



WEB ANALYTICS DASHBOARD AND ANALYSIS SYSTEM

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Abstract- The main objective is to develop an automated system that would help in analytics the website performance efficiently. Web analytics will register the organizations or the websites & maintain their information. It will also provide the real time information about the number of visitors, visitors from a certain country etc. The software will provide the breakup of the user's interest in the organization's website. If the popularity is too low, then it would provide a template having the suggestions to improve the popularity. The main concept here is that a piece of code is placed on your webpage which enables us to analyze and monitor all the visitors to the website at run-time. The system takes as input the users login when he visits the website. Every website is provided with a piece of code and a log space. You put the piece of code on the webpage, and every time the visitor visits the webpage the code sends the valuable information about the visitor back to the log. Web tracker organizes this information into charts and lists to make your analysis easier. Web analytics is the practice of measuring, collecting, analyzing and reporting on Internet data for the purposes of understanding how a web site is used by its audience and how to optimize its usage. The study of visitor, navigation, and traffic patterns to determine the success of a given web site. Web Analytics does not purely focus on the amount of traffic which might only be helpful in evaluating your bandwidth usage and server's capabilities. Instead it focuses on in-depth comparison of available visitor data, referral data, and site navigation patterns as well as being able to tell us the amount of traffic we receive over any specified period of time. Modern web analytics tools collect vast amounts of information about website visitors; these reporting systems make it difficult to identify trends in data due to the number of reports available. By developing a system that logically presents automated analysis based on trends and patterns, web analytics users will be able to implement improvements to their websites. In order to develop the web analytics dashboard and analysis system, data will be collected by a third party web analytics tool. Research will be undertaken into existing web analytics dashboards used to visualize data. The paper will consider the collection, use and display of data and how these elements can be automated. Major need for developing such a project is to create a general template which can be used by any website owner to check performance of his website. If website is very popular, website owner may decide to assign efficient servers which can handle more load. In some organizations, it may be necessary to view from which region more users are accessing the website. The solution to all these problems is obtained by web analytics.

Keywords- Web analytics, Dashboard, website, patterns

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Introduction

Modern web analytics tools collect vast amounts of information about website visitors; these reporting systems make it difficult to identify trends in data due to the number of reports available[1]. By developing a system that logically presents automated analysis based on trends and patterns, web analytics users will be able

to implement improvements to their websites. In order to develop the web analytics dashboard and analysis system, data will be collected by a third party web analytics tool. Research will be undertaken into existing web analytics dashboards used to visualize data. The project will consider the collection, use and display of data and how these elements can be automated.

Scope of Web Analytics

In the last 15 years the use of the Internet for marketing has increased significantly because of the small amount of money needed to invest and the short time to earn money[2]. This fact has caused the growth of business competition and as a consequence people owning websites have become more concerned about improving their site to at least match the level of their competitors. Hence, there were created methods called web analytics to analyse and report data collected from the websites visitors. In the mid 90's people started measuring the number of visitors in their websites using web counters, very soon some companies offered statistics that not only provided information about the total number of visits but also other data from their visitors sourced from search engines. Nowadays, companies such as Google, Microsoft and Yahoo have developed sophisticated tools that generate reports allowing websites' owners to monitor their site usage[3]. In order to generate the reports, those tools use information stored from the visitors through cookies or log-files. However, due to the enormous and diverse amount of data, most of the time businesses spend more time trying to understand and unify the information displayed in the reports instead of taking actions to improve their site. In addition, although the tools offer dashboards, some of them are not sufficiently clear and most of the standard tools have limitations[4]. Therefore, users continue to look for different ways to obtain the information unified in ways that make more sense for them. The project aims to study the main metrics used by web analytics tools as well as the key concepts for creating successful dashboards to develop a system that logically presents useful information that allows web analytics users to improve their websites.

Research Methodology and Plan

This is a research and development paper. Therefore, it has a first phase associated with the research and analysis of different web analytics concepts and dashboard designs.

Task 1: Study of metrics used in web analytics tools

This task involves the identification, analysis and understanding of the main metrics used by different web analytics[5]. After this task, the metrics to be used in the analysis system should be chosen.

Task 2: Research of processes to design web analytics dashboard

As the aim of the project is to design a tool that displays the most important web traffic information required to achieve objectives defined by a business in a single screen, or dashboard, it is essential to know the best practices of web analytics dashboard design and to look for future trends[6].

Task3: Dashboard and Analysis system design

After having an understanding of the main metrics provided by web analytics tools, and the knowledge and skills to create dashboards, the outcome of this task is a concrete design for the web analytics dashboard and Analysis System[7][8].

Task 4: Analysis and Identification of data collection techniques

In order to test with real data, the information will be collected from Google Analytics[9].

Task 5: Collection and Data Base Storage of Third Party Data

This task involves the development of a program to extract the information from Google Analytics and store the information in a

MySQL database[10].

Task 6: Development of Analysis System

The tool is expected to be developed in a web environment, hence it can be located in a host and be accessed from any place in the world with an Internet connection[11].

Task 7: User Testin

This task involves the functionality test for the application and comparison of results provided by the tool with the answers that an expert (human being) in Web Analytics would give having the same information that was collected[12].

Aims, Significance and Expected Outcome

E-marketing trends change continuously, and to maintain successful businesses on the Internet, website owners need to monitor and analyse their visitors in order to create effective marketing strategies. Businesses make use of web analytics tools to know more about their website such as, what is failing, which pages are the most visited, what are the trends, and of course what do their clients (visitors) want. Without web analytics tools businesses cannot have real knowledge of their web traffic. In contrast, identifying what visitors are looking for when they navigate through the website and cross matching that information with the business goals makes it easy to design successful marketing strategies.

