Overlap Analysis of Major Search Engines

Kailash Kumar, Mohammed Alawairdhi

Abstract: ***This paper examines the overlapping of the results retrieved between three major search engines namely Google, Yahoo and Bing. A rigorous analysis of overlap among these search engines is conducted on 125 random queries. The overlap of first five page results, i.e., 50 results from each search engines and only non-sponsored results across these 3 major search engines are taken into consideration. Search engines have their own frequency of updates and ranking of results based on their relevance. Moreover, sponsored search advertisers are different for different search engines. Single search engine cannot index all Web pages. In this research paper, the overlapping analysis of the results were carried out between January 1, 2017 to January 31, 2018 among 3 major search engines, Google, Yahoo and Bing. A framework is built in java to analyze the overlap among these search engines. This framework eliminates the common results and merges them in a unified list. It also uses the ranking algorithm to re-rank the search engine results and displays it back to the user.***

Keywords: Search Engines, Google, Yahoo, Bing, ResultOverlap, Merging and Ranking Algorithms.

I. INTRODUCTION

The normal individual living in a cutting edge industrialized society is presented to the same number of various snippets of data in a day as a man living 50 years prior would have found in a year. That incorporates daily paper features, promotions, instant messages, sites, movement signs, without any end on and on. It's not really amazing that ability to focus is getting shorter and that the dominant part of individuals trusts themselves to be busier than any time in recent memory.

As of late, Internet has developed as the most essential and intense medium for capacity and recovery of data. It works 24×7 and interfaces each niche and corner of the globe, subsequently being dealt with as the greatest open store of information on the planet. In this day and age, trade of data through web assumes a noteworthy part in the usage of its assets. Subsequently, comprehension of their structure and configurations is fundamental.

Web search engines are the most sought tool over the web. A large number of users use these tools in search of data ranging from different circles of life, for example, science, innovation, current undertakings, travel, tourism, music, writing and some more. Web search engines have a tremendous database [1] to which a huge number of pages are included each day. Accessibility of pages sought by the web indexes is dynamic, which implies that the pages recovered already for a pursuit inquiry may not be accessible any more extended as it may have been turned old or erased by the writer. Web has developed to such a degree, to the point that it is not workable for a solitary web index [2] to creep the whole web. Consequently, numerous web indexes are accessible over the web that cover diverse parts of the web to choose the outcomes applicable to the search which are additionally separated and positioned before being shown to the end user. Numerous web indexes are accessible nowadays, for example, Google, AltaVista, Yahoo, Bing, Mamma, MSN, Lycos, Dogpile.com and so forth. The number of web search engines openly accessible to the users is expanding to meet the developing size of the web and monstrously expanding number of Internet searcher clients. Each web search engine has its own web database and the query items showed to the user is a subset of the URLs [3] contained in the database.

II. WORLD WIDE WEB

Now a day, the amount of information available on Web increasing day by day. World Wide Web is of utmost importance in getting relevant and useful information from the web. The large number of web users explore search engines to get access to the information.

The total number of Internet host machines have increased from 908 million in January 2010 to 1.06 billion in January 2017 and are increasing with rapid pace [4]. This increase in number of host machines is a sign of increase in large amount of web pages and web sites. The number of Internet users have also increased significantly from 1.99 billion in December 2010 to 4.15 billion in December 2017 [5].

III. LITERATURE REVIEW

One of the early research done by Bar-Ilan [10] experimented on six search engines and experiments lasted for 6 months of time. Excite was found to be the search engine of least stable state. The experiment was conducted on Excite, Infoseek, Hotbot, Northern Light, AltaVista and Lycos.

Yi Shang and Longzhuang Li [6] assessed precision of web crawlers factually by applying a few relevance-scoring strategies. To assess the significance of the connections returned via web indexes, they connected four relevance-scoring strategies. They are cover density ranking method, Okapi method, vector space model method, and a new three-level scoring method. Statistical probability of win method is used for comparing overall performance of the search engines.

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MiladShokouhi [7] suggested an alternative solution. The contents were downloaded for the results retrieved, specialized algorithms for analyzing and indexing these results were used and then these results are re-ranked at client end. This re-ranking produced a consistent ranking of the retrieved results. The similar work is done by Luo Si and Jamie Callan [8] where they downloaded, assigned score for each retrieved result and rank these results based on this new score.

A more comprehensive method was used by Su et al. [9]. 5-point scale was used to compare the ratings of relevance, where '1' for most relevant and '5' for least relevant items. Top 20 results returned by each search engine were evaluatedcomprehensively for their correlated relevance.

Different web search engines show different capabilities [11]. Their finding show that overlapping of the results among various search engines has reduced since 2005. They did not conduct continuing overlap studies to explore further dimensions of the overlap and rankings.

