Search Engine Optimization: An Online Marketing Giant and an Absolute Necessity

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Abstract:- In today's E-marketing environment, the search engine is quite important. A search engine's main goal is to improve the search results. By ensuring that a website ranks highly in the list of search engine results, Search Engine Optimisation (SEO) aims to increase the amount of visitors to a certain website. Based on relevance, the search engine optimises the search results. A web page's ranking in a search engine is determined by a variety of criteria, including the page's keywords, title tags, popularity of external links, etc. To obtain the most pertinent search results, one can take into account several search engine strategies such as on-page and off-page Search Engine Optimization (SEO). The search engine's well-known methods for enhancing search results are highlighted in this study. The paper provides information on various Search Engine Optimisation (SEO) algorithms, including the Penguin, Panda, and others. In this study, statistics on search engine marketing (SEM) and search engine optimisation (SEO) have also been analysed. This study has also covered SEO-related issues and recommendations for improving web page ranking.

Keywords:- Search Engine Optimization(SEO), On-page SEO, Off-page SEO,algorithms, title tags.

I. INTRODUCTION

Search engine optimisation, sometimes known as SEO, involves modifying web pages for search engines in order to increase traffic. Search engine optimisation is best seen as a gaming strategy that involves increasing a website's page rank and traffic. Increasing visibility in organic (non-paid) search engine results is the aim of SEO. SEO encompasses both the technical and creative elements required to increase visibility, traffic, and rankings in search engines. The majority of website traffic is generated by the three most popular commercial search engines: Google, Bing, and Yahoo!

Even though social media and other sources of traffic might drive traffic to your website, the majority of consumers primarily use search engines for navigation. It has been demonstrated that the success of an organisation can be significantly impacted by search engine traffic. Like no other marketing channel, targeted website traffic can bring exposure, income, and publicity. When compared to other marketing and promotion strategies, investing in SEO can offer an extraordinary rate of return. Search Engine Optimisation is less technical than other important algorithms and processes, but it takes at least three to four months following a procedure to reach its result or page rank.

II. LITERATURE REVIEW

| Author's Name	Source	Title of the paper	Findings
Venkat N. Gudivada, Dhana Rao, Jordan Paris (2015)	IEEE	Understanding Search Engine Optimization	Organisations may stay away from unethical practises by having a thorough understanding of SEO techniques. Effective monitoring of search engine-approved tactics is possible.
Ron Berman, Zsolt Katona(2013)	Escholarship.org	The Role of Search Engine Optimization in Search Marketing	An inverse U-shaped link between the minimum bid and search engine profits was discovered by modelling the effects of the minimum bid established by the search engine, proposing an ideal minimum bid.
Meng Cui, Songyun Hu(2011)	IEEE	Search Engine Optimization Research for Website Promotion	It analysis the new thought that the enterprise and e-commerce sites do the effective website promotion with the search engine.
Dushyant Sharma, Rishabh Shukla, Anil Kumar Giri, Sumit Kumar(2019)	IEEE	A Brief Review on Search Engine Optimization	Importance and usage of various SEO techniques are different.By showing up at the top of the search results, a company might employ SEO strategies to connect with its potential customers.

III. OBJECTIVES

- To make an overview of various techniques of on-page SEO and off-page SEO.
- To review different SEO algorithms.

- To analyse the SEO statistics regarding backlinks, title tags, keywords etc.
- To identify the problems of SEO and provide suggestions for improvement in the rank of the website.

IV. RESEARCH METHODOLOGY

A. Approach

Diagnosis → Synthesis → Recommendations
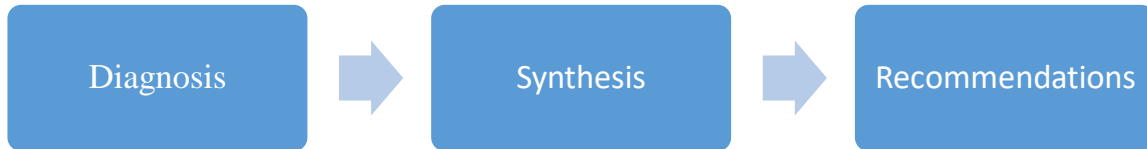
B. Research Design
The study is descriptive in nature.

