

**Sustaining the Excellence: Transforming Libraries
through Technology, Innovation and Value added
Services in Google Era**

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Theme III
Metric Analysis

Web Analytics and Performance Evaluation of Indian Library Association: *A Critical Study*

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Abstract: The paper discusses the maximum accurate trends and indications of Indian Library Association Website's utility in terms of the usage count hits, files, pages, sites, hosts and visits, as well as daily averages of these counters for each month during the period from January to December 2015. The study will help web analysts, website developers, IT professionals who are engaged in web design and development. Such studies are also important for digital marketing professionals who wish to know the trend of visitors and value of content in changing desire of users. The study is very important to librarians, information analysts, digital and virtual librarians, archive host and developers, digital content analysts, etc. It will be useful to researchers and authors who are in the field of conducting web study, research and content analysis search techniques. The content providers, institutions, business groups, to look into the trends and make appropriate policies related to web modeling and designing on the basis of inferences depicted from the analysis. The web managers, policy planning and decision makers can track webometrics to make strategic and administrative decisions.

Keywords: Content Analysis; Web Analytics; Performance Evaluation; Bibliometric; Scientometric Webometrics, Cybermetrics

1. Introduction

The term webometrics was first coined by Almind and Ingwersen (1997). A second definition of webometrics has also been introduced, "the study of web-based content with primarily quantitative methods for social science research goals using techniques that are not specific to one field of study" by Thelwall, M. (2009), which emphasizes the development of applied methods for use in the wider social sciences. The purpose of this alternative definition was to help publicize appropriate methods outside of the information science discipline rather than to replace the original definition within information science. According to Björneborn and Ingwersen (2004)⁴, the definition of webometrics is "the study of the quantitative aspects of the construction and use of information resources, structures and technologies on the Web drawing on on bibliometric and informetric approaches." It includes link analysis, web mention analysis, blog analysis and search engine evaluation, but from the perspective of digital library evaluation the main method is link analysis.

2. Objectives of the study

- Figure out the annual, monthly, daily, and hourly statistics;
- Assess the indications of web search on the thrust areas;

- Count specific content pages visited by a visitor;
- Measure the specific page content downloaded by the visitor;
- Count specific content page entry and exit by the visitor;
- Calculate the number stats of visitor / host machine or URL, which a visitor used;
- Find the names of host / URL, where the data have been downloaded;
- The list of referrers websites/pages, which a visitor referred;
- Summary of visiting timings;
- Provide the record of user's sites / IP numbers / hostname;
- Record the search strings / keywords used to find website through search engines;
- List of agents names / browsers used by the visitors;
- Count the geographical locations and extensions of the visitors;
- Assess the indications of overall usage of content quality for future prospects;
- Discuss the thrust areas of website, content pages and technical issues, where improvement required;
- Highlight critically on the inferences and raise the discussions.

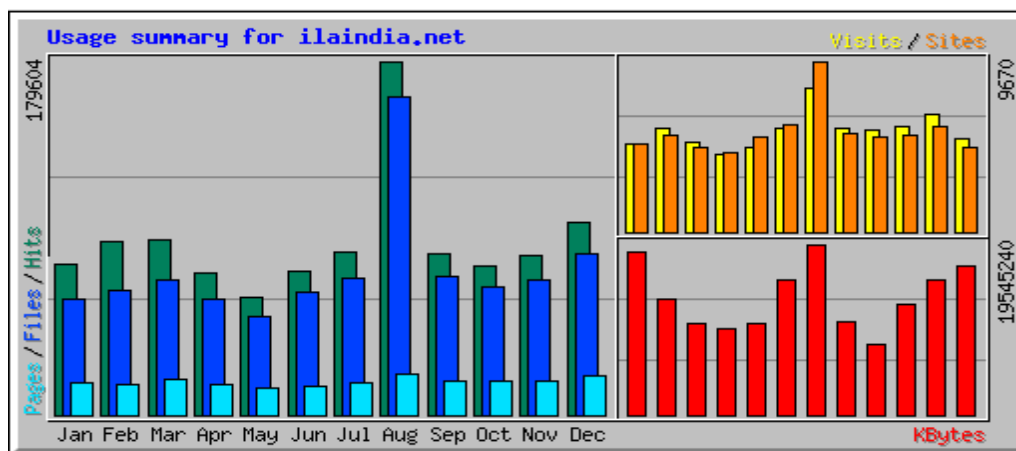
3. Methodology

The Webalizer (version- 2.23-08) software was installed for the purpose in web admin section under the Metrics panel of website. It is a web server log file analysis program which produced usage statistics in HTML format. It is available in over 30 languages under the GPL. It was selected being the most reputed and very comprehensive tool covering all aspects of topic under study. It facilitates quick and powerful access to the world wide usage data. It helped in analyzing the performance of web pages, identifying significant trends of usage, determining the value of content and usage of pages. The terminology attached as an annexure –I at the last page have been understood properly. The study result shows the path to redesign the web pages; enhance the quality of content; remove the less used pages; focus on user's interest pages and content. There are various types of statistics tools, i.e., Visitors, Errors, Bandwidth, Raw access, Awstats, Webalizer, Webalizer FTP, Metrics Editor and CPU & Concurrent connection usage, etc., available to record the data. The transactions data have been fetched from the admin account of the website through selected software. The data retrieved through the software have been downloaded in word and excel files. The downloaded data were analysed, filtered, sorted and presented in tables, graphs and textual form as per the study requirement

4. Statistics output, data interpretation and analysis of records

The retrieved data for the period from January to December 2015 was manipulated to facilitate in chronological order (annually, monthly, daily and hourly including processing times), usage by host, visitor's URL paths, referrer, user agent, search string to find target pages, entry/exit page by visitor, username/ hostname/ IP addresses of client, origin country of visitor, etc. In order to present the usage in the form of hits, pages, files and data download by the visitors have been illustrated as per the relevancy. The website traffic analysis has been presented by grouping and aggregating various data items recorded by the web server in the form of log files while the website visitor is browsing the website. After filtering the recorded data, the results have been presented in both columnar and graphical format, which facilitates interpretation about aforementioned usages. The transaction data have been analysed and presented in two kinds of reports - a yearly summary report and a detailed monthly report which covers aforementioned aspects.