IV. RESEARCH METHODOLOGY

This research paper has explored three major search engines, namely Google, Yahoo and Bing (BYG Search Engine). Research tried to explore some of the major criteria for considering search engine experiment an accurate and informative such as

1. Query Set: Real User Queries are used for our experiments.
2. Relevance: Relevance of the user query is done by human.
3. Topic Set: Wide ranges of topics are selected for experiments which include subject query and known item query.
4. Selection of Search Engines: In order to build the framework for merging the multiple search engines, following factors such as comprehensiveness, popularity, performance, database size, fair amount of overlapped documents and market share are taken into consideration. Three major search engines namely Bing, Yahoo and Google are considered for our study based on the above factors.
5. Level of Complexity: Queries of different level of complexity are selected for our experiments. Queries of one term, two term, three term and general queries are used.
6. Mode of Experiment: Rigorous experiments are conducted to show our results and conclusion.
7. Size of Query Set: In this research, experiment on 125 test queries is conducted to evaluate the effectiveness of search engines performance, out of which 25 queries are one term query, 25 queries are two term query, 25 queries are three term query and rest of the fifty queries are general queries.

V. CALCULATING THE RANK OF THE RESULT

Each result retrieved by the component search engine has a unique number known as rank or score of the results. Following values are assigned to the results based on following parameters.

GOOGLE = 7;
YAHOO = 5;
BING = 2;

Means that if the result is found in Google search engine, it is assigned a score of 7, if found in Yahoo, it is assigned a score of 5 and if found in Bing, it is assigned a score of 2.

TITLE = 17;
URL = 11;
DESCRIPTION = 3;

Similarly, if the result contains query term in title of the snippet, it is assigned a score of 17, if query term is found in URL then it is assigned a score of 11 and if it is found in Description, it is assigned a score of 3 only.

VI. PROPOSED MODEL OF BYG SEARCH ENGINE

Proposed BYG Search Engine has following major components.

8. User Interface: It is one of the important component of the search engine through which user interacts with other components.
9. Selection of Database: In this research, three major search engines, Google, Yahoo and Bing are studied.
10. Document Selection: Minimum ten to maximum hundred number of results can be chosen for documents from component search engines.
11. Elimination of Duplicate Results: Results having same URL are eliminated and only one result is taken into consideration.
12. Merging of Results into unified list: After eliminating duplicate results, the final results are merged based on their ranking.
13. Ranking of Search Results: Ranking of the results retrieved from component search engine is done on the basis of search engine and position of occurrence of the user query term.
14. Displaying Results to the User: Finally, Re-ranked documents are displayed to the user.

