The Role of SEO Techniques to Enhanced Performance and Improved Rankingfor Intelli-Web Shop

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Abstract

The use of internet is gaining popularity berceuse of people freedom to connect each other and ultimately shrink the physical boundaries between different societies. This virtual world has a wide-ranging impact on communication since its rise and globalization. Additionally, it also brings new possibilities to individuals and companies who are mostly   keeping in touch with web. Due to extensive use of internet, the web holds an immeasurable amount of data and search engines (SE) are essential tools for finding, sorting, storing and ranking the value of that data on the web. The potential of SEO is very significant because search engine, such as google, bing, baidu, yahoo and their results routes end users drive a major portion of web traffic to specific website. Due to the vital role of SEs, search results have become more decisive for website owners to compete with other rivals. Search engine optimization (SEO) is a key process for getting better online visibility on search results from SEs. After employing SEO, website owners believe that their website position will appear before their rivals. Hence, there is inherent requirement for website developers to follow and apply SEO guidelines to address ranking issue. The objective of this study is to technically justify the importance of different search engine and SEO. In addition, we have outlined factors and improvement techniques that are helpful in both perspective (development & se). In order to evaluate result we have designed tool that is based on SEO methods (on, off page) which will be helpful for website testing. Results attained from our experimental work demonstrates the significance of key SEO factors and this study concluded that WordPress and CMS (content management system) platform is closer to the search engine. Furthermore, if a website is develop through these will achieve.

Keywords: Search Engine Optimization techniques; Website Performance testing; SEO in Ecommerce sites.

1   Introduction

Websites are the ultimate source of spreading business in different regions where physically presence is difficult. Since website provides a rapid way to transport content, ideas and business is a strong challenge which arises to the web performance. Moreover that it never disables or stops working [1]. Approximately more than 80% traffic of users on internet is handled by SE (search engines) [2]. If website is an optimal and follows the guidelines of SEO. As a result getting high ranking and producing better results among others webs. Web performance is measured according to the search engine optimization (SEO) techniques furthermore this is type of research to help in getting better result of web application on search engine [3]. Search engine provides guidance to the web developer to rank website and explain different ways to

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develop web application. Therefore, search engine is plays a vital role for web application to get high ranking on search engine [4, 5].

Web Application has been categorized into three ways including (1) web 1.0, (3) 2.0 and last 3.0. [6]. Web 1.0 was developed for reading and information purpose only. It's known as "static" website. These website does not contain any storage and only contains Hypertext Transfer Markup Language (HTML) file base structure. Web 2.0 are designed with the capability of "Storage" and known as "Dynamic" website. These websites are interactive in nature and provide user facility to interact with images and content. Web 3.0 is known as "Semantic web". These web are interactive plus intelligent in nature furthermore these versions are for converting content to a meaningful state [6, 7]. Table I shows a classification of website with the description of functionality and technology used.

Table 1: Categorization of web

Category	Functionality	TechnologyUsed
1.0	Information and Reading purpose	HTML, HTTP, URL
2.0	Database and Interacting web	AIAX, WIKIS AND BLOG
3.0	Sematic or Collaborative sites	3 DIMENSIONAL, XML

The objective of proposed study is to technically justify the importance of different search engines with SEO. Furthermore, we have outlined factors and improvement techniques are helpful in both perspective (Development & SE). In order to evaluate result of this study, we have designed a tool based on SEO methods (On, Off Page) that will be helpful for web developer to test a website.

The remainder of this research paper is organized as follows. Section 2 describes importance of SEO and related work. Section 3 describes the methodology of proposed method. Finally, the 4th section summarizes the concept of this paper.

2   Background And Litrature Review

Researchers in various fields have studied search engines and search engine marketing have been studied on various aspects for example designing, behaviour of the client or user, aspects related to marketing, in addition to the influence of politics as well as social association. This part presents an overview of the reported papers on search engine ranking, it also outlines the lack of our knowledge and understanding in this domain. [4,6,8,9,12,13,14,18,20,21,23].

