

Algorithms For Enhancing Efficiency And Ranking Of Cloud Based SEO

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Abstract: Search engines are the foundation of the Internet. Now a days User reach to website by using search engine. The data related to search are shown on the results page in accordance with the query entered by the user in the search engine. The Search Engine Algorithms are responsible for ranking the records.

So in order to get more traffic efficient Search Engine Optimization is very important. This paper explains how Search Engine Works and how to rank your website or Blog.

In this paper we proposed a new and robust algorithm which deals with efficient Search Engine Optimization.

I. INTRODUCTION

The basic process of searching a particular content is the same for all major search engines. Users enter a query for searching information about the particular term like title, body text. Data related to search are shown on the results page. Based on ranking algorithms search engine determines the position on which the results are displayed. If a user gives extra information about the search query then ranking might be changed e.g. data, location etc.[1]

A. Major Ranking Factors

- Title
- Abstract
- User keywords (Social tags)
- URI
- Description
- Social annotations
- Tables and figures
- Author keywords

- Filename
- Publication name
- Body text
- Author names
- Sub headings [2]

II. SEO PROCESS

In Search Engine Optimization process first step is keyword identification which is usually searched by the user. This step requires decision making approach to decide the keywords and we have two options first is Long keywords with less competition and second is Short keywords with high competition of the search engine.

SEO process is shown in Figure1.

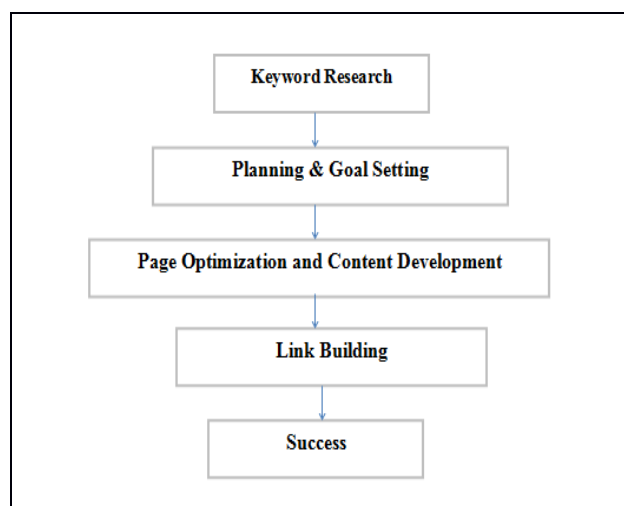


Figure 1: Search Engine Process

After completing the keywords identification process second step is goal setting by identifying popular content. After this next step is page optimization and

content development. Next step after optimization is link building on other websites .So this is the standard

III. SEO TECHNIQUES CATEGORIES

A. White Hat SEO techniques In search engine optimization technique White Hat SEO techniques refer to techniques that follow rules and guidelines given by the search engines. It follows the rules and guidelines given by SEO so it is also ethical. Quality Content, certain tags, effective keyword and Quality inbound links are most popular white Hat SEO techniques.[12]

B. Black Hat SEO techniques These techniques refer to improve rankings by unethical way of manipulation of search engines algorithm. If you using this technique it might be possible that that crawler remove the website from the search database index.

Change the page entirely when it got good rank, add keywords that are not related to the page content or page swapping invisible text and keyword stuffing (loading the webpage with keywords). Black Hat SEO is used for those people who want to earn money in less time. But it will works for a shorter run only. It might be possible that your website will banned from Search Engine.[11].

IV. TYPES OF SEARCH ENGINE OPTIMIZATION

1. On Page Search Engine Optimization

On page Search Engine Optimization include following steps:

A. Page titles

Page title plays very important role in SEO of your site. Each page & post should have unique title. Page title must include the main keywords for that page.[4]

B. Meta Descriptions

Meta descriptions are HTML attributes which are provided in head tag that provides information of the contents of web pages.