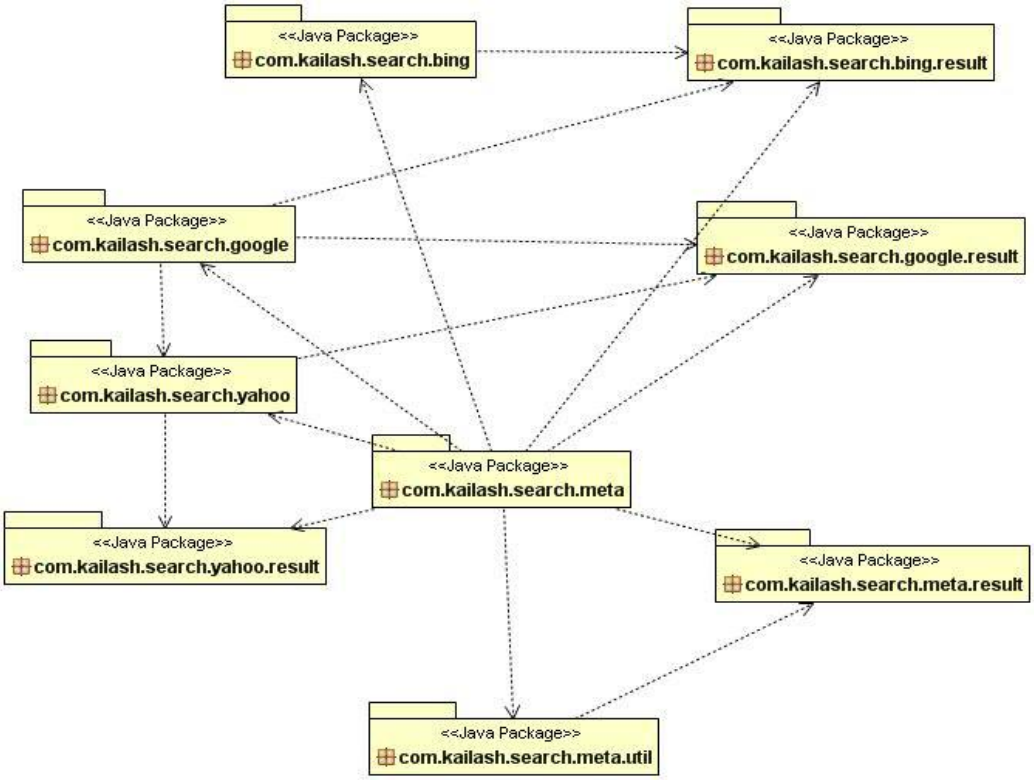

Fig 1: UML Diagram – Different Package Relationship

VII. RESULT ANALYSIS

This section introduces the analysis of the experiments conducted on major search engines such as Google, Yahoo and converged Search Engine BYG.We conducted experiment on 125 test queries to evaluate the effectiveness of search engines performance and analysis of duplicate results, out of which 25 queries are one term query, 25 queries are two term query, 25 queries are three term query and rest of the fifty queries are general queries.

A. One Term Query

Simple twenty-five one term queries are run on our BYG Search engines and the total number of results to be retrieved by individual component search engines is set to 50. By this experimental setup, total 2390 results were found. Out of which 540 results are retrieved by only Bing, 515 results are retrieved by only Yahoo, 743 results are retrieved by only Google. The number of common results between Bing and Yahoo were found to be 268, between Bing and Google were 51 only while 118 results were found common between Google and Yahoo. 155 results were found common among all three search engines.

Out of 2390 results, 1798 (75.23%) results were unique and not common to any of the search engines. Out of 2390 results, 437 (18.28%) results were common in two search engines and 155 (6.48%) results were common in all the three search engines.

Out of 437 results which were common in two search engines, 268 (61.32%) results were common in Bing and Yahoo, 118 (27.00%) results were common in Google and Yahoo and only 51 (11.67%) results were common in Google and Bing.

It shows that there is large amount of overlapping between Bing and Yahoo. A very few documents were common in Google and Bing. A fair amount of overlapping between Yahoo and Google is observed.

F-Test

The F-Test results show that the calculated value of F is 3.19 which is more than its table value 1.98. The F-test is significant at confidence level of 95% and we reject the null hypothesis. We, therefore, conclude that samples have been drawn from two populations having the different variance.

Table 1: F-Test (1T Query) –Bing-Yahoo and Yahoo-Google

F-Test Two-Sample for Variances	α	0.05	
	Bing-Yahoo	*Yahoo-Google*	
Mean	10.72	4.72	
Variance	24.0433333	7.54333333	
Observations	25	25	
df	24	24	
F	3.19		

P(F<=f) one-tail	0.003	0.006	Two-tail
F Critical one-tail	1.98	2.27	Two-tail
One-tail	Reject Null Hypothesis because p < 0.05 (Variances are the different)		
Two-tail	Reject Null Hypothesis because p < 0.05 (Variances are the different)		

Correlation

Table 2: Correlation (1T Query) –Bing, Yahoo and Google

CORRELATION	Bing	Yahoo	Google	Bing-Yahoo	Yahoo-Google	Bing-Google	Bing-Yahoo-Google
Bing	1.000	0.697	0.110	-0.810	0.283	-0.104	-0.380
Yahoo	0.697	1.000	0.575	-0.701	-0.237	0.173	-0.540
Google	0.110	0.575	1.000	-0.042	-0.520	-0.034	-0.538
Bing-Yahoo	-0.810	-0.701	-0.042	1.000	-0.223	0.115	0.113
Yahoo-Google	0.283	-0.237	-0.520	-0.223	1.000	-0.303	-0.110
Bing-Google	-0.104	0.173	-0.034	0.115	-0.303	1.000	-0.283
Bing-Yahoo-Google	-0.380	-0.540	-0.538	0.113	-0.110	-0.283	1.000

B. Two Term Query

Similarly, twenty-five two term queries are run on our BYG Search engines and the total number of results to be retrieved by individual component search engines is set to 50. By this experimental setup, total 2489 resultswere retrieved. Out of which 604 results were found in only Bing, 573 results were retrieved by only Yahoo, 760 results were retrieved by only Google. 282 results were common between Bing and Yahoo, 65 results were common between Bing and Google while between Google and Yahoo, this number was 88. The number of results which were common in all three search engines was 117.

Out of 2489 results, 1937 (77.82%) results were unique and not common to any of the search engines. Out of 2489 results, 435 (17.48%) results were common in two search engines and 117 (4.70%) results were common in all the three search engines.

Out of 435 results which were common in two search engines, 282 (64.83%) results were common in Bing and Yahoo, 88 (20.23%) results were common in Google and Yahoo and only 65 (14.94%) results were common in Google and Bing.

