

# Awareness, Use and Impediments of Search Engines by Undergraduate Students in Delta State University, Abraka-Nigeria

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## ABSTRACT

The study investigated the awareness, use and impediments of search engines by undergraduate students in Delta State University, Abraka. A descriptive study design was used for the study. The population comprised of the students in the Faculty of Social Sciences in Delta State University. The sample of the study was 154. Three research questions guided the study and two hypotheses tested at 0.05 level of significant. One instrument titled search engine use questionnaire (SEUQ) was used for data collection. Percentages and mean rating were used to answer research questions. ANOVA was used to test hypotheses. The major findings of the study include: Undergraduate students awareness of search engines was low in Delta State University, the test for hypotheses showed that there was a significant difference from the respondents awareness of search engines according to their departments; Google was the most frequently used search engine by the undergraduate students in Faculty of Social Sciences. The finding also revealed that information overload was the greatest challenge the undergraduate students encountered. Based on the findings, the implication of the study revealed more practical aspects of search engines to be employed to promote greater awareness needed to improve the use of search engines.

**Keywords:** *search engines, SEUQ, ANOVA, faculty social science.*

## 1. INTRODUCTION

Search engines serve as a source of information to students, researchers and lecturers in higher institutions of learning. They are the avenues through which researchers can access past and current research publications and help to narrow and refine a search for locating relevant information. Students can also access information on various courses offered to them in the institution through these search engines. This will make them have different information materials for their assignments and research work. Search engines also provide easy access to some government documents, and legislative materials like: gazettes, journals, magazines and newspapers. Search engines provide e-print in details and other types of digital works by authors in an academic department, school or institutions which comprise of electronic theses and dissertations and presentations by authors of different institutions. This has enhanced the potential for wide spread online search and retrieval of electronic content easily.

The aim of search engines according to Butters (2009), is to search and navigate, meaning that a successful search engine should support its users in an efficient search for contents, and bring detailed information resources with ease to various undergraduate students. Mark (2012) noted that the search engines available are very many but due to lack of awareness, students do not exploit them. Internet and the various search engines have brought information explosion, which means that there is large scale, rapid and spectacular expansion of information. The information explosion may confuse students and other researchers on the information to use. (Jonan, 2010). Thus the need to create awareness of the importance of search engines for scholarly articles.

An important factor in the use of search engines is awareness. According to Taiwo (2009), awareness means knowledge. Lack of awareness hinders the use of the various search engines. Lack of awareness of the various search engines, among undergraduate students in higher institution will bring to its non-usage (Taiwo, 2009). Doris (2012) noted that a good rule of awareness is that someone needs to be exposing to services, several times before he/she is fully aware of the service.

Awareness is a necessity to the usage of search engines. For an individual or student to participate in any work or activities, awareness about the environment, how things are done and should be done is very important.

Adams (2010) noted that level of awareness of various search engines to students in higher institution is very low. Adams further explained that students have very confused understanding of various search engines and its concept. Moreso, many students are not yet involved with various search engines. Shearer (2012) noted also that the use of the various search engines is very low. At the most basic level undergraduate students lack the existence of the various search engines, many of the students according to Shearer are not familiar with the concept of various search engines. In addition, the lack of knowledge or awareness of search engine is a common factor among undergraduate students as well as researchers; in fact, this is the situation in most developing countries. In line with the above, Gabriel (2011) asserted that most of the students claimed that they got various search engines awareness from their friends, internet debate and workshops level of awareness of search engines issues are varied.

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From literature, observation and interaction with undergraduate students in Faculty of Social Science, Delta State University, show that significant proportion of students still consult the staff in DELSU portal (Internet centre), to assist them in searching for information. This suggests that they may not be sufficiently aware of these search engines and consequently may not be exploiting their use of search engine. This work therefore, seeks to determine the level of awareness use and the factors limiting the use of search engines by undergraduate students in Delta state university.

## 2. LITERATURE REVIEW

The Internet is seen as the network of inter-connected networks. Websites in the Internet contain files; every website is also identified using an address for easy location of the website. For instance Google ([www.google.com](http://www.google.com)), is a search engine. The search engines crawls through the websites for information, and then through special algorithm provides organized results for search queries.