C. Data Collection
Secondary sources have been used for data collections. Various websites, journals, magazines have been referred.
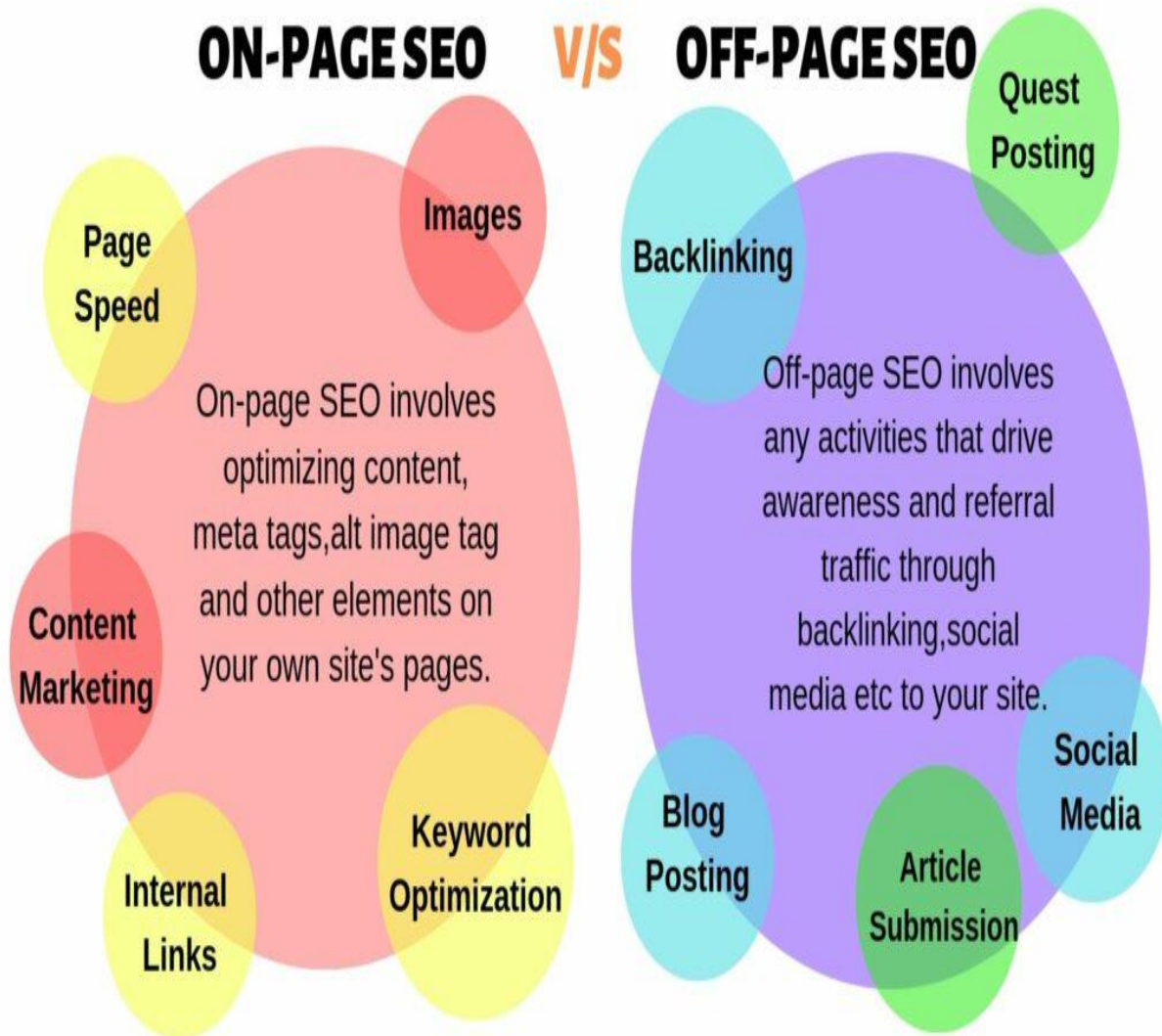
D. Search Engine Optimization(SEO)
Search engine optimisation is a method for boosting both the volume and quality of search engine traffic to a website or web page. SEO emphasises organic results rather than direct traffic or traffic that has been purchased.