- Yearly usage statistics summery for the period of January to December 2015:** The yearly summary report provides the information about the number of hits, file and page requests, hosts and visits, as well as daily averages of these counters for each month. The report is accompanied by annual summary graph. The highest number occurred during the month of August as mentioned below, i.e., sites - 9670, Kbytes downloaded - 19545240, visits - 8106, pages - 20802, files - 161105 and hits - 179604 with the highest daily average, i.e., hits - 5793, files - 5196, pages - 671 and visits -261. The lowest monthly totals, i.e., sites - 4487, visits - 4423, pages - 13272, files - 49903 and hits - 59562 occurred during the month of May and Kbytes downloaded - 8059138 during the month of October. The lowest daily average occurred during the month of May, i.e., hits - 1921, files - 1609, pages - 428 and visits -142.



Graph -1

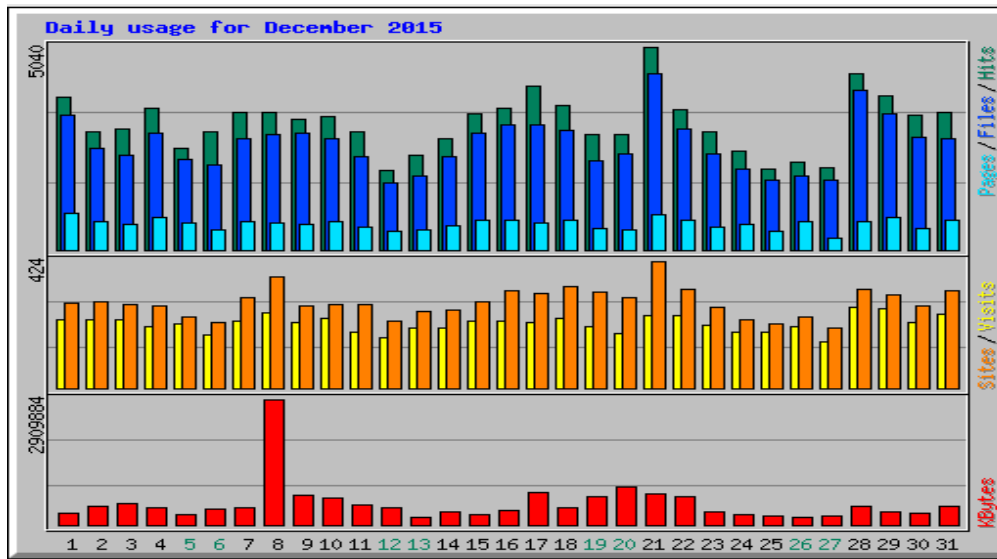
- Monthly Usage Report for the Period: December 2015:** The monthly report provides the information about the unique sites, URL's, referrers and user agents, and maximum & average of hits per hour, per day, and files per day, pages per day, sites per day, visits per day, downloads in KBytes per day, and also hits by response code with percentage,

i.e., “Code 200 – OK” with maximum hit 81463 (83.67%), “Code 206 - Partial Content” with maximum hit 5888 (6.05%), “Code 304 - Not Modified” with maximum hit 3012 (3.09%), “Code 402 - Payment Required” with maximum hit 1 (0.00%) and “Code 404 - Not Found” with maximum hit 6994 (7.18%).

Table 1: Monthly Statistics for December 2015

| Monthly Statistics for December 2015 | | | | | | |
|--------------------------------------|--------------------|--------|---------|-----------------------------|--------|-------|
| | | Avg | Max | | Avg | Max |
| Total Unique Sites | 5978 Hits per Hour | 130 | 756 | Code 200 – OK | 83.67% | 81463 |
| Total Unique URL's | 242 Hits per Day | 3140 | 5040 | Code 206 – Partial Content | 6.05% | 5888 |
| Total Unique Referrers | 515 Files per Day | 2627 | 4360 | Code 304 – Not Modified | 3.09% | 3012 |
| Total Unique User Agents | 1736 Pages per Day | 645 | 895 | Code 402 – Payment Required | 0.00% | 1 |
| | Sites per Day | 192 | 424 | Code 404 – Not Found | 7.18% | 6994 |
| | Visits per Day | 214 | 268 | | | |
| | Kbytes per Day | 496007 | 2909884 | | | |

- Daily Usage Report:** The daily report provides the information about the number of hits, files, pages, visits, sites and downloads in Kbytes with the percentage of these counters per day. The report is accompanied by a summary graph. The highest number occurred, i.e., hits – 5040, files -4360, sites - 425 on 21st day (Monday), pages – 895 on 1st day (Tuesday), visits - 268 on 28th day (Monday), and downloads in Kbytes – 2909884 on 8th day (Tuesday) of the month. The lowest number occurred, i.e., hits - 1965, files – 1663 on 12th day (Saturday), pages – 307, visits – 154, sites – 202 on 27th day (Sunday) and downloaded in Kbytes – 167948 on 26th day (Saturday). It is interesting fact that the highest occurrence was on Monday's and Tuesday's and lowest occurrence was on Saturday's and Sunday's.