According to Louis (2012), search engine is software of a computer that has the capability of searching through large volumes of text or other data for specified keywords, and then returning a list of files where the keywords are found. Search engine helps users track down online information on a wide variety of topics that are valuable. It is a software program that searches a database and gathers reports on information that contains or is related to specified terms. There are different search engines available (Duke, 2010). Bare (2008) noted that search engines are defined as online tools for searching websites, so as to have access to current information as well as numerous information.

Paul (2014) noted that there are 7 major search engines. These are: Google, Google scholar, Bing, Yahoo, Blekko, Ask and Web crawler. Each of the major search engines, on which the researchers will focus provide some characteristics that enable users get peculiar benefits. In using the major search engines according to Paul Google seems to be the most useful for online shopping, location and posting of articles on different subjects. Google scholar helps a researcher to search through, thousands of guaranteed scholarly articles and research reports being contains more of concepts. Yahoo helps to get fast access to translation on institution. Blekko contains information on government sites, as well as different postal codes. Ask contains a lot of magazines, and also provide free social media sites. Web crawler contains more of scientific journals, articles and also different scientists (Paul, 2014).

The use of the search engines for research underscores the increasing affinity for digital information. The socio-technological environment of universities that began emerging in the late 1990s has led to increasing dependence on the e-resource, which has only grown as many students enjoy free access 24 hours a day on Internet. According to Kandell (2012) dependence

coupled with easy access to technology, points towards college students spending a substantial quantity of time on the search engine.

Students search engine use has been addressed extensively in recent scholarship and research. One area of inquiry involves the role of the research materials for class projects. According to Lindary and McLaren (2010) university students use the search engines for research and made evaluation on the quality and type of research materials being used. In addition to the above, Burton and Chadwick (2000) noted that some of the students depend solely on e-resources in writing research papers. Majority of the students used a combination of library and online resources. This did not, however, mean that students were necessarily choosing the best or most pertinent sources relating to their topics. Instead, as emphasized by Lindary and McLaren (2010), students depend on giving the most positive ratings to sources that were easy to understand, easy to find and available. The e-resources are very easy, convenient and accessibility, were major factors influencing academic use.

Joe (2011) conducted a survey study on information technology acceptance by professionals in Delta State University, Nigeria. To access the users using search engines, a seven item questionnaire was used to collect data from a sample of 211 users of which 201 users completed the survey, and response rate was high.

He found out that 80 (97.95%) respondents used Google daily, while 65 (74.70%) respondents used Yahoo 2- 3 times a week, while 14 (15.09%) respondents used Bing once a week. It was also discovered that 12 (13.50%) respondents used Netscape twice a week, while 10 (11.49%) respondents use AOL once a month, while 10 (11.49%) respondents used Lycos twice in a month and 10 (11.49%). From the findings, it showed that many users made more use of Google than other search engines because of the knowledge of Google to them.

Hsu (2008), carried out a survey on consumer behaviour in online game communities in order to access the search engine users use for online games in ABC university, USA, using questionnaire as an instrument for data collection, Hsu found out that among 15 search engines listed and ranked 1<sup>st</sup> to 5<sup>th</sup> Bing was the most used and ranked first, with 39 users and they were very highly willing. Ask ranked second with 34 users that were highly willing, while Lycos ranked third with 30 users, that were moderately willing, Excite fourth with 18 users that were undecided and Yahoo ranked fifth with 4 users that were moderately unwilling. The findings above show that the users in United States are aware of other search engines apart from Google and Yahoo and made effective use of them.

Ozoemelem (2008) conducted a survey study on perception and use of search engines as a search tool amongst undergraduate students of library schools, to access the student's usage of the search engine in South Africa using questionnaire for data collection. He found

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out that from a sample of eighty (80) students, seventy-five (75) completed the survey showing high response rate. Out of 75 respondents, 10 (11.44%) made use of Google and Yahoo for their projects and they use Google and Yahoo regularly, while 65 (74.70%) of the respondents reported that they lack knowledge of other search engines like Google Scholar, Bing, Ask and WebCrawler and never made use of them. From the findings of this study the students were only aware of Yahoo and Google and used them, but could not really get all needed information with them.