When employed as a strategy for Internet marketing, SEO takes into account a number of variables, such as how search engines function, the computer algorithms that govern their behaviour, what people search for, the actual search terms or keywords they enter into search engines and which search engines their target market prefers.

White Hat SEO	Black Hat SEO	Grey Hat SEO
This type of SEO always maintain the SEO integrity of your website and remain within the search engines' terms of service.	It does not maintain the SEO integrity of your website and do not stay within the search engines' terms of service. This is mainly used by hackers or negative industries to get early attention from the audience.	Grey Hat SEO is a more dangerous form of SEO than White Hat SEO. However, it can or might not lead to a search engine ban for your website. Since the terms of service governing the issue are unclear, Grey Hat SEO techniques often do not fit in either the Black Hat nor the White Hat categories.

SEO techniques	Time	Cost	Ethics aspect
White-hat SEO	More time than Black-hat and Gray-hat SEO	High	Yes
Black-hat SEO	Take very less time than White-hat SEO	Less	No
Gray-hat SEO	Take less time than white-hat SEO but not Black-hat SEO	Less than white-hat	No

Fig. 1: Techniques of On-Page SEO and Off-Page SEO

V. ON-PAGE OPTIMIZATION

On-page SEO is the practice of optimizing individual web pages in order to gain a higher rank and earn more traffic in search engines. Unlikely off-page SEO, On-page refers to both the content and HTML source code of a page that can be optimized. It refers to all the things that you can do directly on your website. Following are some techniques to be followed for on-page optimization-

- **Meta tags Title and Description** - Include the phrase (and related terms) that you want to rank for in your pages even though Google is attempting to better comprehend the real meaning of a page and is de-emphasizing (and even punishing) aggressive and manipulative usage of keywords. The title tag of your page is where you can use your keyword with the greatest impact. The principal headline on your website is not in the title tag. The page's headline is normally an H1 HTML element or perhaps an H2 HTML element. The title tag, which appears at the top of your browser, is filled out by the source code of your page in a meta tag.

- **Content Optimization**- Content optimisation is the process of making web pages and their contents simple for users to find while conducting relevant keyword searches for your website. Another method known as SEO involves

making websites easier for "crawlers" or search engine indexing software to find, browse, and index.

- **Image Optimization**- The Alt tag is likely the most crucial aspect of image optimisation. Alternate is known as alt. If an image cannot be shown or is taking too long to load, the text from the alt tag is presented in its place. The majority of the big search engines only read text, thus they can't read photos or videos.

- **Robot.txt-**To interact with web crawlers and other internet robots, websites use the robots exclusion standard, sometimes known as the robots exclusion protocol or simply robots.txt. The standard describes how to properly instruct a web robot on which areas of a webpage to skip processing or scanning.

- **Xml site maps-** They will crawl the sitemap more quickly when you submit the XML sitemap directly to their tools sites; typically, this happens within the next few hours. Additionally, information on the URLs in the XML sitemap, such as how many are indexed and whether the XML sitemap is genuine, is available on the engines' tools websites.

VI. OFF PAGE OPTIMIZATION

All of the activities you can engage in outside of your website to improve your ranking are referred to as off-page SEO. These activities include social networking, article submission, forum and blog promotion, among others. The methods that are used for off-page optimisation are listed below:

- **Google Analytics**- Google provides the well-known web analytics service known as Google Analytics, which records and reports website traffic. After purchasing Urchin, Google launched the service in November 2005. The online analytics service on the Internet that is currently used the most is Google Analytics.

- **Blogging-** One of the best ways to advertise your website online is by blogging! By creating a blog for your website, you give website visitors an incentive to come back and read your most recent postings. Additionally, it encourages search engines to crawl your website more regularly because they have to keep up with your most recent blog posts, which ultimately raises your position in SERPs.

- **Search Engine Submission-**Even though it could take some time, search engines will eventually find your website. To hasten the process, you should submit your website to the most popular search engines, including Google, Yahoo, Bing, etc.

- **Directory Submission-** A lot of people can claim that directory submission is obsolete. It is not real, though. It solely depends on how skillfully we choose those directories and how skillfully we select the category for submission. You could submit to generic directories, but submitting to specialty directories will have the biggest impact. Of course, I agree that the effects are very delayed, but it is still worthwhile.