Unfortunately, understanding the information provided by web analytics tools is in some cases a task that demands a lot of time due to the vast amount of data provided in the reports and dashboard designed for purposes outside of business development and processes. The expected outcome of this project is to develop an analysis system to automate the processing of web analytics data based on recognizable patterns. To achieve this goal, three elements are required in the process. Firstly, it is necessary to have an understanding of the main metrics used by the most common web analytics tools. Secondly, it is essential to explore the best practices, techniques and methods to design web analytics dashboards. Finally, in order to implement the system that is going to be designed, the information will be collected and processed from a third party web analytics tool. There is a high likelihood of finding different good practices to design a dashboard depending of the objective stated and key performance indicators (KPIs) defined by each business [Vermehren 2008]. The scope of the project will limit the implementation of the analysis system based on one of the most relevant KPIs found following research and data collection.

This research and development project has real-world applications in the commercial sector. The system will have the potential to be used in a number of scenarios including online marketing, website improvement and bench marketing.

Research Methodology & Plan

The objective of this project is to develop a tool demonstrating that it is possible to design an analysis system that will help users to take decisions to improve their website usage and performance easily from a vast amount of web traffic information.

Research will be undertaken into existing web analytics dashboards used to visualize data. For the third party data collection Google Analytics will be used. Google Analytics, as an onsite reporting tool, measures a visitor's journey, website performance and visitor drivers [Clifton 2008, p4]. Google Analytics was chosen for this project because it is a free tool, used by several small busi-

nesses that do not have web analytic experts and it is also capable of providing information from other website marketing tools such as Google Website Optimizer.

Web Analytics Architecture

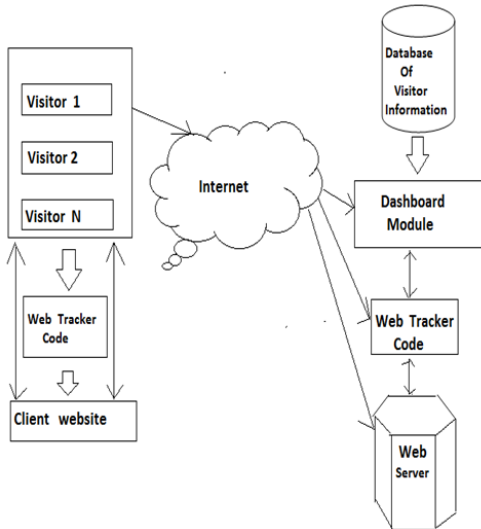


Fig. 1- Web Analytics Architecture

As shown in the fig(1), client who is a registered member of web analytics add the java script code given by web analytics into his web pages. Visitor of client web page loads the web site on his computer. Javascript code present in the web page sends visitor information to web analytics web server. This happens every time someone visits client web page. Web analytics updates the database accordingly and present the information to client.

Features:

- Configurable summary statistics:** These statistics are used to show at a glance how many page loads, unique visitors, returning visitors and first time visitors your site has received till date.
- Visitor Analysis:** Using this tool, you can zoom in on the visitor and get a detailed report on where they are from, their system settings, what links referred to yhbours website as well as their navigation paths through your site.
- Popular Pages:** Web analytics allows you to see the pages of your site ranked according to popularity.
- Referring Links:** This is one of the most important feature of any web analytics. It allows you to see how your visitors are finding your site, and where they are coming from.
- Search Engine Statistics:** Web analytics allow you to see which search engines generate the most traffic.
- Keyword analysis:** This web analytics allows you to view the keywords used to reach your website, ranked by their popularity..
- Browser statistics:** This analytics lets you see which browsers the visitors use to view your site and among them, which are the most popular.
- Operating System Statistics:** This tool shows you which operating systems your visitors use and rank them according to popularity.
- Resolution statistics:** Web analytics identify the display reso-

lutions used by your visitors ranked by popularity. This can be useful in ensuring your site looks its best for the majority of the users.

- User access management:** User access management allows you to provide access to your account for multiple other users. It is possible to limit access to allow additional users to only view statistics for your projects, or specific projects.

The main advantages of Web Analytics

- Free
- Responsive
- Reliable
- Allows invisible tracking
- Provides accurate real time statistics.

Web Analytics Dashboard Module

Dashboards are a powerful way of monitoring websites and distributing information to different target groups. However, they can be difficult to design, because successful designs require deep insight into the needs of the target groups as well as into the field of web analytics.



Fig. 2- Web Analytics Dashboard

Web Analytics Services

- site audit
- Functionality Requirements
- Defining KPIs
- Solution Design (Variable Mapping)
- Tag Generation
- QA / Testing
- Dashboard design and implementation
- Highlights & Trends Reporting
- User Experience Optimization: A/B and Multi-variant Testing / Site Surveys
- Offline Data Source Integration Dynamic Segmentation

Conclusion

Web tracker has been successfully completed as an web based project and studies the behavior of website visitors. In a commercial context, this web analytics especially refers to the use of traffic reports to determine which aspects of the website work towards the business objectives; for example, which pages are very popular. The method used is called page tagging uses JavaScript on

each page to notify a third-party server when a page is rendered by a web browser. Web tracker as a third party server collects all information and presents it to the website owner in an attractive manner. Structure, simplicity, usability and performance have been our prime focus and have led to the creation of this project. More functionalities and features that can be appended to the existing ones in the future, as and when required to make it more comprehensive for the user.

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