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An important factor in the use of search engines is awareness. According to Taiwo (2009), awareness means knowledge. Lack of awareness hinders the use of the various search engines. Lack of awareness of the various search engines, among undergraduate students in higher institutions will bring to its non-usage (Taiwo 2009). Doris (2012) noted that a good rule of awareness is that someone needs to be exposing to services, several times before he/she is fully aware of the service.

Awareness is a necessity to the usage of search engines. When a new technology comes to existence (e.g search engines) and its knowledge is not known, its usefulness will not be embraced. Likewise, for an individual or student to participate in any work or activities, awareness about the environment, how things are done and should be done is very important. Adams (2010) noted earlier that level of awareness of various search engines to students in higher institution is very low. Adams further explained that students have very confused understanding of various search engines and its concept. Moreso, many students are not yet involved with various search engines. As a result of the development, many scholars carried out researches awareness several engines.

Duke (2010), conducted a survey study to find out the search engines students are aware of in a 300 level class in higher institution, with an assignment that was specified to use search engines, in University of Uyo Nigeria. From the total population of 98 students, he discovered that the students that used Yahoo are more than those that didn't, which was about 74% of the total population. The findings shows that majority of the students are aware of Yahoo. Although, this research work is just focused on only Yahoo as a known and used search engine, the present study will derive from it because the students are also aware and make use of Yahoo and the familiarity is also established.

Choo (2011), carried out a survey study on faculties to access awareness and attitudes towards search engines in City University, London. Using email as instrument of data collection, he found out that, out of 131 respondents, 69.5% of the students know about the existence of Yahoo and Google as well as other search engines, and the subject discipline of the students who are aware of other search engines are those in library science, computer science, physics and mathematics. From the findings of this study, it shows that students in London have high awareness of other search engines, and make use of them. Colley (2011), conducted a survey on awareness of Internet banking in University of Ibadan Nigeria, to access the search engine students use to have access to the Internet, using the questionnaire as an instrument for data collection. Colley found out that, majority of the students (64.1%) of 58 respondents have not heard about other search engines. The most common search engines to them were Google and Yahoo.

Despite the usefulness of search engines, the use of search engines has some problems. According to Willy (2011) the problems include: The risk of plagiarism. This is becoming more prevalent because of the ease of using "copy and paste" word processing function, to directly take material from information sources and place it within assignment and the study habit of many students as may change into scanning and surfing. Writing skills may become replacing synonyms into existing sentences or paragraphs.

The Internet is a vast ocean of information by its nature. The amount of information available on the search engine means that students tend to be misled with a lot of unnecessary information. As the Internet is not owned by anyone, the search engine lacks any sort of bibliographic control, as well as censorship of information available, searching for a particular web page without the use of proper tools can be tedious and even useless. The major problem with search engine is that, search queries turn up for many results, erring on the side of recall rather than precision.

According to Gellieb (2013), it is of concern that most students have only a vague understanding of the way search engine works, which resulted in a poor exploitation of their facilities. The potential of the search engine is also currently being limited by relatively slow data transmission speed and by the problems of information management and retrieval posed by the existence of such vast amount of information. Chapman (2002) stated that students are often not able to make sound judgment about the quality and relevance of information on the search engine. Amoritpal (2000) asserted that students are faced with the problems of slow Internet connectivity, many sites disappear without any notice or warning, slow access is also barrier, when a large number of simultaneous users are connected to the Internet.

Techno-stressed is another problem, where the frustration, confusion and fear caused by technology

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overload and the lack of sufficient direction to navigate the glut of information available become overwhelming. With the increasing amount of resources online, the ability to find data efficiently and effectively is essential.

Smith (2000) noted that information retrieval, especially subject retrieval, is clearly a difficult issue with which library profession as a whole is struggling for many years.

The quality of information has been a long standing concern, though search engine has become an important source of information. Only in a short period of time, with the search engine, anything can be published on the web at low cost, and distribution is virtually worldwide. Profuse amounts of information are put on search engines every day. In many cases, there is no editor, reviewer to determine the credibility, quality, accuracy of the material. This may lead to inaccuracies and misleading information being published. Information literacy enables a college student to recognize information needed, develop a strategy to locate, evaluate and synthesize information accurately. Levin (2002), noted that information has increasingly come unfiltered. This raised questions about authenticity, validity and reliability. In addition, online information is available through multiple media, including graphical and textual.