- **Social bookmarking-** Another effective strategy for promoting your website is social bookmarking. To the most well-known social bookmarking websites, such as StumbleUpon,Digg, Delicious, Reddit, etc., submit your most recent blog entries and web pages. Because the material on these sites is updated frequently, search engines especially enjoy them.

A. SEO Algorithms

- **Panda:** Sites with poor, spammy or sparse content were penalised by the Google Panda. Additionally, websites with poor user experiences, plagiarism, and keyword stuffing had to pay the price. Items to Prevent:
  - ✓ Duplicate content
  - ✓ Plagiarism
  - ✓ Keyword Stuffing

- **Penguin:** When it comes to link quality, Google Penguin penalises websites that buy backlinks from other websites. Additionally, websites that disregard Google's Webmaster Guidelines will suffer the consequences.

- **Disavow Tool:** The launch of Google's Disavow Tool was another major endeavour of this release. With the use of this tool, we may delete any links that are bad for our website and tell Google to stop using the link juice from those particular links.

- **Pirate:** The Google Pirate programme was established to safeguard intellectual property. Sites that received reports of copyright violations were penalised. Most of the sites that were impacted produced unauthorised content (music, movies, etc.)

- **Humming Bird:** Google Humming Bird was designed to manage "Long Tail Keywords" based on user intent. Instead of focusing on specific terms within the query, it takes into account search results that match the searcher's intent

- **Pigeon:** Based on the user's location and other geographic parameters, Google Pigeon Update delivered more pertinent, accurate results. As a result, local SEO gained popularity and Google My Business developed into a crucial component that displays entities on maps based on three criteria.
Relevance b) Searcher distance c) Prominence

- **Mobile friendly:** The Google Mobile Friendly Update, commonly referred to as Mobilegeddon, makes sure that websites that are optimised for mobile devices are given priority in SERPs (Search Engine Results Pages). Mobile friendliness so became a crucial quality, and AMP (Accelerated Mobile Pages) is a result.

- **Rank Brain:** Rank Brain is an artificial intelligence machine learning technology that enhanced keyword search results based on user intention. Instead of receiving instruction from a human, a computer can learn how to perform a particular task on its own through a process called machine learning. Through AL, search engines behave intelligently, recognising and resolving problems in the actual world just like intelligent humans. Rank Brain analyses user search terms that do not exactly match the phrases they are looking for using the aforementioned approach.

- **Fred:** Fred focuses on websites that disobey Google's webmaster policies. Most of the affected websites are blogs with low-quality entries that appear to have been written only with the intention of earning money through advertisements.
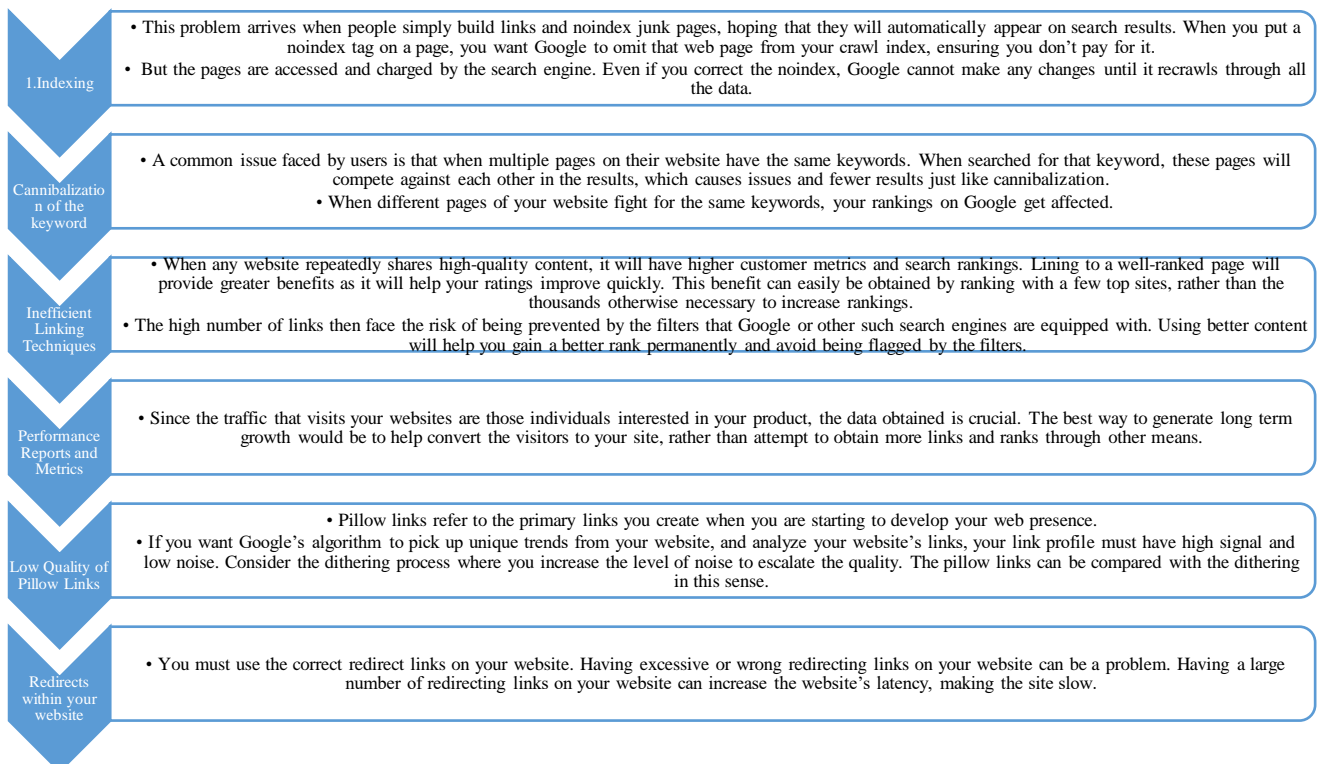
B. Common SEO problems