Graph 2: Daily usage for December 2015

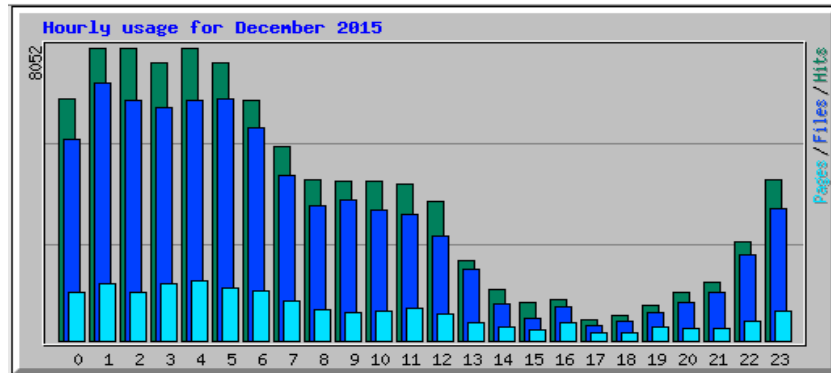
Table 2: Hourly Statistics for December 2015

Hourly Statistics for December 2015

| Hour | Hits | | | Files | | | Pages | | | KBytes | | |
|------|------|-------|-------|-------|-------|-------|-------|-------|-------|--------|---------|-------|
| | Avg | Total | % | Avg | Total | % | Avg | Total | % | Avg | Total | % |
| 0 | 214 | 6651 | 6.83% | 179 | 5553 | 6.82% | 43 | 1343 | 6.72% | 26744 | 829078 | 5.39% |
| 1 | 259 | 8052 | 8.27% | 228 | 7068 | 8.68% | 51 | 1584 | 7.92% | 35216 | 1091683 | 7.10% |
| 2 | 259 | 8039 | 8.26% | 213 | 6603 | 8.11% | 42 | 1330 | 6.65% | 31266 | 969252 | 6.30% |
| 3 | 246 | 7634 | 7.84% | 206 | 6395 | 7.85% | 50 | 1559 | 7.80% | 34910 | 1082210 | 7.04% |
| 4 | 258 | 8023 | 8.24% | 213 | 6615 | 8.12% | 53 | 1644 | 8.22% | 24199 | 750166 | 4.88% |
| 5 | 246 | 7629 | 7.84% | 214 | 6657 | 8.17% | 47 | 1463 | 7.32% | 23939 | 742106 | 4.83% |
| 6 | 212 | 6602 | 6.78% | 188 | 5852 | 7.18% | 44 | 1386 | 6.93% | 35753 | 1108338 | 7.21% |
| 7 | 172 | 5346 | 5.49% | 146 | 4540 | 5.57% | 35 | 1109 | 5.55% | 29233 | 906209 | 5.89% |
| 8 | 142 | 4423 | 4.54% | 119 | 3715 | 4.56% | 27 | 847 | 4.24% | 20504 | 635627 | 4.13% |

| | | | | | | | | | | | | |
|----|-----|------|-------|-----|------|-------|----|-----|-------|-------|---------|--------|
| 9 | 141 | 4394 | 4.51% | 124 | 3872 | 4.75% | 24 | 770 | 3.85% | 21189 | 656865 | 4.27% |
| 10 | 141 | 4387 | 4.51% | 115 | 3584 | 4.40% | 26 | 829 | 4.15% | 34651 | 1074195 | 6.99% |
| 11 | 138 | 4284 | 4.40% | 111 | 3471 | 4.26% | 28 | 879 | 4.40% | 74941 | 2323182 | 15.11% |
| 12 | 123 | 3835 | 3.94% | 93 | 2883 | 3.54% | 23 | 718 | 3.59% | 28162 | 873007 | 5.68% |
| 13 | 71 | 2212 | 2.27% | 62 | 1948 | 2.39% | 16 | 504 | 2.52% | 10635 | 329675 | 2.14% |
| 14 | 45 | 1409 | 1.45% | 33 | 1028 | 1.26% | 11 | 358 | 1.79% | 6827 | 211630 | 1.38% |
| 15 | 33 | 1033 | 1.06% | 20 | 632 | 0.78% | 9 | 287 | 1.44% | 4216 | 130711 | 0.85% |
| 16 | 36 | 1124 | 1.15% | 30 | 933 | 1.15% | 15 | 477 | 2.39% | 1556 | 48249 | 0.31% |
| 17 | 18 | 567 | 0.58% | 13 | 430 | 0.53% | 7 | 234 | 1.17% | 3808 | 118054 | 0.77% |
| 18 | 22 | 684 | 0.70% | 17 | 528 | 0.65% | 7 | 224 | 1.12% | 2597 | 80508 | 0.52% |
| 19 | 31 | 980 | 1.01% | 24 | 755 | 0.93% | 12 | 387 | 1.94% | 4720 | 146330 | 0.95% |
| 20 | 42 | 1324 | 1.36% | 34 | 1056 | 1.30% | 11 | 345 | 1.73% | 8055 | 249706 | 1.62% |
| 21 | 51 | 1587 | 1.63% | 43 | 1347 | 1.65% | 11 | 352 | 1.76% | 10082 | 312540 | 2.03% |
| 22 | 87 | 2722 | 2.80% | 75 | 2352 | 2.89% | 17 | 537 | 2.69% | 9526 | 295302 | 1.92% |
| 23 | 142 | 4417 | 4.54% | 117 | 3646 | 4.48% | 26 | 831 | 4.16% | 13277 | 411588 | 2.68% |

