

A Study on Types, Classification and Mechanism for Optimization in Search Engine

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Abstract: *This paper is a over-all valuation of different tools and practices used for optimization in Search Engines, these are used to discover any material across internet. The core purpose of any website is to list at the top of all the links. Search Engine Optimization is the art of civilizing a website's visibility in the main body of search engine results. This art of improving a websites visibility in the body of search engines outcome is promising using the techniques and applications accessible in the market.*

Keywords: Search Engine, Optimization, Techniques, Mechanisms.

I. INTRODUCTION

Search Engine Optimization is the action of optimizing web pages or entire website in classify them search engine responsive, thus getting advanced positions in search results. Designing and developing a website to rank well in search engine results and improving the volume and quality of traffic to a website from search engines. Marketing by knowing how search algorithms work, and what human visitors might search. SEO is a subset of search engine marketing. SEO is also referred as SEO copywriting, because most of the techniques that are used to promote sites in search engines, deal with text.

II. MECHANISM OF SEARCH ENGINES

Search engines carry out a number of activities in order to deliver search results. Crawling - Process of fetching all the web pages linked to a website. This task is performed by software, called a crawler or a spider or Googlebot, in case of Google.

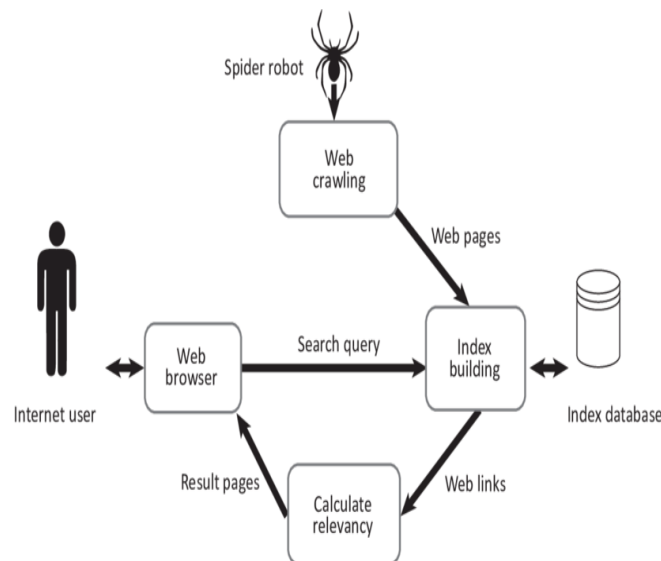


Figure 1.1: Search Engine Working

III. TYPES OF SEARCH ENGINE

Search Engine is divided into following types:

- **Full Text Search Engine:** Full Text Search Engine retrieves information from internet, establish database and retrieve the records according to user's query. It can be divided into two parts: first one has its own crawler. Another one is to hire other search engine's database.
- **Directory Search Engine:** We cannot call it a true search engine. It retrieves all the entries of directory listing.
- **META Search Engine:** It provides search results from META multiple search engines simultaneously according to user's query.
- **Vertical Search Engine:** Vertical Search Engine focuses on specific search field and search demand.
- **Indexing** - Process of creating index for all the fetched web pages and keeping them into a giant database from where it can later be retrieved. **Processing** - When a search request comes, the search engine processes it, i.e. it compares the search string in the search request with the indexed pages in the database.
- **Calculating Relevancy** - It is likely that more than one page contains the search string, so the search engine starts calculating the relevancy of each of the pages in its index to the search string.
- **Retrieving Results** - The last step in search engine activities is retrieving the best matched results. Basically, it is nothing more than simply displaying them in the browser.

IV. CLASSIFICATION OF SEO

4.1. White Hat SEO

An SEO tactic is considered as White Hat if it has the following features:

- It conforms to the search engine's guidelines.
- It does not involve in any deception.
- It ensures that the content a search engine indexes, and subsequently ranks, is the same content a user will see.
- It ensures that web page content should have been created for the users and not just for the search engines.
- It ensures good quality of the web pages.
- It ensures availability of useful content on the web pages.