1.Indexing
- This problem arrives when people simply build links and noindex junk pages, hoping that they will automatically appear on search results. When you put a noindex tag on a page, you want Google to omit that web page from your crawl index, ensuring you don't pay for it.
- But the pages are accessed and charged by the search engine. Even if you correct the noindex, Google cannot make any changes until it recrawls through all the data.

Cannibalization of the keyword
- A common issue faced by users is that when multiple pages on their website have the same keywords. When searched for that keyword, these pages will compete against each other in the results, which causes issues and fewer results just like cannibalization.
- When different pages of your website fight for the same keywords, your rankings on Google get affected.

Inefficient Linking Techniques
- When any website repeatedly shares high-quality content, it will have higher customer metrics and search rankings. Lining to a well-ranked page will provide greater benefits as it will help your ratings improve quickly. This benefit can easily be obtained by ranking with a few top sites, rather than the thousands otherwise necessary to increase rankings.
- The high number of links then face the risk of being prevented by the filters that Google or other such search engines are equipped with. Using better content will help you gain a better rank permanently and avoid being flagged by the filters.

Performance Reports and Metrics
- Since the traffic that visits your websites are those individuals interested in your product, the data obtained is crucial. The best way to generate long term growth would be to help convert the visitors to your site, rather than attempt to obtain more links and ranks through other means.

Low Quality of Pillow Links
- Pillow links refer to the primary links you create when you are starting to develop your web presence.
- If you want Google's algorithm to pick up unique trends from your website, and analyze your website's links, your link profile must have high signal and low noise. Consider the dithering process where you increase the level of noise to escalate the quality. The pillow links can be compared with the dithering in this sense.

Redirects within your website
- You must use the correct redirect links on your website. Having excessive or wrong redirecting links on your website can be a problem. Having a large number of redirecting links on your website can increase the website's latency, making the site slow.

Table 1: Top SEO statistics

1.	Search engines are the starting point of 68% of online activities.
2.	0.63% of Google searchers select the second page of results.
3.	Organic search accounts for 53.3% of all website traffic.
4.	Google Search, Google Images, and Google Maps account for 92.96% of all worldwide traffic.
5.	SEO generates 1,000% or more traffic than organic social media.
6.	60% of marketers claim that their highest-quality lead source is inbound (SEO, blog content, etc.)
7.	54.4% of all clicks on Google search results go to the first three results.
8.	Google receives an estimated 3.5 billion queries per day.
9.	Location-based searches account for 30% of all smartphone searches, while 28% of searches for nearby items result in purchases.
10.	Mobile searches outnumber desktop searches, and by 2025, 72.6% of internet users will only use their smartphones to access the web.
11.	A voice search often returns results that are only 29 words long. For their relevant inquiries, about 75% of voice search results are included in the top three.