C. Meta Tags

You can set of keywords of page each in head section using meta tags.[4]

D. URL Structure

Including search engine friendly URLs is also important for better SEO. URL for each page should be short and must contain main keyword these bring better crawling. URL location also effects the SEO.[4] .

for the success of Search Engine optimization.[1]

D. Body Tags (H1, H2, H3, H4, etc.)

Information on your page should be in manner so that user can get information what he wants. If you maintain data in smaller sections & paragraphs it would be easier for people to read information. You can use heading tags for this purpose, which is are H1, H2, H3, H4, etc[6].

H1 tag is used for your main page title of page. Search engines use heading tag to identify the important tags within your content.



Figure 2: On Page Search Engine Optimization Process

E. Keyword Density

Keyword Density means keywords occurrence on your page .it should not be more than 2 to 5 %. Otherwise your site will be banned by SEO.[4]

F. Image SEO

Images are best way to make you website attractive and readable. If post contains some images then you need to do SEO for the images.

All images must have titles it can be same as your page titles or you can Include relevant keywords that help people find your site when searching on Google Images.

Include Alt Text and Descriptions for your images which make your website better SEO.[4]

G. Internal Linking

Internal linking means how your website linked internally. it also makes your website better SEO.[4]

2. Off Page Search Engine Optimization

Ranking totally depends on the structure of the website and how the website is managed. Some websites got good ranking only because they are the design of websites according to SEO guidelines.[6]

The aim in trying to put a particular website on the top of the search list is that there are millions of other sites that are in competition. So for solving this problem follow the following steps:

A. Research Keywords

The most important thing in SEO are keywords so the keyword research is the most important thing. You must think what the user can search most frequently keywords. For example, if your website is selling mobile phones then you have to research on what words user can use to reach your product. For this web application Top keywords will be best android mobile phones, and best windows phones. Develop individual page for each keywords.[3]

B. Select Low Competition

Ranking completely depends on keywords. You can also select the keywords that have low competition and high searching rate. But it is very difficult to identify these keywords. If you select this process it will increase the chances that your website will be ranked in the list of top searches. This is very useful when you are promoting a unique product and it cannot be found anywhere else but in your site.[5]

C. Keyword Density

Keyword Density means presence of keyword in your content or article. The standard keyword density should be 1-2%. For example, if your post has 500 words then your keyword density is 2%, then you can repeat the keywords 10 times in the article.[5]

D. Social Networking Sites

Nowadays social networking plays a very important role in website ranking.

You need to create account on most popular social networking sites like Facebook, Gmail, Yahoo, Twitter etc. After this you can share the information about your website and posts published on your websites.[5]

E. Blogging

Blogging is the very popular way to promote your website online. You can write blog for your website. Crawl update index in database based on update content they have to update your latest blog post entries so that website gets a higher rank.

F. Search Engine Submission

Users always reach to website either by organic search or in organic search. But Search engines are able to locate your site online but when you start a new website it is not able to locate because it takes some time. If you want the search to be quicker then register your website on popular search engines like Google, Yahoo, Bing, etc.

G. Directory Submission

Directory Submission is a process in which we submit our site directory to other website by choosing the category for submission.

H. Social Bookmarking

Social Bookmarking is way of promoting website. There are various bookmarking sites to submit your bog posts, like StumbleUpon, Digg, Delicious, Reddit, etc.



Figure 3: Off Page Search Engine Optimization Process

I. Link Baiting

Link baiting is very popular way that promotes your site quickly. If your website provides information which is popular unique then other sites might want to link to it. But in case you have copied data from any other website then in that case you need to mention website link as a reference.

J. Photo Sharing

Nowadays user wants information with pictures that helps to understand information more clearly. if you want to use pictures on your websites or blog you can upload it on your server or Flickr, Picasa etc. you will notice mostly people's like to want to read information with attractive images .[5]

K. Video Marketing

You have any video that provide about your site you can upload this to sites like; YouTube etc. so when people can the information about your site on other sites.

L. Article Submission

You can write an article about your website to other websites that allow Article submission sites like; Ezine, Go Articles, Now Public, etc. This can help to increasing website ranking.

M. Social Shopping Network

If your website related to e-commerce then you can advertise your products on most popular sites. You can advertise your products to popular sites like: Yahoo Online Shopping, Google Product Search, and then you can increase your website ranking.