4.2 Black Hat SEO

An SEO is considered as Black Hat or Spamdexing if it has the following features:

- Attempting ranking improvements that are disapproved by the search engines and/or involve deception.
- Redirecting users from a page that is built for search engines to one that is more human friendly.
- Redirecting users to a page that was different from the page the search engine ranked.
- Serving one version of a page to search engine spiders/bots and another version to human visitors. This is called Cloaking SEO tactic.
- Using hidden or invisible text or with the page background color, using a tiny font size or hiding them within the HTML code such as "no frame" sections.
- Repeating keywords in the metatags, and using keywords that are unrelated to the website content. This is called metatag stuffing.
- Calculated placement of keywords within a page to raise the keyword count, variety, and density of the page. This is called keyword stuffing.
- Creating low-quality web pages that contain very little content but are instead stuffed with very similar keywords and phrases. These pages are called Doorway or Gateway Pages.
- Mirror websites by hosting multiple websites - all with conceptually similar content but using different URLs.
- Creating a rogue copy of a popular website which shows contents similar to the original to a web crawler, but redirects web surfers to unrelated or malicious websites. This is called page hijacking.

4.3 Gray Hat SEO

If the webmaster uses some irrelevant techniques to optimize their website is known as GRAY HAT SEO technique, simply we can say if the optimizer may buy or exchange links with other websites to get better search engine ranking but it will be not accepted by the search engines. This technique is not long term for search engine ranking.

4.4 SERP

Short for *search engine results page*, the Web page that a search engine returns with the results of its search. The major search engines typically display three kinds of listings on their SERPs. Listings that have been indexed by the search engine's spider, listings that have been indexed into the search engine's directory by a human, and listings that are paid to be listed by the search engine.



Figure 1.3: SEO Classifications

V. ON-PAGE AND OFF-PAGE

Conceptually, there are two ways of optimization:

- **On-Page SEO** - It includes providing good content, excellent keywords selection, putting keywords on accurate places, giving appropriate title to each web page.
- **Off-Page SEO** - It includes link building, increasing link recognition by submitting open directories, search engines, link exchange.

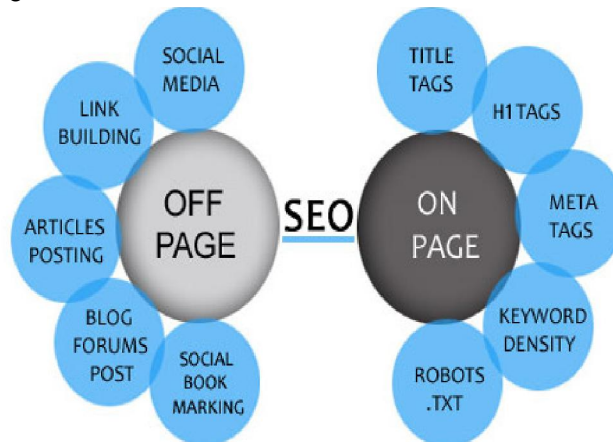


Figure 1.4: On & Off Page SEO

VI. SEO TOOLS GOOGLE

Google tools that serve as core in SEO campaign; these tools include Google Webmaster tools, Google Ad Words, Google Trends and Google Ad Planner.

6.1 Google Webmaster Tool

Google's Webmaster Tools help webmasters better control how Google interacts with their websites and get useful information from Google about their site. Using Webmaster Tools won't help you identify issues that can help your site perform better in search results. With the service, webmasters can:

- See which parts of a site Googlebot had problems crawling.
- Upload an XML Sitemap file.
- Analyze and generate robots.txt files.
- Remove URLs already crawled by Googlebot.
- Specify the preferred domain.
- Identify issues with title and description Meta tags.

6.2. Google Analytics Tool

After improving the crawling and indexing by using Google webmaster tools you are now looking for checking the incoming traffic to your site. Google analytics is a tool for this. Google Analytics will give you deep in sight about:

- How users reach and behave on your site.
- Helps in discovering the most popular content on your site.
- Helps in measuring the impact of optimizations you make to your site.