- Hourly Usage Report:** An aggregated hourly report (grouping counters for the same hour of each day together), provides the information about the number of hits, files, pages, visits and downloads in Kbytes with average and percentage of these counters per hour. The report is accompanied by a summary graph. The highest number occurred, i.e., hits – 8052 in 0 hour, files – 7068 and pages – 1584 in 1st hour and downloads in Kbytes – 2323182 in 11th hour. The lowest number occurred, i.e., hits – 567 and files – 430 in 17th hour, Pages – 224 in 18th hour and downloaded in Kbytes – 48249 in 16th hour of the day.



Graph 3: Hourly usage for December 2015

- Monthly Visit Report of ILA pages visited and downloads:** The table 3 depicts the monthly visit report to ILA website (grouping collected information by URL) provides the information about the number of hits, downloads in Kbytes and URL visited with percentage.
- The highest number URL visited was /Index page (ilaindia.net) with hits – 4907. The table 4 depicts the monthly visit report to ILA website (grouping collected information by URL) provides the information about the number of hits, downloads in Kbytes and URL visited with percentage. The maximum download URL was /7CPC_ILA_School_Lib.pdf with 12101035 KBytes and 4587 hits in the month. These top ten figures are presented out of total visited 242 URL's.

Table 3: Top 10 of 242 Total URL's

Top 10 of 242 Total URL's

| | Sn | | HitsKBytesURL | | |
|---|------|-------|---------------|--------|---------------------------------------|
| 1 | 4907 | 5.04% | 3011 | 0.02% | /ilaindia.net |
| 2 | 4587 | 4.71% | 12101035 | 78.70% | /7CPC_ILA_School_Lib.pdf |
| 3 | 2569 | 2.64% | 28938 | 0.19% | /centre.htm |
| 4 | 809 | 0.83% | 43040 | 0.28% | /About Dr. S. R. Ranganathan-ILA.html |
| 5 | 760 | 0.78% | 187125 | 1.22% | /ILA-Election-2015.pdf |
| 6 | 693 | 0.71% | 124819 | 0.81% | /LIS_Gateway.htm |
| 7 | 690 | 0.71% | 42863 | 0.28% | /Images/SR/du03.jpg |

| | | | | | |
|----|-----|-------|--------|-------|--------------------------|
| 8 | 656 | 0.67% | 32054 | 0.21% | /Images/SR/sm02.jpg |
| 9 | 648 | 0.67% | 113186 | 0.74% | /ILA-membership-form.pdf |
| 10 | 639 | 0.66% | 50345 | 0.33% | /Images/SR/sm01.jpg |

Table 4: Top 10 of 242 Total URL's By Kbytes

Top 10 of 242 Total URL's By KBytes

| | Sn | Hits | KBytes | URL | |
|-----------|------|-------|----------|--------|----------------------------------|
| 1 | 4587 | 4.71% | 12101035 | 78.70% | /7CPC_ILA_School_Lib.pdf |
| 2 | 760 | 0.78% | 187125 | 1.22% | /ILA-Election-2015.pdf |
| 3 | 371 | 0.38% | 155947 | 1.01% | /Publication/Journal/JourILA.bmp |
| 4 | 1001 | 1.03% | 140637 | 0.91% | /Images/SR/SR_4.bmp |
| 5 | 693 | 0.71% | 124819 | 0.81% | /LIS-Gateway.htm |
| 6 | 648 | 0.67% | 113186 | 0.74% | /ILA-membership-form.pdf |
| 7 | 2056 | 2.11% | 95574 | 0.62% | /Images/ILA1.JPG |
| 8 | 2045 | 2.10% | 85276 | 0.55% | /Images/earth1.gif |
| 9 | 63 | 0.06% | 77597 | 0.50% | /2015_ILA-Conf.pdf |
| 10 | 2037 | 2.09% | 72866 | 0.47% | /Images/facebook-logo.jpg |

- Monthly Usage Report of ILA pages By page entry and exit:** The table 5 and 6 depicts the monthly website entry and exit visit report to ILA website (showing most common first and last visit URL's) provides the information about the number of hits, visits, URL's with percentage. The highest number URL visited was /Index page (ilaindia.net) with hits – 4907. However, the entry count numbers are more 3471 than the exit counts 1638. These top ten figures are presented out of 57 pages /URL's.