N. Answer Questions

You can answers questions on popular like Yahoo Answers. When you answer questions of user queries on your site you can increase your websites ranking.

O. Different searching styles (User dependent)

With different searching styles of the users, ontology refining varies, in the sense given below. Some users search by clicking one page at a time, starting from top to bottom of the provided searches. In such searching trends, the user clicks on the second web page when he does not find the required information in the first page. Some users open multiple pages together, before actually reading through the pages. We use a client side plug-in, to determine the particular tab / window read by the use

P. Order of searched keywords

The order of the keywords entered by the user can be used to determine the priority of keywords. The first word is normally the most important one, the last one is the second most important, and the rest lie in between.

V. SEO ALGORITHMS

Google changes the search engine algorithms 500 to 600 times every year. But Mostly Changes are minor changes. In this paper we are explaining about major changes in Google SEO.

A. Google panda

Google Panda was first introduced in February 2011 and after that he has had several updates. The main motive Panda is to focus on high quality sites that have unique and updated content and eliminating the low-quality. Google Penguin first released on February 2011.[7]

B. Google Penguin

Google Penguin is an algorithm announced on April 24, 2012. The update is aimed at decreasing ranking of websites that got good ranking by breaking the rules (Black Hat SEO)

Penguin 1 firstly released on April 24, 2012.[8]

C. Google Pigeon

Google pigeon consider the factors such as location and distance that provide better search results. After this update it will decide the rank based on local searches.[9]

D. Google Hummingbird

Google Hummingbird Algorithm design to focus on meaning behind the word .Because sometimes user doesn't know what he wants to search. So instead of focusing on the word, Hummingbird Algorithms focus on the meaning of the word.[6]

E. Google: Pirate Update

Google: Pirate Update introduced in August 2012 design to prevent ranking those sites that have many copyright infringement reports.[7]

F. Google: EMD Update

Google: Pirate Update introduced in September 2012 design to prevent ranking those sites that got good ranking only because they have exact match Domain .[4]

Like www.WhatsappStatus.com have Exact match domain for keyword what's app status. [10]

G. HITS Algorithm

Hyperlink-induced topic search is a link analysis algorithm that rank web pages based on number of relevant links(other web page) pointed by the web page .the main idea is when a user enter a query for finding information different ranking system is needed in order to find the pages those contain information that are authoritative for a given query . Page pi is called an authority entered by user if it contains valuable information. On the other hand second category of pages are used to find out authoritative pages is called Hubs. Hub roles are to advertise the authoritative sites. Hubs contain links to other authoritative sites.

H. Semantic matching

The key idea behind Semantic Matching algorithm is to find semantic relations between nodes and meaning, in the form of equivalence (=), less general (v), more general (w) and disjointness. We find relation between the keywords in semantic algorithm and how they are related to each other.

Like car`s keyword is equivalence to automobiles , Nano car is more general to cars bikes is less general to Cars and House comes disjoint set because it is not related to it.

VI. PROPOSED WORK

Google used different algorithms for search engine optimization like Google panda, Google Penguin, Google Pigeon, Google Hummingbird, Google Pirate Update, HITS Algorithm these algorithms have limitation that they work separately and by keeping in mind these algorithms we made an efficient and robust algorithm for Search Engine Optimization. The algorithm is given below:

A. Algorithm for Keyword Search

Step 1: Start

Step 2: let us take a variable user_query for reading user query, i for iterate records and n for maximum number of matched records, Result_db1 for storing exact match records, Result_db2 for storing records that matched with keyword meaning, Result_db3 for storing Less general match.

Declare variables user_query, i, n, Result_db1, Result_db2, Result_db3

Step 3: Initialize variables

n ← 0

i ← 1

Step 4: Read User query from user via search engine.