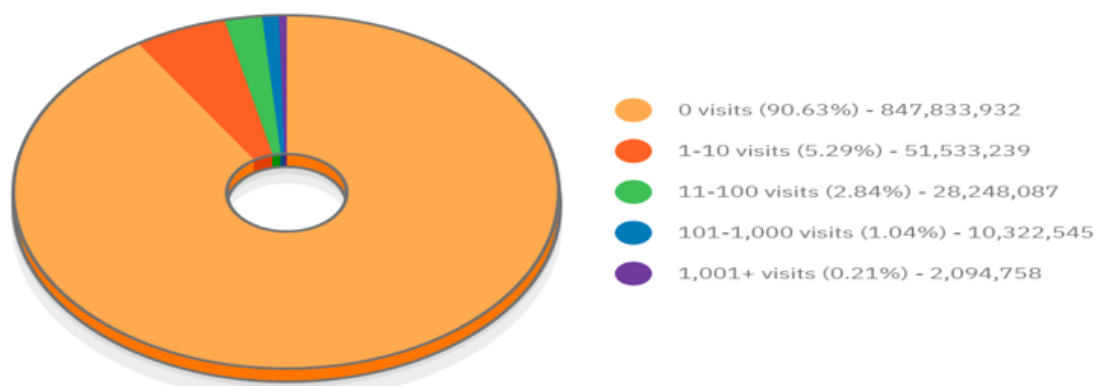90.63% of pages get no organic search traffic from Google

- 0 visits (90.63%) - 847,833,932
- 1-10 visits (5.29%) - 51,533,239
- 11-100 visits (2.84%) - 28,248,087
- 101-1,000 visits (1.04%) - 10,322,545
- 1,001+ visits (0.21%) - 2,094,758

Fig. 2: Percentage of pages getting organic search traffic from Google.

Source: Ahrefs
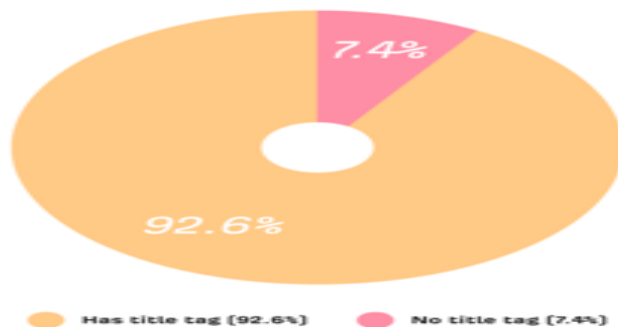
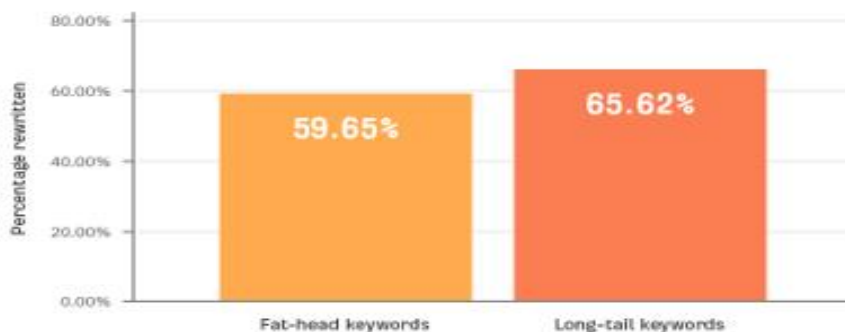Fig. 3: Percentage of pages having title tags.

Source: Ahrefs

Fig. 4: Percentage rewritten for Long-tail Keywords and Fat-heads.

