheduler. Website owners and SEO specialists recognised the importance of a high web ranking and exposure of their contents on Search Engine Result Pages, therefore they began to employ Search Engine Optimization Tools to achieve good results in the shortest time feasible. The best SEO tools help you to keep track of your website's SEO issues.

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