Step 5: n=process central_db and store total number of matched records [central_db contains all the keywords with page link]

Step 6: Repeat the steps until i < n

6.1 If keyword_db record equals user_query

Result_db1=store the record in result_db1

6.2 If Meaning_db record equals user_query

Result_db3=store the record in result_db2

6.3 If Less general_db record equals user_query

Result_db3=store the record in result_db3

6.4 i ← i+1

Step 7: Repeat the steps until i < n

7.1 Sort Result_db1 based on number of links, Quality of content on webpage related to the keyword

7.2 Sort Result_db2 based on number of links, Quality of content on webpage related to the keyword

7.2 Sort Result_db3 based on number of links, Quality of content on webpage related to the keyword

7.4 i ← i+1

Step 8: Display the result of Result_db1

Step 9: Display the result of Result_db2

Step 10: Display the result of Result_db3

Step 8: Stop

B. Algorithm for Keyword Indexing

Step 1: Start

Step 2: let us take a Database Keyword_db for storing all the keywords, Link_db for storing all the links and Quality_db for storing the quality of the website and Meaning for storing the meanings all the keywords with Page link

Declare database Keyword_db, Link_db, Quality_db, Meaning_db

Step 3: Keyword_db=Read each page on web and store all the keywords with page link.

Step 4: Link_db=Read each page on web and store all the external links with page link

Step 5: Quality_db=Read each page on web and store content quality with page link

Step 6: Meaning_db=Read each page on web and store the meanings all the keywords with Page link

Step 7: Central_db=Keyword_db+Link_db+Quality_db+Meaning_db

Step 8: Stop

VII. IMPLEMENTATION RESULT

Result of implementation is given in figure 4.

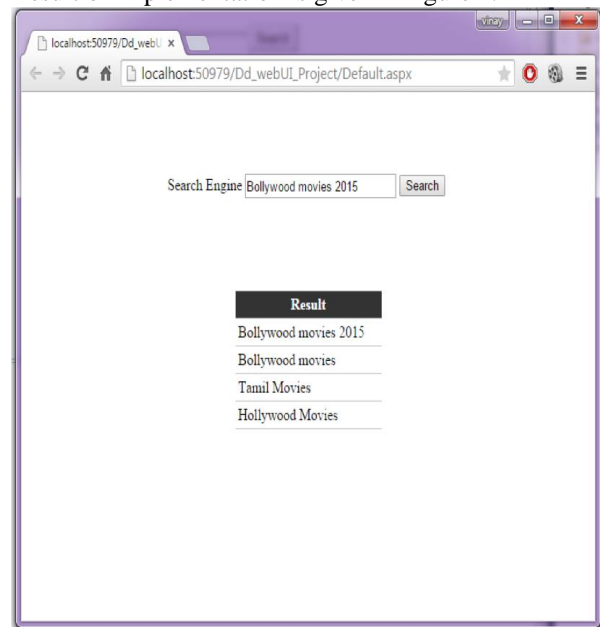


Figure 4: Off Page Search Engine Optimization Process

Indexing is done by Web spider or Web crawler that store all the keywords from the web page to keyword_db(keyword database) and all the internal and external links in link_db(link database), all the Synonyms with keywords in order to search data based on meaning of the query instead of exact match and quality_db(quality database) contain information about the quality of the content on the web page. Quality

define content uniqueness, simplicity (easy to understand) and up to date.

Now search engine takes the user query and based on keyword it identify the type of search and firstly search for exact match and store the result in Result_db1 then search for general match (Based on meaning) and store the result in result_db2 and finally search for less general match and store the result in result_db3. Now it sort the result_db1 , result_db2, result_db3 based on number of links on web page , quality and last update .now firstly it present the Result_db1 sorted records then present the Result_db2 sorted records and then present the Result_db3 sorted records .

To design a website with high rank you must have to use on page SEO and Off Page SEO. When you are design your websites your Domain Name should be related to your product, content should be unique, keyword search rate should be high and competition should be low.

Now we have developed two sites one for whats app status and second for box office movies. First step is domain name booking and first domain name is .whatsappforpc.in and second is boxofficeblog.in .

Now according to step one Domain name should be related to their Product name. Now Whatsappforpc.in contains all unique content and boxofficeblog.in contains duplicate content and competition for these keywords is high. No next step is back link (Off Page SEO) that is most important step. On social network Whatsappforpc have more than 18000 users and box-office blog have no user.

Whatsappforpc have 881 backlinks and boxofficeblog.in have 51 back links.