In order to verify the quality of website traffic is measured with the number of unique visitors. Search engine optimization was integral to this process [8] but, as the online market has matured, website switched from a provider of information to a valuable sales channel and the emphasis moved from web traffic to the conversion of such traffic into sales [9, 10]. The extant literature has followed this development with early work studying the technical requirements for website quality [11, 12] or focusing upon how customers are attracted to the website [13]. Generalizing, According to Nguyen the main focus of previously done researches

was on the improvement of client service by the use of tools of marketing, although, researches are needed to study the user behaviour and its control by the use of tools which are utilized for user services, also to control the rate of conversation and therefore its market [14].As websites evolved into sales channels limited research has investigated the factors that positively influenced the intention to purchase. Examples of this type of work include website visits [15] browsing experience and navigational behaviour web design and language [16] and website aesthetics and length of exposure [17].

Examining conversion rates in the wider context, it has been well documented that traditional retail finds it hard to encourage people to purchase once they are in store, for example, [18] suggest that 54% of visitors leave a retail outlet without making a purchase. While this of concern to high-street retailers, the conversion rate of ecommerce websites (2–4%) is significantly lower [19, 20]. In high-street retail commonly accepted explanations are that many customers, visit several stores before buying or that shopping is simply a recreational activity [21]. These phenomena are particularly relevant in relation to e-commerce websites where the ease and speed with which users can move between websites is often seamless cutting the time and costs required to compare products encouraging such behaviour [22]. However, historically ecommerce also generates issues that relate to trust within the transaction process, with customers concerned about the safety of personal information, credit card data and product [23].

A   E-commerce websites

E-Commerce refers to the business being generated digitally by mean of network. There is no specific definition of the ecommerce website but different scholars and student define this words according to their understanding. Some definitions are as follows.

According to Dr Allison E-Commerce could be a resource to swap the cost of conversation as well as computing automation. Electronic commerce or E-trade means to share business data, maintenance of trade relations, in addition to the conduction of business trade deals through telecommunication systems. Marketing and trading on World Wide Web is another way to define E-Commerce, it encompasses sales over internet and delivering of goods offline and online (that are digitized), for example a software program [24].

Almost every service and products has its pros and cons attached with it. Some of the advantages of these website are pointed as beneath Ecommerce Site reduced the cost of transaction and moving thing from one place to other however requires a strong Marketing strategy. These sites have 24*7 service availability that may cause security issues and User finds easy methods of selection of products but no guarantee is provided Everyone can develop E-Commerce sites which increase number of sites but on many occasions user get trap in fake business that lead to customer dissatisfaction Novice user also use these sites but developing a site full of simplicity become difficult It requires low cost for becoming operational but lack of development knowledge lead to business loss. It does not require any physical location for starting a business that's why user sometimes does not believe easily. User reachs these sites easily but sometimes user patience breakout due to delivery time and these advantages and disadvantages summarize in figure 1. [5, 23, 24].

Advantages
- Low Financial Cost
- 24/7 service
- Business globally
- Easy to showcase bestseller
- Speedy buying selling
- Het easily access to customer data
- Grow Business Organically with Content

Disadvantages
- Security
- Can't Try Before They Buy
- Customers Can Be Impatient
- Need shipment
- Delaying goods
- Anyone Can Set Up an e-Commerce Website

Figure 1: Advantages & disadvantages of Ecommerce sites

B   Search Engine Optimization SEO

SEO is the technique to increase the productivity of the website and successively high rank in the search engine. Moreover, these techniques guarantee for a high performance. With the help of these techniques website getting high rank [25].SEO is classified into ON page and OFF page SEO. On-page define as it is applied before and on the time of the development. These include heading style of the website, page title, Images format, responsiveness, amount of content and Meta tags. Off page related to the promotion and marketing of the website. These include Social media pages (Facebook, Twitter) sharing, Blogging, Forum and community as shown in Table 2 [25, 26, 27].

Table 2: Describes basic function of the on and off page SEO

On Page	Off-page
Lies inside boundary of the website	Lies outside of the boundary of the website
Needed to optimize at Development of the web	Needed to optimized or worked after development of the web
Images, Titles, Internal Links are the important factors	Important factors includes Social media, Blogging, Forum and communities