Table 5: Top 10 of 57 totals**Top 10 of 57 Total**

| | | | Sn | | HitsVisitsURL |
|-----------|-------------|-------|-------------|--------|---------------------------------------|
| 1 | 4907 | 5.04% | 3471 | 53.70% | /ilaindia.net |
| 2 | 809 | 0.83% | 595 | 9.20% | /About Dr. S. R. Ranganathan-ILA.html |
| 3 | 693 | 0.71% | 393 | 6.08% | /LIS-Gateway.htm |
| 4 | 2569 | 2.64% | 314 | 4.86% | /centre.htm |
| 5 | 2369 | 2.43% | 214 | 3.31% | /top.htm |
| 6 | 572 | 0.59% | 160 | 2.48% | /Membership - ILA.html |
| 7 | 2343 | 2.41% | 150 | 2.32% | /left.htm |
| 8 | 371 | 0.38% | 133 | 2.06% | /Constitution - ILA.html |
| 9 | 295 | 0.30% | 86 | 1.33% | /Office bearers - ILA.html |
| 10 | 306 | 0.31% | 77 | 1.19% | /Conference - ILA.html |

Table 6: Top 10 of 57 Total Exit Pages**Top 10 of 57 Total Exit Pages**

| | | | Sn | | HitsVisitsURL |
|-----------|-------------|-------|-------------|--------|---------------------------------------|
| 1 | 4907 | 5.04% | 1638 | 25.51% | /ilaindia.net |
| 2 | 2343 | 2.41% | 928 | 14.45% | /left.htm |
| 3 | 809 | 0.83% | 620 | 9.65% | /About Dr. S. R. Ranganathan-ILA.html |
| 4 | 2569 | 2.64% | 517 | 8.05% | /centre.htm |
| 5 | 693 | 0.71% | 405 | 6.31% | /LIS-Gateway.htm |
| 6 | 572 | 0.59% | 271 | 4.22% | /Membership - ILA.html |
| 7 | 2369 | 2.43% | 235 | 3.66% | /top.htm |
| 8 | 371 | 0.38% | 174 | 2.71% | /Constitution - ILA.html |
| 9 | 404 | 0.41% | 165 | 2.57% | /JILA_right.htm |
| 10 | 382 | 0.39% | 143 | 2.23% | /About_Us.htm |

- Monthly Usage Report of client's source / referrer and downloads:** The table 7 and 8 depicts the monthly clients source entry and downloads referrer report (grouping the referring IP address/ third-party URL's leading to the analyzed website) provides the information about the number of hits, files, downloads, visits and URL's with percentage. The highest number URL occurred was /google-proxy-66-102-6-166.google.com with hits - 1944, files - 1940 and visits - 191. However, the highest number URL 45.119.184.241 occurred for downloads in KBytes - 530336 with 43 hits and 43 files. These top ten figures are presented out of 5978 referrers/URL's.

Table 7: Top 10 of 5978 Total Sites

| Top 10 of 5978 Total Sites | | | | | | | | | |
|----------------------------|------|-------|-------|-------|--------|-------|--------|-------|--------------------------------------|
| Sn | Hits | | Files | | KBytes | | Visits | | Hostname |
| 1 | 1944 | 2.00% | 1940 | 2.38% | 66585 | 0.43% | 191 | 2.87% | google-proxy-66-102-6-166.google.com |
| 2 | 1932 | 1.98% | 1930 | 2.37% | 68387 | 0.44% | 193 | 2.90% | google-proxy-66-102-6-174.google.com |
| 3 | 1924 | 1.98% | 1923 | 2.36% | 70094 | 0.46% | 198 | 2.98% | google-proxy-66-102-6-170.google.com |
| 4 | 521 | 0.54% | 465 | 0.57% | 47440 | 0.31% | 16 | 0.24% | 14.139.227.82 |
| 5 | 464 | 0.48% | 328 | 0.40% | 31772 | 0.21% | 7 | 0.11% | 203.190.148.228 |
| 6 | 439 | 0.45% | 388 | 0.48% | 40634 | 0.26% | 13 | 0.20% | 14.139.43.12 |
| 7 | 413 | 0.42% | 172 | 0.21% | 47437 | 0.31% | 120 | 1.80% | crawl-66-249-64-97.googlebot.com |
| 8 | 388 | 0.40% | 314 | 0.39% | 13418 | 0.09% | 8 | 0.12% | ras.beamtele.net |
| 9 | 375 | 0.39% | 138 | 0.17% | 112619 | 0.73% | 117 | 1.76% | crawl-66-249-64-107.googlebot.com |
| 10 | 365 | 0.37% | 363 | 0.45% | 36719 | 0.24% | 0 | 0.00% | 117.198.48.29 |

Table 8: Top 10 of 5978 Total Sites By Kbytes

Top 10 of 5978 Total Sites By KBytes

| Sn | Hits | | Files | | KBytes | Hostname |
|----|------|-------|-------|-------|--------|---------------------------------------|
| 1 | 43 | 0.04% | 43 | 0.05% | 530336 | 45.119.184.241 |
| 2 | 32 | 0.03% | 32 | 0.04% | 363783 | 1-39-37-241.live.vodafone.in |
| 3 | 46 | 0.05% | 46 | 0.06% | 343286 | 101.222.239.143 |
| 4 | 112 | 0.12% | 112 | 0.14% | 336155 | 223.225.143.171 |
| 5 | 23 | 0.02% | 23 | 0.03% | 303034 | 115.184.53.215 |
| 6 | 21 | 0.02% | 20 | 0.02% | 212347 | nsg-corporate-94.11.180.122.airtel.in |
| 7 | 16 | 0.02% | 16 | 0.02% | 192773 | 1-39-50-206.live.vodafone.in |
| 8 | 12 | 0.01% | 11 | 0.01% | 127551 | 106.215.170.219 |
| 9 | 10 | 0.01% | 10 | 0.01% | 115459 | 125.19.152.118 |
| 10 | 27 | 0.03% | 27 | 0.03% | 112670 | 117.228.62.77 |

- **The search string / keywords used by a client to reach ILA website:** The table 9 depicts the monthly search strings/keywords used to locate ILA website report (grouping items by search terms used in such search engines as Google) provides the information about the keywords used with hits and its percentage. The highest number

string occurred “ila” with hits – 104. The top twenty figures are presented out of total 224 strings used. The keywords / strings have been recorded as it is used by the visitors.