It shows that there is large amount of overlapping between Bing and Yahoo. A very few documents were common in Google and Bing. A fair amount of overlapping between Yahoo and Google is observed.

F-Test

The F-Test results show that the calculated value of F is 0.83 which is less than its table value 1.98. The F-test is insignificant at confidence level of 95% and we accept the null hypothesis. We, therefore, conclude that samples have been drawn from two populations having the same variance.

Table 3: F-Test (2T Query) –Bing-Google and Bing-Yahoo-Google

F-Test Two-Sample for Variances	α	0.05	
	Bing-Google	*Bing-Yahoo-Google*	
Mean	2.6	4.68	
Variance	4.666666667	5.643333333	
Observations	25	25	
df	24	24	
F	0.83		
P(F<=f) one-tail	0.323	0.645	Two-tail
F Critical one-tail	1.98	2.27	Two-tail
One-tail	Accept Null Hypothesis because p > (Variances are the same)		
Two-tail	Accept Null Hypothesis because p > (Variances are the same)		

Correlation

Table 4: Correlation (2T Query) –Bing, Yahoo and Google

CORRELATION	Bing	Yahoo	Google	Bing-Yahoo	Yahoo-Google	Bing-Google	Bing-Yahoo-Google
Bing	1.000	0.870	-0.220	-0.802	-0.212	-0.332	-0.606
Yahoo	0.870	1.000	-0.072	-0.805	-0.507	-0.085	-0.584
Google	-0.220	-0.072	1.000	0.316	-0.141	0.070	-0.061
Bing-Yahoo	-0.802	-0.805	0.316	1.000	0.144	-0.071	0.386
Yahoo-Google	-0.212	-0.507	-0.141	0.144	1.000	-0.133	0.032
Bing-Google	-0.332	-0.085	0.070	-0.071	-0.133	1.000	0.128
Bing-Yahoo-Google	-0.606	-0.584	-0.061	0.386	0.032	0.128	1.000

C. Three Term Query

Similarly, twenty-five three term queries are run on our BYG Search engines and the total number of results to be retrieved by individual component search engines is set to 50. By this experimental setup, we got total of 2536 results. Out of which 584 results were retrieved by only Bing, 544 results were retrieved by only Yahoo, 781 results were retrieved by only Google. The number of common results between Bing and Yahoo was found to be 314, between Bing and Google was 67 only while between Google and Yahoo, this number was 99. 147 results were found to be common in all three search engines.

Out of 2536 results, 1909 (75.28%) results were unique and not common to any of the search engines. Out of 2536 results, 480 (18.93%) results were common in two search engines and 147 (5.79%) results were common in all the three search engines. Out of 480 results which were common in two search engines, 314 (65.42%) results were common in Bing and Yahoo, 99 (20.63%) results were common in Google and Yahoo and only 67 (13.96%) results were common in Google and Bing. It shows that there is large amount of overlapping between Bing and Yahoo. A very few documents were common in Google and Bing. A fair amount of overlapping between Yahoo and Google is observed.

F-Test

Table 5: F-Test (3T Query) –Bing-Yahoo and Yahoo-Google

F-Test Two-Sample for Variances	α	0.05	
	Bing-Yahoo	*Yahoo-Google*	
Mean	12.56	3.96	
Variance	27.25666667	5.54	
Observations	25	25	
df	24	24	
F	4.92		
P(F<=f) one-tail	0.000	0.000	Two-tail
F Critical one-tail	1.98	2.27	Two-tail
One-tail	Reject Null Hypothesis because p < 0.05 (Variances are the different)		
Two-tail	Reject Null Hypothesis because p < 0.05 (Variances are the different)		

The F-Test results show that the calculated value of F is 4.92 which is more than its table value 1.98. The F-test is significant at confidence level of 95% and we reject the null hypothesis. We, therefore, conclude that samples have been drawn from two populations having the different variance.

Correlation

Table 6: Correlation (3T Query) –Bing, Yahoo and Google

CORRELATION	Bing	Yahoo	Google	Bing-Yahoo	Yahoo-Google	Bing-Google	Bing-Yahoo-Google
Bing	1.000	0.819	0.314	-0.816	0.277	0.093	-0.534
Yahoo	0.819	1.000	0.428	-0.763	-0.178	0.216	-0.513

Google	0.314	0.428	1.000	-0.019	-0.281	0.085	-0.493
Bing-Yahoo	-0.816	-0.763	-0.019	1.000	-0.110	-0.016	0.136
Yahoo-Google	0.277	-0.178	-0.281	-0.110	1.000	-0.243	-0.106
Bing-Google	0.093	0.216	0.085	-0.016	-0.243	1.000	-0.171
Bing-Yahoo-Google	-0.534	-0.513	-0.493	0.136	-0.106	-0.171	1.000

D. General Term Query

Fifty general term queries are run on our BYG Search engines and the total number of results to be retrieved by individual component search engines is set to 50. By this experimental setup, we got total of 5552 results. Out of which, 1387 results were retrieved by only Bing, 1400 results were retrieved by only Yahoo, 1777 results were retrieved by only Google. The number of common results between Bing and Yahoo was found to be 524, between Bing and Google was 129 only while between Google and Yahoo, this number was 146. The number of results which were common in all three search engines was 189.