## 3   Methodology

The method proposed in this study is based on web marketing toolto find search engine ranking. This Research is involved a steps similar to waterfall model that heuristic evaluation of website conducted by this study. Our main steps includesgathering data of ecommerce website, Testing with SEO tool, generating results and designing an SEO based tool and finally Results & evaluations. Our proposed methodology is presented in figure 2.
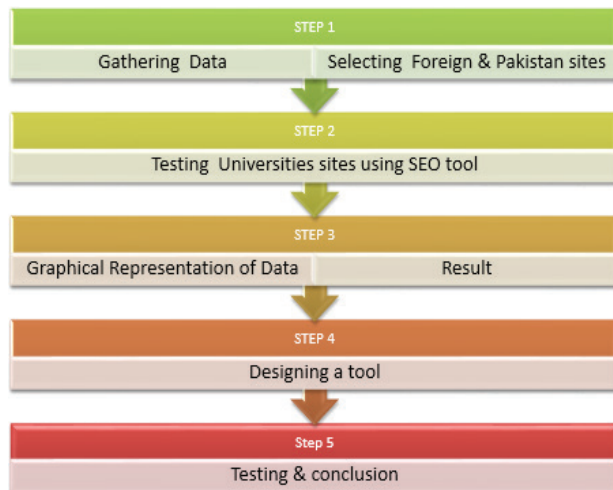
Figure 2: Proposed Method Methodology

There are many platforms for the website development. These start from HTML CSS, ASP. NET and then jump to the popular CMS like WordPress, joomla, Drupal and magneto. For this presented work, we have selected three different well known platforms for web development such as WordPress, blogger and HTML5 with CSS. Our proposed tool is an open source and it is simplest for any invoice person to use. For easiness of user is to just enter web link on the browser and it also provides a comprehensive report after analysis of web applications. This tool is analysis of website based on seventeen different parameters such as code quality, social interest, internal link, page titles, heading, amount of content and some others as shown in Table 3. There are some limitations of this tool are as follows. user can only test 3 web links at a time and to test other website, they have to wait for some time to analyze other websites. Without signup users are not allowed to access tool.
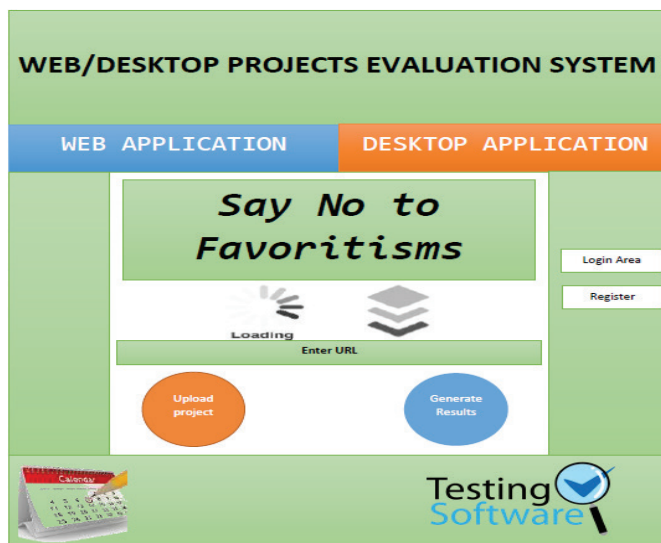
Figure 3: The Architecture of Proposed Tool

The architecture of our proposed method presented in Figure 3. However, analysis has only been confined to the feedback from HTTP which are consumed from the applications that are run verified web application. In order to keep the plan clear accessible, collective and compatible architecture has been used. The proposed approach contains the mentioned aspects: Gathering data of ecommerce site, testing with SEO tool and generating results and designing an SEO based tool and finally results & evaluations Likewise, to the reported strategies commonly found in other systems [6, 11, 14].

4   Experimental Result

For experimental result tool has been developed inPHP with the help of DBMS MySQL. For our studies, we use sample size of 6 website which was selected from renowned organization of national and international of ecommerce website. These website were obtained from Daraz (daraz.com.pk), Yayvo (yayvo.com.pk), HomeShopping (homeshopping.com.pk) amazon (amazon.com), alibaba (alibaba.com) and   wallMart (walmart.com). website has been selected.