Table 9: Top 20 of 224 Total Search Strings

Top 20 of 224 Total Search Strings

| | Sn | | HitsSearch String |
|----|-----------|--------|---|
| 1 | 104 | 22.71% | ila |
| 2 | 29 | 6.33% | indian library association |
| 3 | 11 | 2.40% | recent activities of indian library association |
| 4 | 10 | 2.18% | library association |
| 5 | 9 | 1.97% | lis |
| 6 | 7 | 1.53% | visit the website of indian library association.ala |
| 7 | 5 | 1.09% | indian library associations .its recent activities |
| 8 | 5 | 1.09% | library association in india |
| 9 | 5 | 1.09% | library in mukherjee nagar |
| 10 | 5 | 1.09% | president of indian library association |
| 11 | 4 | 0.87% | http://www.ilaindia.net/ |
| 12 | 4 | 0.87% | visit the website of indian library associstion.ala |
| 13 | 3 | 0.66% | chairman of ila |
| 14 | 3 | 0.66% | first chairman of ila |
| 15 | 3 | 0.66% | ila sites |
| 16 | 3 | 0.66% | indian library association conference 2015 |
| 17 | 3 | 0.66% | indian library association- |
| 18 | 3 | 0.66% | library mukherjee nagar |
| 19 | 3 | 0.66% | library research circle was founded by |
| 20 | 3 | 0.66% | ranganathan commetti |

- Monthly Usage Report of ILA pages by User Agents/browsers:** The table 10 depicts the monthly user agent/browsers report (grouping by the browser type) provides the information about the names of these agent/browsers with hits count and percentage. The highest number agent/browsers occurred “Mozilla/5.0 (Linux; Android 4.2.1; en-us; Nexus 5 Build/JOP40D) AppleWebKit/535.19 (KHTML, like Gecko; googleweblight) Chrome” with 6428 hits. These top ten figures are presented out of total 1736 agent/browsers.

Table 10: Top 10 of 1736 Total User Agents

Top 10 of 1736 Total User Agents

| | Sn | Hits | User Agent |
|----|------|-------|---|
| 1 | 6428 | 6.60% | Mozilla/5.0 (Linux; Android 4.2.1; en-us; Nexus 5 Build/JOP40D) AppleWebKit/535.19 (KHTML, like Gecko; googleweblight) Chrome |
| 2 | 6239 | 6.41% | Mozilla/5.0 (Windows NT 6.1) AppleWebKit/537.36 (KHTML, like Gecko) Chrome/47.0.2526.106 Safari/537.36 |
| 3 | 3774 | 3.88% | Mozilla/5.0 (Windows NT 6.1) AppleWebKit/537.36 (KHTML, like Gecko) Chrome/47.0.2526.80 Safari/537.36 |
| 4 | 3432 | 3.53% | Mozilla/5.0 (Windows NT 5.1) AppleWebKit/537.36 (KHTML, like Gecko) Chrome/47.0.2526.106 Safari/537.36 |
| 5 | 3347 | 3.44% | Mozilla/5.0 (Windows NT 6.1) AppleWebKit/537.36 (KHTML, like Gecko) Chrome/46.0.2490.86 Safari/537.36 |
| 6 | 2848 | 2.93% | Mozilla/5.0 (Windows NT 6.1; WOW64) AppleWebKit/537.36 (KHTML, like Gecko) Chrome/47.0.2526.106 Safari/537.36 |
| 7 | 2736 | 2.81% | Mozilla/5.0 (Windows NT 6.1; rv:42.0) Gecko/20100101 Firefox/42.0 |
| 8 | 2162 | 2.22% | Mozilla/5.0 (Windows NT 6.1) AppleWebKit/537.36 (KHTML, like Gecko) Chrome/47.0.2526.73 Safari/537.36 |
| 9 | 1978 | 2.03% | Mozilla/5.0 (Windows NT 6.1; rv:43.0) Gecko/20100101 Firefox/43.0 |
| 10 | 1932 | 1.98% | Mozilla/5.0 (Windows NT 5.1; rv:42.0) Gecko/20100101 Firefox/42.0 |

- Monthly Usage Report of ILA pages by country Users :** The table 11 depicts the monthly user country report (grouping by the host's country of origin and also grouped by .com, .net, .org. etc.) provides the information about the names of the country with hits, files and downloads in KBytes and percentage. The highest number country occurred "Unresolved/Unknown" with 57639 hits, 52619 files and 9742937 downloads in Kbytes followed by .com and India. The top thirty figures are presented out of total 67 countries.