Figure 5 shows number of back links of Whatsappforpc.in has on other websites.

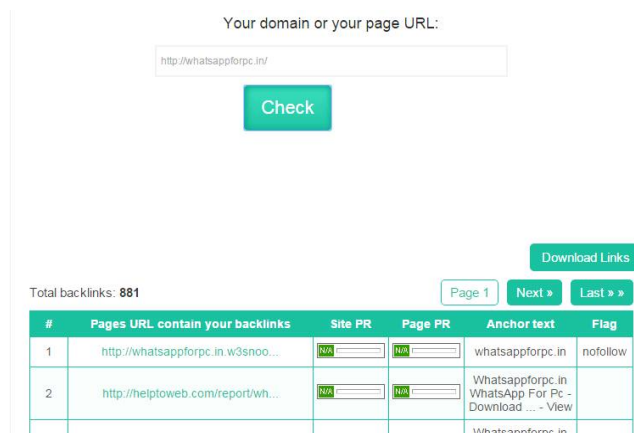


Figure 5: Backlinks of Whatsappforpc

Figure 6 shows number of back links of Boxofficeblog has on other websites.

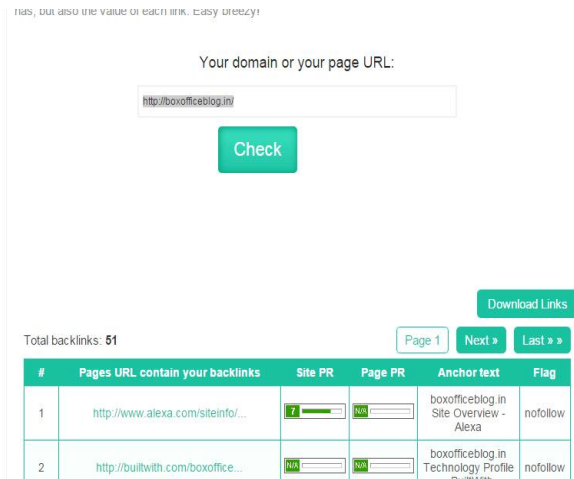


Figure 6: Backlinks of Boxofficeblog

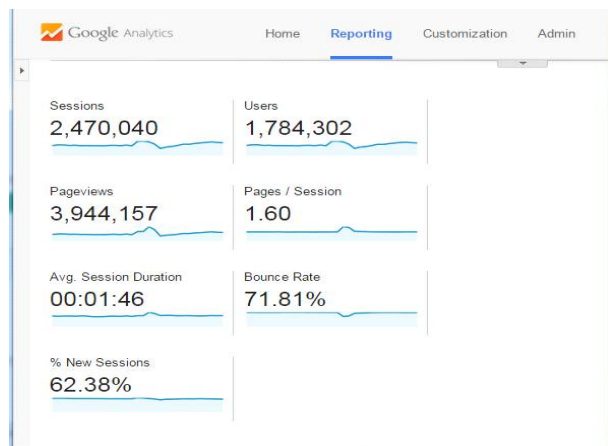


Figure 7: Number of users and page view on Whatsappforpc



Figure 8: Number of users and page view on Boxofficeblog

Result from figure7 and figure8 shows that boxofficeblog have less users and page view as compare to whatsappforpc because of bad ranking as SEO rules are not followed by boxofficeblog.in .

A. Future scope

We would compare our algorithms with previous algorithms and required improvement would be done if required.

VIII. CONCLUSION

This paper has presented various techniques of Search Engine Optimization used by leading search engines (Google, Yahoo, Bing) .After describing the experimental design and methodology used, the results of the study were as follows:

- It is recommended to design your website according to the rules of search engine optimization (on page SEO and Off page SEO) in order to having consistent ranking for longer run.
- The chances of getting higher ranking can also be increased by maintaining the content that is short in supply and high in demand.
- Attracting more number of in links on your website page will enable your website to higher ranking and greater success.
- A website provides relevant and frequently updated content likely to have higher ranking.
- After studying Different Search engine algorithms we have invented a more efficient and robust search engine algorithm that will help user to find the intended data.

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