Source: Ahrefs
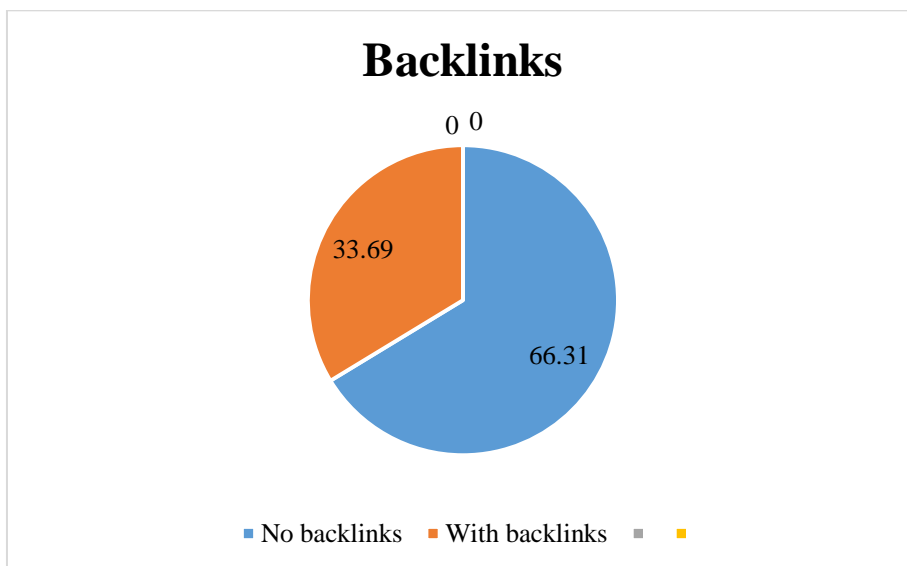
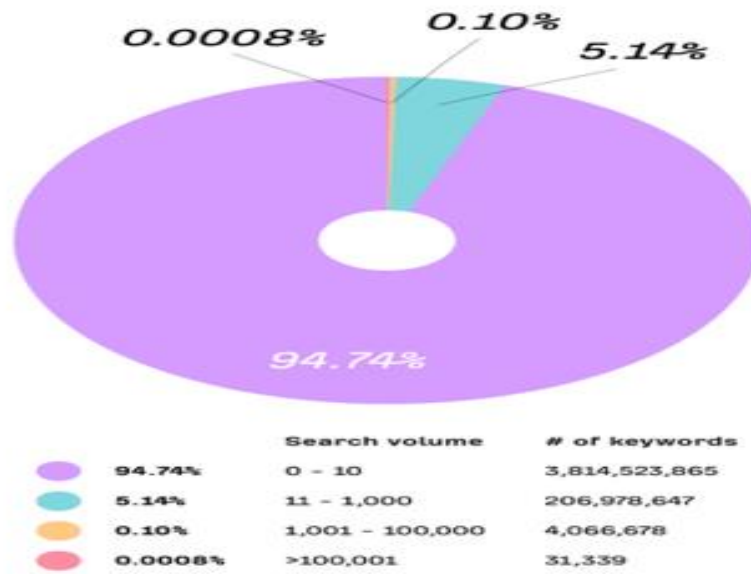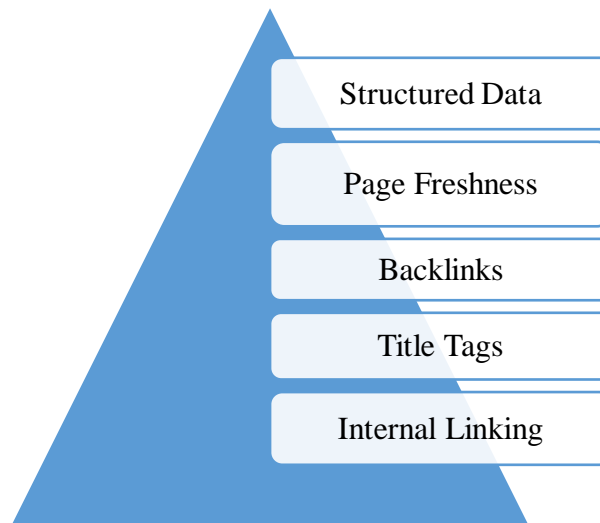Fig. 5: Percentage of pages having backlinks.

Source: Ahrefs

Fig. 6: Distribution of Search Volume

Source: Ahrefs

C. SEO Recommendations

- **Structured Data:** Structured data is useful since it informs the web crawlers what is on your page. The following sectors could benefit from structured data:
  - ✓ events,
  - ✓ jobs/recruiting and
  - ✓ beauty services.