Table 11: Top 30 of 67 Total Countries

| Top 30 of 67 Total Countries | | | | | | | |
|------------------------------|-------|--------|--------|---------|---------|--------|-----------------------------|
| Sn | Hits | Files | KBytes | Country | Sn | Hits | Files |
| 1 | 57639 | 59.20% | 52619 | 64.59% | 9742937 | 63.36% | Unresolved/Unknown |
| 2 | 15182 | 15.59% | 12627 | 15.50% | 1502294 | 9.77% | Commercial (com) |
| 3 | 13504 | 13.87% | 12599 | 15.47% | 3155440 | 20.52% | India |
| 4 | 7456 | 7.66% | 6613 | 8.12% | 862611 | 5.61% | Network (net) |
| 5 | 545 | 0.56% | 428 | 0.53% | 11479 | 0.07% | Germany |
| 6 | 459 | 0.47% | 284 | 0.35% | 223 | 0.00% | Ukraine |
| 7 | 314 | 0.32% | 298 | 0.37% | 25959 | 0.17% | Non-Profit (org) |
| 8 | 284 | 0.29% | 260 | 0.32% | 7714 | 0.05% | Romania |
| 9 | 214 | 0.22% | 134 | 0.16% | 3293 | 0.02% | European Union |
| 10 | 210 | 0.22% | 201 | 0.25% | 8213 | 0.05% | Russian Federation |
| 11 | 188 | 0.19% | 179 | 0.22% | 4701 | 0.03% | Pakistan |
| 12 | 174 | 0.18% | 174 | 0.21% | 610 | 0.00% | South Africa |
| 13 | 127 | 0.13% | 109 | 0.13% | 2239 | 0.01% | Cote D'Ivoire (Ivory Coast) |
| 14 | 122 | 0.13% | 90 | 0.11% | 1467 | 0.01% | Switzerland |
| 15 | 70 | 0.07% | 68 | 0.08% | 942 | 0.01% | Educational (edu) |
| 16 | 70 | 0.07% | 59 | 0.07% | 3053 | 0.02% | Brazil |
| 17 | 69 | 0.07% | 67 | 0.08% | 3042 | 0.02% | Mexico |
| 18 | 63 | 0.06% | 43 | 0.05% | 182 | 0.00% | Viet Nam |
| 19 | 55 | 0.06% | 53 | 0.07% | 2845 | 0.02% | Philippines |
| 20 | 54 | 0.06% | 53 | 0.07% | 2845 | 0.02% | Slovenia |
| 21 | 49 | 0.05% | 28 | 0.03% | 755 | 0.00% | China |
| 22 | 40 | 0.04% | 39 | 0.05% | 2301 | 0.01% | Address Routing (arpa) |
| 23 | 38 | 0.04% | 36 | 0.04% | 662 | 0.00% | Australia |
| 24 | 33 | 0.03% | 17 | 0.02% | 259 | 0.00% | Sri Lanka |
| 25 | 31 | 0.03% | 25 | 0.03% | 214 | 0.00% | Italy |
| 26 | 28 | 0.03% | 16 | 0.02% | 156 | 0.00% | France |
| 27 | 27 | 0.03% | 14 | 0.02% | 821 | 0.01% | United Kingdom |
| 28 | 26 | 0.03% | 3 | 0.00% | 37 | 0.00% | Czech Republic |
| 29 | 23 | 0.02% | 22 | 0.03% | 530 | 0.00% | Canada |
| 30 | 22 | 0.02% | 16 | 0.02% | 323 | 0.00% | Norway |

- **Findings and Conclusion**

This paper highlighted ILA website's consolidated statistics for the year 2015 and aggregated monthly figures from January to December 2015. The one-year period study reflected quantitative growth, inconsistent of usage and have many ups and downs of visits and usages. The web performance in terms of evaluating the content, pages and usage are considered as an integral part of web analytics and important in the scientific community of internet / virtual world. The comparison of pages, counts, visitors and country's output in relation to the usage of content has provided a clear picture for understanding the interests and requirements of clients in changing environment. The statistics have been presented in the form of textual, tables and graphs at an appropriate place. For systematically presentation and evaluation, the statistics have been tabulated or graphed wherever it was necessary to display the required results. There are some important facts which have been highlighted under conclusion.

- The overall annual trend indicated that the highest usage occurred during the month of August and lowest usage occurred during the month of May.
- The monthly stats about hits by response code that "Code 200 - OK" has the highest occurrence and "Code 402 - Payment Required" has the lowest occurrence. The occurrence of "Code 404 - Not Found" and "Code 206 - Partial Content" needs urgent attention.
- The daily report revealed that highest usage occurred on Monday's and Tuesday's and lowest usage occurred on Saturday's and Sunday's.
- An aggregated hourly report showed that highest usage occurred in 0 (24th) hour and aggregated lowest usage occurred in 17th, 18th and 16th hour of the day.
- The study also revealed that the highest and lowest figures of visited pages/URL's out of total 242, which shows the usefulness of pages in order.
- The analysis depicted the figure of entry and exit of pages/URL's where total occurrence recorded was 57.
- The report described the figures of visitor's source /referring IP address/ third-party URL's.
- The results of the study have provided the list of keywords/ search strings by which users reached to target website. It also provided the list of browsers/user agent being helped a visitor.
- The country report reflected the highest number visitors from "Unresolved/Unknown" followed by ".com" and "India" out of total 67 countries.

5. Observations and Recommendations

This concept of analyzing the information came along with the conceptualization of www, internet and websites. It is a new concept which can be applied to scale the web information in diversified spectrum. As we know that internet is an instant source of unlimited information but when we look at the results, we find a very long list of sources. It is very difficult to identify the right, precise and authentic information from a large number of results displayed. The search engines, i.e., Google, Yahoo, etc. are applying variety of techniques, i.e., ontology-based information retrieval system, notion of domain ontology-based lexical chain, automatic classification and mapping of documents and web crawler based indexing systems. But, a user is still not able to acquire the precise and authentic information in a right form from the internet.