Out of 5552 results, 4564 (82.20%) results were unique and not common to any of the search engines. Out of 5552 results, 799 (14.39%) results were common in two search engines and 189 (3.40%) results were common in all the three search engines.

Out of 799 results which were common in two search engines, 524 (65.58%) results were common in Bing and Yahoo, 146 (18.27%) results were common in Google and Yahoo and only 129 (16.15%) results were common in Google and Bing.

It shows that there is large amount of overlapping between Bing and Yahoo. A very few documents were common in Google and Bing. A fair amount of overlapping between Yahoo and Google is observed.

The F-Test results show that the calculated value of F is 5.76 which is more than its table value 1.61. The F-test is significant at confidence level of 95% and we reject the null hypothesis. We, therefore, conclude that samples have been drawn from two populations having the different variance.

F-Test

Table 7: F-Test (General Query) –Bing-Yahoo and Yahoo-Google

F-Test Two-Sample for Variances	α	0.05	
	Bing-Yahoo	*Yahoo-Google*	
Mean	10.48	2.92	
Variance	22.5404082	3.91183673	
Observations	50	50	
df	49	49	
F	5.76		
P(F<=f) one-tail	0.000	0.000	Two-tail
F Critical one-tail	1.61	1.76	Two-tail
One-tail	Reject Null Hypothesis because p < 0.05 (Variances are the different)		
Two-tail	Reject Null Hypothesis because p < 0.05 (Variances are the different)		

Correlation

Table 8: Correlation (General Query) –Bing, Yahoo and Google

CORRELATION	**Bing**	**Yahoo**	**Google**	**Bing-Yahoo**	**Yahoo-Google**	**Bing-Google**	**Bing-Yahoo-Google**
Bing	1.000	0.829	0.497	-0.775	-0.113	-0.263	-0.565
Yahoo	0.829	1.000	0.532	-0.738	-0.389	0.051	-0.611
Google	0.497	0.532	1.000	-0.057	-0.627	-0.297	-0.642
Bing-Yahoo	-0.775	-0.738	-0.057	1.000	-0.061	0.002	0.300
Yahoo-Google	-0.113	-0.389	-0.627	-0.061	1.000	-0.042	0.413

Bing-Google	-0.263	0.051	-0.297	0.002	-0.042	1.000	-0.009
Bing-Yahoo-Google	-0.565	-0.611	-0.642	0.300	0.413	-0.009	1.000

CONCLUSION

Our BYG Meta search engines retrieve and thus, cover the best results from component search engines, including overlap. This is crucial, since overlapped documents tend to be more relevant.

Overlapping analysis among these component search engines shows that there is considerable amount of overlapping between Yahoo and Bing results. While, there is small percentage of overlap between Google-Yahoo and Google-Bing. It is observed that the above fact is true for all types of queries whether one term, two term, three term or general term queries.