Users are faced with diverse and abundant information choices, in their studies and workplace.

Information seeking involves uncertainty, which decreases as more information is gathered on the search engine. This is a problem, since the quality and aim may vary significantly. Griffiths (2003) stated that students are not very adept at evaluating the quality of online scholarly publications, since they seemed confused about the actual meaning of quality scholarly publications.

Poor data transmission quality resulting from low international bandwidth, in Africa for example high international tariffs make it difficult for Internet service providers (ISPs) to obtain adequate Internet bandwidth for delivering search engine pages over the Internet.

Adogbeji (2005) opined that the search engine industry in Africa is constrained by low international bandwidth and high dial-up tariff, as well as high cost of pc's. It has been observed that cost of bandwidth in Africa is much more than that of developed countries. For example, Africa universities, outside South Africa, pay over ₦55, 000 per Month for 4mbps in band and 2mbps out-band width. This amount is about 100 times more expensive than equivalent prices in North American or Europe. According to Inasp (2003) in addition slow equipment seemed to be double edged swords which limit the use of search engines.

Another important impediment to the use of search engines is the problem of locating services and resources which involves the use of terminology. In line

with Dewey (2000), multiple terms are used to indicate the same source of service even with the same website; different terms are as headings to designate the same task. Reluctant to appreciate search engine by users has also constituted impediment to the use of search engines.

Power outage is another problem affecting the use of the search engines. In developing countries like Nigeria, it is a major problem towards the use of computer and search engines. In line with Rosenberg (2005), that electricity in Africa hampers search engine development and applications. According to Rosenberg when there is no power, even if a student can operate the computer and connect to the search engine the purpose will be defeated.

## 2.1 Research Questions

The following research questions were formulated to guide the study.

- What is the student's awareness of various search engines?
- How frequently do undergraduate students in Faculty of Social Sciences use the different search engines?
- What are the factors limiting the students' use of search engines?

## 2.2 Hypotheses

The following hypotheses were formulated to guide the study.

- The mean rating of students' level of awareness of the various search engines does not vary significantly among the various departments in the Faculty of Social Science.
- The percentage (%) of students who use search engines on weekly basis in the various departments does not vary significantly.

## 3. METHODOLOGY

### 3.1 Research Design

This study adopted a descriptive survey design in order to explore the awareness, use and impediments of search engines by undergraduate students.

### 3.2 Population of the Study

The population for this study consisted of 1,539 undergraduate students from the Faculty of Social Sciences and all the seven departments, in Delta state university, Abraka. Accounting and Finance has population of two hundred and thirty one (231), Economics two hundred and six students (206), Business Administration, two hundred and fourteen students (214), Geography and Regional Planning two hundred and twenty seven (227). Mass communication two hundred and forty three (243), Political science two hundred and twenty nine students (229) and Sociology and Psychology students one eighty nine students (189), in the 2013/2014 academic year.

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### 3.3 Sample and Sampling Techniques

A sample of 154 respondents (students) were selected for this study. This represents approximately 10% of the target population of students in the Faculty of Social Sciences. The sample is suitable because Seaberg (1988) suggested that, in most cases a 10% sample should be sufficient for controlling sampling error in a population that is relatively large.

Proportionate stratified random sampling balloting method was used for this study. The faculty that was selected from the university is Social Sciences. This faculty was chosen because it is common in every university and suitable for the study. The sample size for the faculty was got using 10% from each of the departments' population. The sample size for each department is presented as follow: Accounting and

finance 23, Economics 21, Business Administration 21, Geography and Regional planning 23, Mass communication 24, political science 23 and sociology and psychology 19. The total sample was 154. Detail of how the sample was gotten is shown in Appendix J,p. 85.

### 3.4 Data Analysis

Data obtained from the study were analyzed using descriptive statistics. Simple percentage was used to analyze research questions 1 and 2. Arithmetic mean was used to answer research questions 3 while ANOVA was used for testing hypothesis one and two.