  Structured data is a potent (but frequently misunderstood) tool because it helps crawlers absorb the information on the page more quickly. If used properly, it will improve the appearance of your pages.

- **Page freshness:** There are several variables that affect how fresh a page is. One of the simplest methods to tell Google that a page is new is to have a date on it. This holds true for news and blog posts as well as product pages with dates on them. Although dates are useful, your material should always reflect and target searchers' needs. Conducting keyword research and updating the content of the page based on the results is necessary.

- **Backlinks:** Since they signify a "vote of confidence" from one website to another, backlinks are important for SEO. Search engines can tell that other websites endorse your material if they find backlinks to your website. Search engines assume that information is worthwhile to link to when numerous websites connect to the same webpage or domain. Therefore, acquiring these backlinks may benefit a site's ranking position.
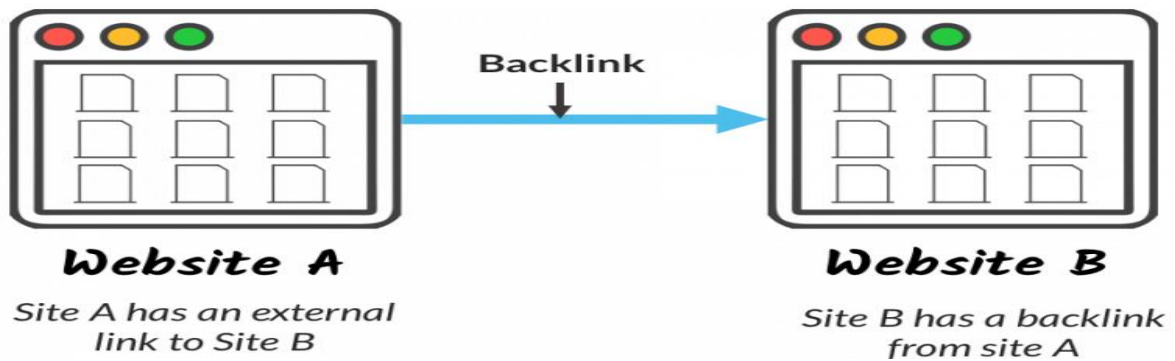
Fig. 7: Website Backlinks

- **Title Tags**: SEO uses title tags as a ranking element. The first HTML element a search engine examines is the title tag of a web page. Choosing the appropriate keywords for the content to be indexed and ranked for on the Search Engine Results Pages (SERPs) is made easier with its assistance. The title tags can contain the page's year and lowest item price.

- **Internal Linking-** If all of your category pages have been indexed and crawled, you can choose to limit links from the homepage to only certain services or categories. When linking internally from the homepage, you should take into account the likelihood that these pages will be more profitable and their ability to compete. The distribution of internal links affects how users and search engine crawlers find your pages, making it a crucial ranking factor.

VII. RESULTS & FINDINGS

- 94.74% of keywords receive 10 or less monthly searches.
- Only.0008% of keywords receive more than 100,000 searches per month.
- Compared to fat-heads, Google is more inclined to modify meta descriptions for long tail keywords.
- 92.6% of pages with high rankings have a title tag.
- 0.21% of pages get 1,001+ organic search traffic from google.
- Only 33.69% of pages have backlinks.

VIII. CONCLUSION

It has been established and demonstrated that search engine optimisation is crucial to the growth of the organisation. Additionally, this is the principal method that can be applied to raise the website's page rank and boost data traffic. The number of visitors that the website receives or receives increases in proportion to the page rank. By choosing a keyword, matching the search intent, improving on page SEO, adding internal links, merging similar pages, building more backlinks, a website can rank higher on search engine. By executing both on-page and off-page optimisation, search engine optimisation, which is primarily a marketing approach, can play a significant role.

IX. LIMITATIONS OF THE STUDY

- The pros and cons of the SEO techniques and algorithms have not been mentioned.
- The statistical data is limited.

X. MANAGERIAL & SOCIAL IMPLICATIONS

Search engine optimisation has an influence on businesses since it elevates your position in relevant search results. If your website has a high enough ranking, such as being on page one, your business may use SEO to bring quality visitors to it. This can boost lead generation, sales, and revenue for your company. Additionally, it raises your website's visibility online.

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