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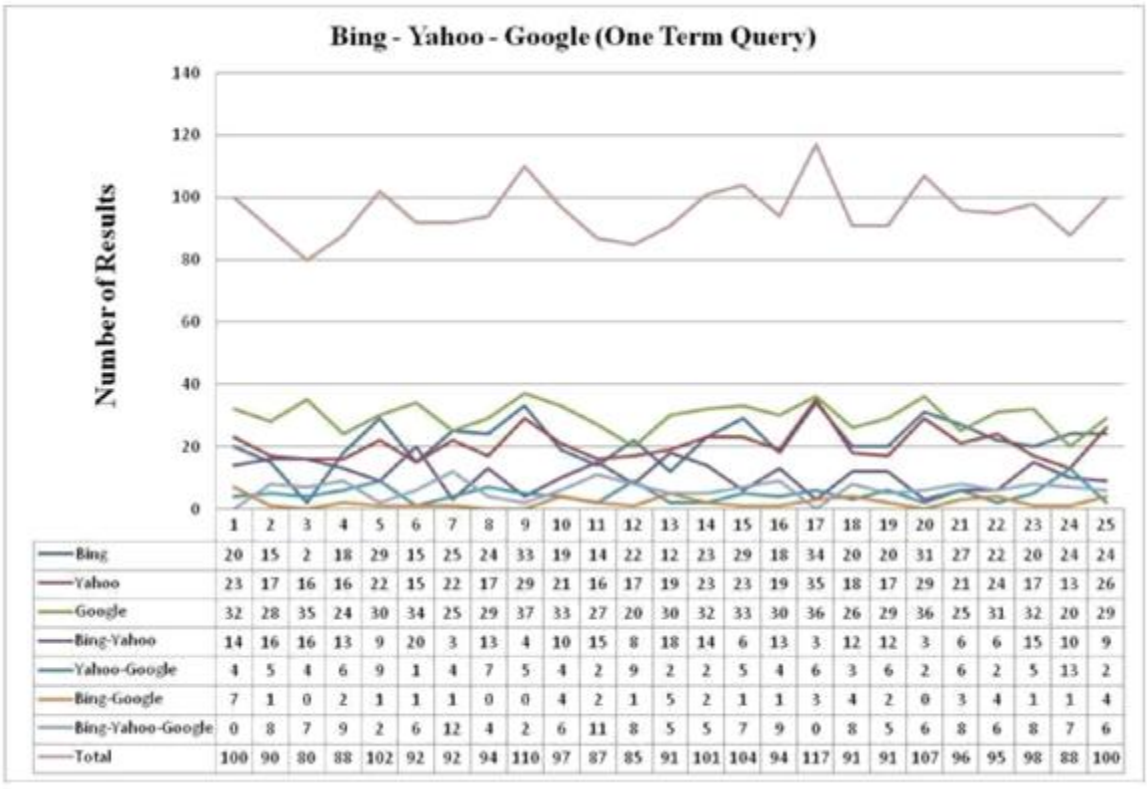
Appendix 1: List of Queries:

S. No.	One Term Query	Two Term Query	Three Term Query
1	Research	Optimization Methods	Human Resource Management
2	Book	Research Methodology	Website Speed Test
3	Laptop	Digestive System	Critical Incident Techniques
4	Chair	Air Conditioners	Performance Appraisal Methods
5	Toy	Baby Food	Online English Movies
6	Drive	Hard Disk	Video Editing Software
7	Piano	Musical Instrument	Car Loan Calculator
8	Car	Electric Motor	Graphic Rating Scale
9	Mobile	Pen Drive	Research Paper Methodology
10	Wikipedia	Milk Powder	Saudi Electronic University
11	Rent	Symmetric Algorithms	Major Search Engines
12	Event	Sofa Set	Object Oriented Analysis
13	Management	Saudi Universities	Database Indexing Techniques
14	Politics	Online Courses	Social Security Number
15	Movie	Cholesterol Level	SCI Indexed Journals
16	Picture	English Dictionary	MCQ on Concurrency Control
17	Image	Research Paper	Database Management System
18	RAM	Distributed Database	Cancer Research Institutes
19	Time	Time Management	Mobile Application Development
20	Information	Information Retrieval	Java Interview Questions
21	Data	Data Structure	Cheap Hotels in London
22	Disease	YouTube Downloader	Diwali Offers in India
23	Country	PDF Merger	Men Fitness Centre
24	Cow	R Programming	Respiratory System Anatomy
25	Rose	Saudi Airlines	Heart Disease Symptoms

Appendix 1: List of Queries:

S. No.	List of General Queries	S. No.	List of General Queries
1	Best engineering colleges in India	26	Theory of Computation
2	Download free pdf to word convertor	27	Turing Machine Simulator Online
3	Newton's law of gravitation	28	Software Development Life Cycle Models
4	Word to pdf convertor	29	Deep Learning vs Machine learning
5	Tinn-r Editor for Windows	30	Difference between SCAN and C-SCAN Algorithm
6	Video recording for Google Hangout	31	Database Query Optimization Techniques
7	Atomic Structure of Carbon	32	An Introduction to Recursive Partitioning
8	Young's Modulus of Elasticity	33	Redundant Array of Inexpensive Disks
9	Newton's Law of Gravitation	34	Bayesian Statistics and Marketing
10	Online Tutor for Computer Science	35	Bitcoin Price USD Live
11	Plant and Animal Cell	36	Mathematical Models and Methods in Applied Science
12	Kid's Game under 5 Years of Age	37	Big Data and Hadoop Implementation
13	Psychology Book in English free download	38	Online Analytical Processing Tools
14	Mathematica Induction Examples with Solutions	39	OSI Reference Model
15	Geography of India Book PDF	40	Neural Network for Pattern Recognition
16	History of India and Indian National Movement	41	Fundamental Rights and Duties
17	Preamble in Indian Constitution	42	Real Time CPU Scheduling Algorithms
18	Freedom of Speech	43	Baby Food Chart for 8 Months
19	United Nations Development program	44	Computational Geometry Theory and Applications
20	Non Resident Indian in USA	45	Data Mining Techniques
21	Global Achievers Foundation 2017	46	Vaccination Schedule in India
22	Human Anatomy Image of organs	47	IEEE International Conference in Malaysia
23	Mathematical Induction Proof by Contradiction	48	IST and GMT Time Difference
24	Civilization During Neolithic Period	49	Supervised and Un-supervised Learning Techniques
25	Bohr's Atomic Theory in Chemistry	50	Difference between Paging and Segmentation