### 3.5 Research Question 1

What is the students' awareness of various search engines?

**Table 1:** Percentage scores of respondent's awareness of search engines

S/N	Various Search Engines	Disagree		Agree	R
1.	Google	Frequency	%	Frequency	%
		6	3.1	148	96.1
2.	Google	148	96.1	6	3.1
	Scholar				
3.	Ask	135	87.7	19	12.3
4.	Bing	123	97.9	31	20.1
5.	Yahoo	54	36.4	98	63.6
6.	Blekkko	112	72.7	42	27.3
7.	Web Crawler	130	84.4	24	15.6

Table 1 shows that from the 7 major search engines listed Google was the most aware, which means that the students were aware of it with (96.1%) and it was followed by Yahoo which the students were also aware of with (63.6%). The others were not used regularly due to lack of awareness as shown by their respective percentage response; Google Scholar (3.1%), Ask (12.3%), Bing (20.1%), Blekko (27.3%) and WebCrawler (15.6%). It

could be seen that most of the students used major search engines like Yahoo and Google. Therefore students' awareness of search engines other than Google and Yahoo low.

### 3.6 Research Question 2

How frequently do undergraduate students in faculty of social sciences use the different search engines?

**Table 2:** Percentage response on the frequency of use of search engines

S/N		Never		Once a Month		Once in Two weeks		2-3 Times a week		Daily	
		N	%	N	%	N	%	N	%	N	%
1.	Google	8	5.2	2	1.3	4	2.6	18	11.7	122	79.2
2.	Google scholar	59	38.3	7	4.5	7	4.5	71	46.1	10	6.5
3.	Ask	74	48.1	8	5.2	66	42.9	6	3.9	0	0.0
4.	Bing	69	44.8	68	44.2	8	5.2	7	4.5	2	1.3
5.	Yahoo	68	44.2	16	10.4	13	8.4	33	21.4	24	15.6
6.	Blekkko	72	46.8	11	7.1	8	5.2	17	11.0	46	29.9
7.	Web Crawler	64	41.6	23	14.9	21	13.6	21	13.6	25	16.2

Table 2 shows that of the 7 search engines listed, Google was the most frequently used (79.2%). This was followed by Google Scholar which is close to half (46.1%) of the respondents who use it as many as 2-3 times per week. For the rest of the search engines, greater proportion of the respondents indicated that they never used them as shown by their respective percentage response; Ask (48.1%), Bing (44.8%), Yahoo (44.2%), Blekko (46.8%) and Web Crawler (41.6%). It could be

seen that greater proportion of the search engines were not frequently used by the respondents. Therefore, students'

frequently used Google search engine than all other search engines.

### 3.7 Research Question 3

What are the factors limiting the students' use of search engines?

**Table 3:** Mean responses on the factors limiting the use of search engines

S/N	Factors limiting the use of search engines	N	Mean (x)
1.	Information over load	154	3.58
2.	Produces a large mass of irrelevant information	154	3.57
3.	Download delay	154	3.53
4.	Failure to find information	154	3.53
5.	Power Outages	154	3.51
6.	Inadequate Search skills	154	3.50
7.	High cost of access	154	3.50
8.	Inaccessibility of some websites	154	3.48
9.	Lack of search skills	154	3.46
	Valid N (list wise)	154	

Table 2 shows that all the factors listed were accepted as problems limiting the use of the search engines. This is shown by the fact that all the mean ratings were greater than the mid-point of 2.50. What seems to be greatest challenge among the listed problems was information overload (Mean = 3.58) while the least was lack of search skills (Mean = 3.46).

### 3.8 Hypothesis One

The mean rating of students' awareness of the various search engines does not vary significantly among the various departments in faculty of social science.

**Table 4:** Analysis of variance on students' awareness of search engines

Sources of Variance	Sum of Squares	df	Mean Square	F	Critical F-ratio
Between Groups	8.271	6	1.379	3.87	2.27
Within Groups	52.352	147	.356		
Total	60.623	153			

\*Significant

Table 4 shows that there was a significant difference in mean score of the respondents' awareness of search engines according to their department,  $F(6/147) = 3.87$ , Critical F-ratio (2.27). This Critical F-ratio was less than the stipulated significance level of 0.05. Meaning that there is a significant difference in the mean rating of students' awareness of the various search engines.