- The count of ILA website usage is as hits, files, pages, sites, hosts and visits, as well as daily averages of these counters for each month during the period of study. It has been noticed that when a HTTP requests to a non-existent content, that failed request for the missing content is also counted as a hit and consequently, the hit rate increased without any usage. Another reverse fact noticed that when a visitor submits more than one request within a stipulated timeout period, only first time request for the page is counted and repeated requests for the same page is not counted.
- The actual usage statistics of pages that are already in the browsers cache is not clear. Whether recorded on each actual request or content already in browsers cache is used and fresh figure is not counted.
- The response code report is very important and an especial attention on Code 404 - Not Found” and “Code 206 - Partial Content” has to be paid. It may require more bandwidth to avoid the traffic from various sources. When a previous content not found or partially found on the page, it leads to code 206. Therefore, frequently and major changes in content page should be avoided.
- The highest usage occurred on Monday’s and Tuesday’s and lowest usage occurred on Saturday’s and Sunday’s as revealed in daily report, therefore, it should be insured that the website should be perfectly work especially on Monday’s and Tuesday’s.
- Based on aggregated hourly facts, we should put more focus on highest usage hours and improve the visibility of web pages in lowest usage hours.
- The study also revealed that the highest and lowest figures of visited pages of the website. The content has the most important and should be focused on creating content primarily for users. The index page of the website has been designed in three frames, i.e., top consist image as header, right consist links to pages and the center frame consist the content for display. All content pages open in mainframe and the address of that particular content page is not displayed in the browser path. The visibility of respective content pages’ path is lost, therefore, it is suggested that the website should be designed in such a way which allows the path display in browser and when content pages opens in blank page should carry the links as well.

- The publication content, i.e., Journal of ILA and ILA Newsletter have been made available on other website which has been developed in wordpress.com. The majority of the visitors to ILA website are for aforementioned publications, consequently, the usage to these publications have not been recorded, hence, these publications should be integrated with the main portal to record their usage.
- The entry page of website reflected the interest of a visitor which needs to pay more honor to that particular pages.
- The visitor source / referrer /third-party URL's data figures out the search engine names, therefore, the website should be registered with search indexing crawlers /search engines, i.e., Google analytics and website optimizer
- The report on keywords/ search strings forces us to use proper and relevant keywords coding in specified meta name and content tags to keep in mind the users input words.
- The behaviors of browsers/user agent need to be studied and compatibility features should be aligned with web development programming. The visitors should be updated about the best version and other options including security features.
- The country report displayed a mixed result which includes "Unresolved/Unknown", "dot com", "dot.net", "dot org" and country name, etc. The Webalizer should produce the data separately for country and other domains. It is fact that a huge percentile has been shown as Unresolved/Unknown, because of access through dialup and other customer points which does not identify the country but recognize an IP address only. Another fact is that dot IN domain actually represents India, but it may be located elsewhere. Therefore, the software must be developed to produce realistic figures by avoiding the term "Unresolved/Unknown", "dot com", "dot.net", "dot org" under the country report.
- The result reflects usage from 67 visitor countries only; an appropriate effort should be made to reach rest of the countries.
- The Webalizer does not identify the human visitors and robots; therefore, it records the figures as on occurrence basis. Accordingly, the recorded metrics are more than those due to people alone. It is unable to record the data of dynamic pages because, it does not analyse the query string. It is assumed that the statistics recorded by Webalizer are unrealistic figures.
- The search result from government, country domain, research organisation, academic and educational, commercial and networks, etc. should be filtered and presented as per researcher's parameters separately.
- It has been observed that urgent and acute developments in search technology, indexing practices, intelligent classification, systematic relevance of content, differentiation of hosts and filtering of content should be carried out by the leading search engines.
- For better indexing and visibility, we should focus on little but important aspects, i.e., SEO technique; create unique and appropriate title pages and tags for each page, create a naturally flowing hierarchy, use mostly text for navigation, put an HTML site map

page on the site, and use an XML and image sitemap file, accurately summarize and describe the page's content, use brief, but descriptive titles, filenames and alt text, relevant naming to images and figures, make use of the "description" meta tag, use unique descriptions for each page, improve the structure of URL's, make site easier to navigate, offer quality content and services, write better anchor text and effective use of robots.txt, optimize use of images, and use heading tags appropriately, etc.

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Appendix-1 : Commonly used terminology and definitions for website traffic analysis:

- **Countries** are determined based on the top level domain of the requesting site. The domains, i.e., dot com, dot net, dot org, dot edu, etc., included but not described to which country.
- **Entry** pages are those pages that are the first requested by a visitor. When a first requested is triggered to a page that is counted as an entry page.

- **Exit** pages are those pages that are the last requested by a visitor. The last requested page is counted as an exit page.
- **KByte** (KB) is 1024 bytes (1 Kilobyte) is being used to reflect the data amount that is transferred between the server and the remote machine, based on the data found in the server log.
- **Hit** - The request of browser to HTTP is counted as one hit.
- **Files** Each successful HTTP request is counted as a file.
- **Host** is the visitor's machine running the browser which is identified by IP addresses or domain names.
- **Pages** are those URL's which are considered as actual requested page and usually identified by a file extension .htm, .html or .cgi. php, .asp, etc.
- **Referrers** are the URL's which directs a user to the site.
- **Search Strings** are the keywords input by a visitor to find the required content URL.
- **Site** is a remote machine/IP Address/Hostname that makes requests to the server.
- **URL** - Uniquely identifies the resource requested by the visitor's browser.
- **User Agent** is the web browser.
- **Visit:** is a request for a page on the server for the first time.
- **Visitor** is the actual person / machine browsing the website.



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