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Yahoo	23	17	16	16	22	15	22	17	29	21	16	17	19	23	23	19	35	18	17	29	21	24	17	13	26
Google	32	28	35	24	30	34	25	29	37	33	27	20	30	32	33	30	36	26	29	36	25	31	32	20	29
Bing-Yahoo	14	16	16	13	9	20	3	13	4	10	15	8	18	14	6	13	3	12	12	3	6	6	15	10	9
Yahoo-Google	4	5	4	6	9	1	4	7	5	4	2	9	2	2	5	4	6	3	6	2	6	2	5	13	2
Bing-Google	7	1	0	2	1	1	1	0	0	4	2	1	5	2	1	1	3	4	2	0	3	4	1	1	4
Bing-Yahoo-Google	0	8	7	9	2	6	12	4	2	6	11	8	5	5	7	9	0	8	5	6	8	6	8	7	6
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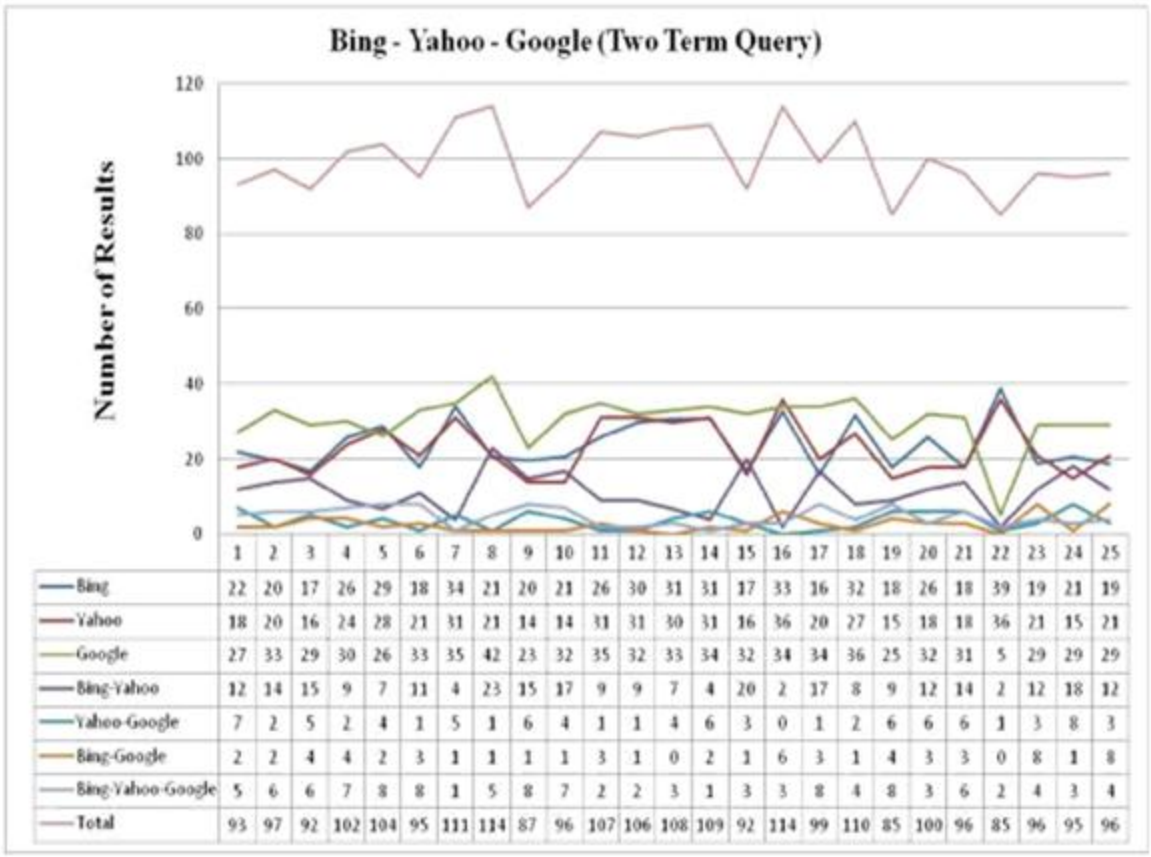