### 3.9 Hypothesis Two

The frequency of students' utilization of search engines across various departments does not vary significantly.

**Table 5:** Analysis of variance on students' use of search engines

Sources of Variance	Sum of Squares	DF	Mean Square	F-W	Critical F
Between groups	2619.3	7	436.6		
				37.53	2.20
Within groups	488.6	49	9.97		
Total	3107.9	56			

Table 5 shows that there was a significant difference in frequency of students' utilization of search engines across various departments. This was shown by the analysis of variance calculated value of  $F=37.57$ , which value is greater than the critical value of  $F=2.20$  at .05 level of significance.

## 4. DISCUSSION

The result for research question one revealed that undergraduate students have low awareness of the other major search engines apart from Yahoo and Google. This implies that the low awareness to students will bring confusion in understanding the various search engines and their associated concepts, hence a lot of the students are not involved in using the other major search engines. The

result from this finding is in line with Duke (2010), who found that the search engines majority of students are aware was Yahoo. For undergraduate students to have access to the Internet the most common search engines to them were Yahoo and Google. Undergraduate students were not aware of the other major search engines apart from Yahoo and Google (Colley, 2011). The result for hypothesis one revealed that there was a significant difference in mean score of the respondents' awareness of search engines according to their departments. The percentage gain by the departments of Economics, Geography and Regional Planning and Sociology and Psychology were greater than the percentage gain of Accounting and Finance, Business Administration, Mass Communication and Political Science. This implies that

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students in the departments of Economics, Geography and Regional planning and sociology and psychology make more use and frequent use of the major search engines known to them. This could mean that the students have more interest in the use of the search engines. The result of this present study is not misleading because other finding that were not in support of its findings were carried out in other countries (mostly in developed countries, especially in London). The result for hypothesis two revealed that there was a significant difference in the frequency of students' utilization of search engines. This implies that the calculated critical F ratio for all the seven search engines was greater than the F value and the null hypothesis was therefore rejected.

The finding from the seven (7) search engines listed, revealed that students' frequently used Google search engine than all other search engines with frequency of 79.2% followed by Google scholar used 2-3 times per week. This implies that the undergraduate students are frequent in their ability to locate and access information, use and communicate information. This is in line with Andrew (2011), that posited that the particular information students need determine how long the students will spend with the search engines.

Another finding in the study revealed that greater proportion of the respondents indicated that they never used the other major search engines as shown by their respective response Ask (48.1%), Bing (44.8%), Blekko (46.8%) and Web Crawler (41.6%). This implies that many of the students do not use the other major search engines frequently apart from Yahoo and Google known to them. It could also be seen that greater proportion of the search engines were not frequently used by the undergraduate students.

Students are faced with numerous problems from the use of search engines, and one major problem which they face is the problem of information over load. According to Dane (2008), in line with the above the search engine is a vast ocean of information by its nature, the amount of information available on the search engine means that students may be carried away with a lot of unnecessary information. In line with the above Chapman (2002) asserted that students are often not able to make sound judgment about the quality and relevance of information on the search engines.

A similar study was carried out by Choo (2011) accessed awareness and attitudes towards search engines in City University London. Study revealed that many students made more use of Google and other search engines.

The finding from the study showed also that the problem of search engine is low awareness, low search engine literacy among Africans has really hindered their use of the search engine, because, they see the need as well as the importance as zero. Due to lack of search engine knowledge, such users lack awareness of the

benefits that they can derive from the use of search engines of their organizations or institutions. In addition, students that are not computer literate will not be able to make use of the computer and have access to the search engines, because, the ability to find and retrieve information effectively is a transferable skill useful for future, as well as enabling the positive and successful use of the electronic resources (Joe, 2011).

In conclusion, this study has shown that the numbers of search engines that are known to users are very few and this will prevent access to enough materials.

Information professionals concentrated on two search engines, Google and Yahoo. While other search engine were not used. This is because of lack of knowledge of available search engines. Therefore, more practical aspects of search engines should be employed to promote greater awareness needed to improve the use of search engines.

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