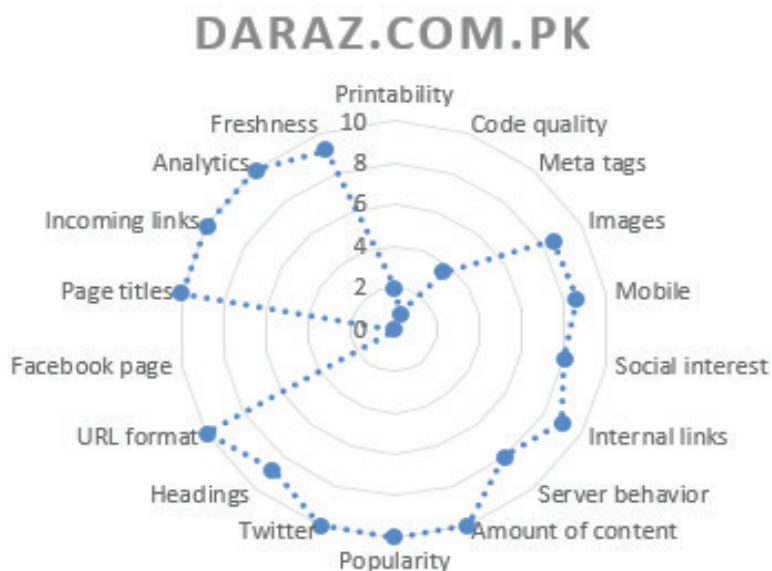**Table 3: Description of all criterions**

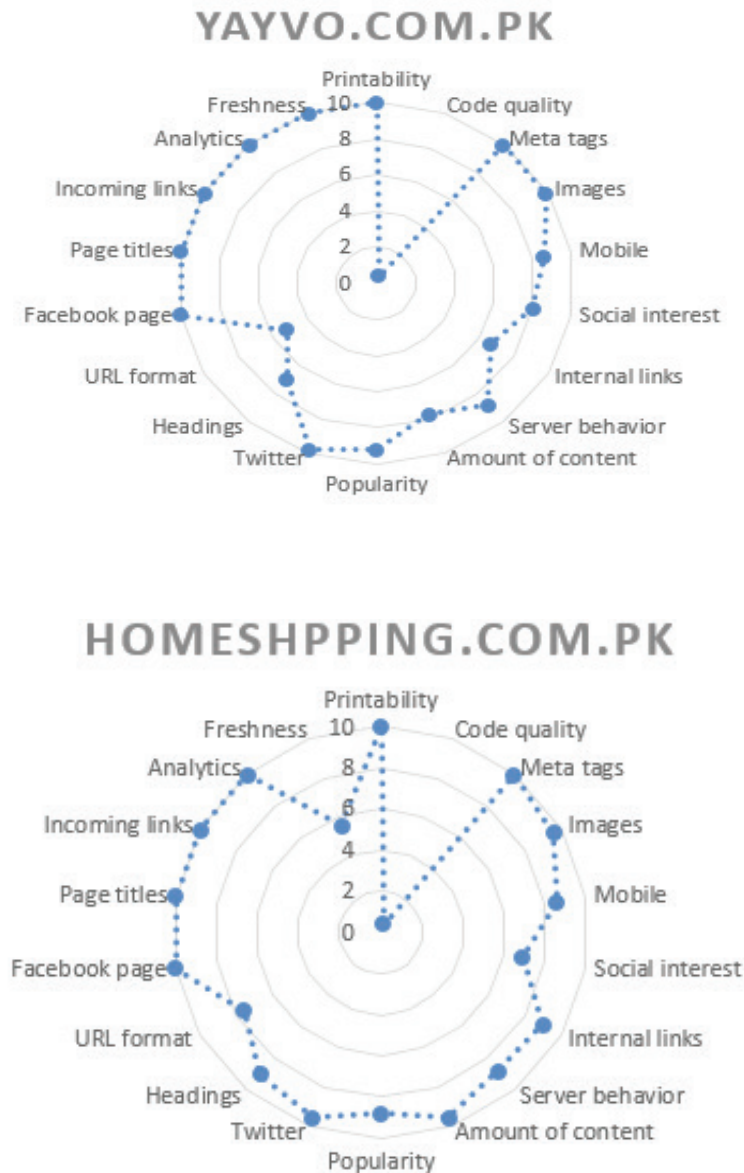| Criterion	Description
Code quality and ASP.	it has shown that in which platform wesite has been developed such as HTML with CSS. PHP
Meta tags	These tags are used to describe what content appear when a visitor finds on the search engine.
Mobile	This parameter describes website responsiveness.
Social interest	Its display, whether user are following the social media website (Facebook, twitter).
Images	what type of images are used in the development of the website such as JPEG, PSD, PNG OR GIF.
Internal links	it suggests website is connected internally and how pages are connected to each other?
Server behaviour	it describes what is the behaviour of the server and how it react when number of user increase.
Amount of content	This parameter describes amount of content is present in the web application.
Popularity	it describes, how many of people are following to access the website.
Twitter	This parameter describes twitter page connect with the website.
Heading	it displays that, what types of heading stylesare used. (H1 to h6).
URL format	it depicts how website is accessed by the visitors on the search engine.
Facebook page	it describes whether website is linked with Facebook page or not.
Page titles	it suggests that how the page title are assigned, what type of style, and font is used.
Incoming links	This parameter describes whether website has any focusing link or not.