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Yahoo	18	20	16	24	28	21	31	21	14	14	31	31	30	31	16	36	20	27	15	18	18	36	21	15	21
Google	27	33	29	30	26	33	35	42	23	32	35	32	33	34	32	34	34	36	25	32	31	5	29	29	29
Bing-Yahoo	12	14	15	9	7	11	4	23	15	17	9	9	7	4	20	2	17	8	9	12	14	2	12	18	12
Yahoo-Google	7	2	5	2	4	1	5	1	6	4	1	1	4	6	3	0	1	2	6	6	6	1	3	8	3
Bing-Google	2	2	4	4	2	3	1	1	1	1	3	1	0	2	1	6	3	1	4	3	3	0	8	1	8
Bing-Yahoo-Google	5	6	6	7	8	8	1	5	8	7	2	2	3	1	3	3	8	4	8	3	6	2	4	3	4
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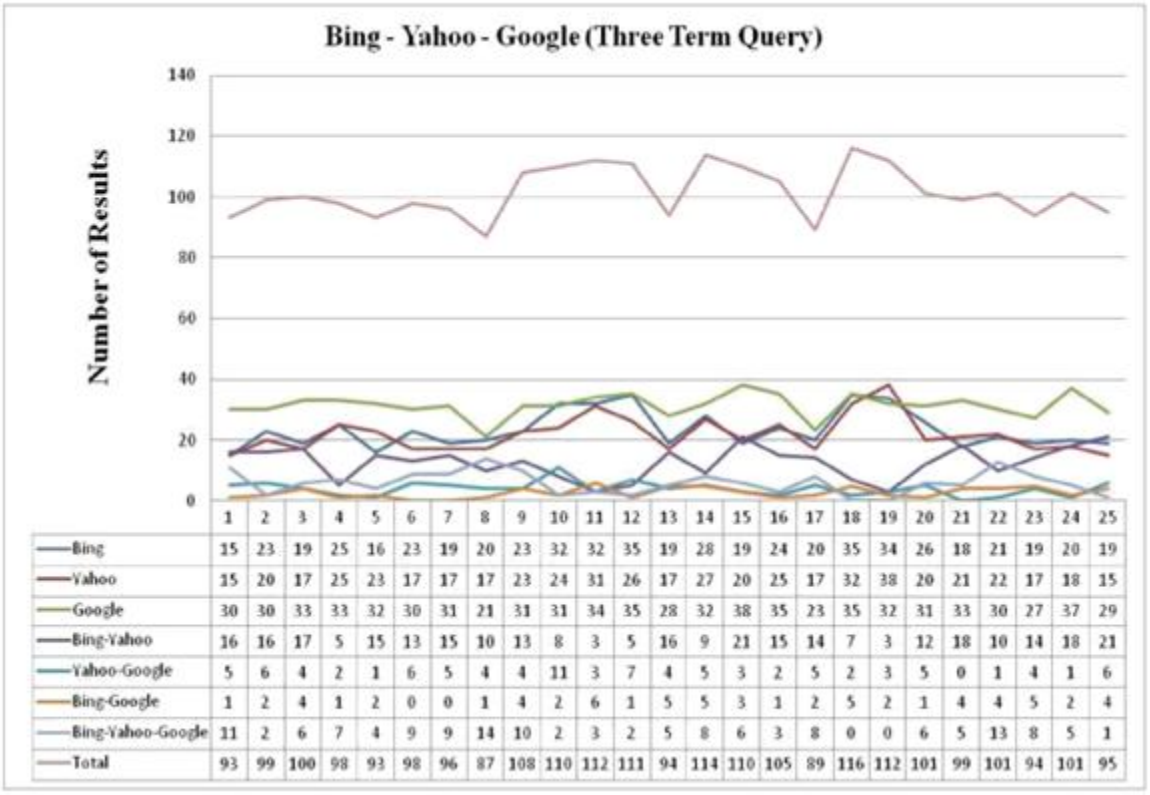

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Yahoo	15	20	17	25	23	17	17	17	23	24	31	26	17	27	20	25	17	32	38	20	21	22	17	18	15
Google	30	30	33	33	32	30	31	21	31	31	34	35	28	32	38	35	23	35	32	31	33	30	27	37	29
Bing-Yahoo	16	16	17	5	15	13	15	10	13	8	3	5	16	9	21	15	14	7	3	12	18	10	14	18	21
Yahoo-Google	5	6	4	2	1	6	5	4	4	11	3	7	4	5	3	2	5	2	3	5	0	1	4	1	6
Bing-Google	1	2	4	1	2	0	0	1	4	2	6	1	5	5	3	1	2	5	2	1	4	4	5	2	4
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Total	93	99	100	98	93	98	96	87	108	110	112	111	94	114	110	105	89	116	112	101	99	101	94	101	95