For advanced users, the information an analytics package provides, combined with data from your server log files, can provide even more comprehensive information about how visitors are interacting with your documents. Google also offers another tool called Google Website Optimizer that allows you to run experiments to find what on-page - 15 - changes will produce the best conversion rates with visitors. This, in combination with Google Analytics and Google Webmaster Tools is a powerful way to begin improving your site.

6.3. Google Ad Words

Google AdWords allows you to buy advertising on Google's search results pages. Your ad will appear in one of the colored boxes lined up along the right edge of the page under "Sponsored Links". It's important to take note of the fact that your ad appears only on searches performed on Google's home page, not in results from Yahoo! or sites affiliated with Google. Following are some important advantages of the AdWords program: Firstly, your ad runs almost immediately after it's submitted. You don't have to wait long before you see your listing in Google. Secondly, you can make changes to your ad as the campaign progresses, which allows you to tweak your ads and keyword selections to get the most for your money. Google AdWords has a keyword tool which is in beta stage now. It is used to find keyword for your campaign. For example, if you run a budget hotel, the Keyword Tool can suggest helpful related keywords like "hotel discounts" or "motels." Adding these alternate terms to your ad group keyword lists can help you find new customers that you might otherwise have missed. You can give the URL of your website or some keywords and for both cases it will return some keywords that might be useful for your ad campaign.

6.4. Google Trends

Google Trends is a tool from Google that provides the statistics regarding the volume of keyword searches over various time periods. Data are available going back to 2004. - 16 - The Google Trends service lets you partition data by language and region and plot multiple key phrases on one graph. This can be used to track and anticipate traffic for a particular period.

6.5. Google Recommendations

Following are some major guidelines given by Google to increase ranking and making your page more optimized:

- Submit your webpage to Google at <http://www.google.com/addurl.html>.
- Submit your webpage and its sitemap in an XML form using Google Webmaster Tools. Google uses your Sitemap to learn about the structure of your site and to increase our coverage of your WebPages. Don't forget to verify your website first.
- Make sure all the sites that should know about your pages are aware your site is online.



Figure 1.5: Google SEO Tools

VII. OPTIMIZATION OF SEO

Importance of SEO in today’s internet marketing field. But, while traditional or desktop SEO is extremely vital, also need to be optimizing for mobile SEO. All those techniques used for traditional or desktop SEO will work for mobile SEO, but that is not the case. These are two different and separate entities, and they must be treated as such. Mobile SEO is still SEO, but it is very specialized. Three ways that mobile SEO differs from traditional SEO and how you can optimize for mobile searches.

7.1 Search Behavior

Mobile searchers are utilizing their mobile devices to search at different times than those on a desktop, and generally have different contexts for their search. Mobile search is for those on the go. They don’t go to their home screen and type in their search, anymore. This completely changes their search intent and context.

7.2 Engagement

Engagement makes a huge difference between a mobile user and a desktop user. While a mobile searcher is going to be highly engaged, they are not interested in scrolling down the search results. They are on the go — they need their information fast. They are not going to dig through pages of results to find an answer. Therefore, being in the top spot is even more desirable in mobile SEO than it is in desktop SEO.

7.3 Ranking Algorithm

The largest difference between desktop and mobile SEO — they have different ranking algorithms altogether. Why does Google find the need to have completely separate algorithms? Because that they have provided an even better mobile user experience. Google has stated that they are determined to provide mobile users the same, if not better, experience that they provide to their desktop searchers. In reality, how could they do that without major changes to their algorithm? One of the biggest factors that were changed for mobile was the location.

VIII. CONCLUSION

Search Engine is really useful tool in present era of web. There are many of search engines available in market, but most popular search engine is Google. So for getting topmost results in web, we have to use search engine optimization technique. Both on page and off page search engine optimization techniques are important for better search result. In the three flavors of SEO, White Hat SEO technique is the best and long term as well. The process involves a search engine spider downloading a page and storing it on the search engine's own server, where a second program, known as an indexer, extracts



various information about the page, such as the words it contains and where these are located, as well as any weight for specific words, and all links the page contains, which are then placed into a scheduler for crawling at a later date. Site owners started to recognize the value of having their sites highly ranked and visible in search engine results, creating an opportunity for both white hat and black hat SEO practitioners.



Figure 1.7: Complete SEO Process

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