Note: These all parameters are important for analyzing any website and these value are never static and change time to time whenever any change occurs to the content (Website, Blog) based on search engine representation, traffic, content and pagerank.The result of six web application presented in Table IV. In order to evaluate result for presented we performed testing on different website to find Search engine ranking. Many attempts have been made in order to aim to SEO Ranking to find accurate result.From the Table overall presented result of each web application Daraz have almost similar result as compared with others in case of code quality is 80%, in case of social interest is 80%, in case of Internal Link is 90%, in case of Page Titles is 100%, in case of Heading is 88%, in case of Amount of content is 100% and So on. In the same way, others sample website almost similar resultAs Daraz parameters result.

Table 4: Describes basic function of the on and off page SEO

Sample Website	C-Q	M-T	T	I-L	F	I	M	S-I	I-L	S-B	AOC	POP	H	URL	FB	P-T
Daraz	0.8	3.6	10	10	9.2	8.5	8.6	8.0	9.0	8.0	10	10	8.8	10	0	10
Yayvo	0.4	10	9.8	10	10	9.9	8.6	8	6.7	8.8	7.7	9.2	7	5.2	10	10
Homeshopping	0.4	10	9.6	10	5.5	9.6	8.6	6.9	9	8.8	10	10	9	7.6	10	10
Amazon	1.9	5.2	0	8.2	0	10	10	8	10	8.5	9.6	10	4	4.8	0	10
AliBaba	0.7	10	10	9.5	10	9.4	6.6	8	10	8.4	8.3	9.8	7	3.6	10	10
WallMart	4.3	5.2	9.3	7.7	10	10	8.6	8	10	8.7	7.7	6.4	5.5	8.8	10	8

AOC: Amount of Content   C-Q: Code quality   M-T: Meta Tags   I: Images   I-L: Internal Links   S-I: Social Interest
POP: Popularity   T: Twitter   H: Headings   URL: URL Format   FB: Facebook Page
P-T: Page Title   I-L: Incoming Links   F: Freshness

YAYVO.COM.PK

HOMESHPPING.COM.PK

Figure 4: Result of Pakistani Ecommerce Website

Daraz, Yayvo and Homeshopping result of code quality, meta tags, images, mobiles, social interest, internal links, server behaviour, amount of content, popularity, twitter, heading, URL Format, Facebook Page, page titles, incoming links, Analytics and Freshness For Pakistani Website as shown in Figure 4.

Figure 5: Results of International Ecommerce site

The result of amazon, alibaba and wallmart presented in figure 5. This presented study has found-very interesting result to detect Search Engine representation SEO with respect to exiting methods.

5   Conclusion

Search engine optimization (SEO) is a type of research that helps in getting better result of ranking of Google's search engine. Moreover, these search engines are playing an important role for any access, facts on the internet. Furthermore, its importance is enhancing with the passage of time. In this study, we tried to enlighten the most common search engine parameters. Additionally, we have developed a new SEO tool to analyse website. To provide factual results, the experimental work is carried out on proposed tool on 6 renowned websites. There are certain areas where working can improve the performance of website. In order to find efficient result of website where results are less than 20%. Moreover, in result these websites are not effective for SEO in search engine. In the same way, if ecommerce websites meet criteria, more than 90% in all parameters that is effective for search engine. Finally, we conclude the average Pakistani website score is 82% and in the case of foreign website score is 72%. Furthermore, the purpose of this study is to analyse different parameters over website and we conclude that foreign ecommerce websites are less optimize than Pakistan website.

Future research will be based on the development of an upgraded version of tool to increase an accuracy. We will perform comparative study with existence solution. Furthermore, we are also setting up website for users to scan website and download scanner.

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