

# Click Through Rate Utilization Approches and its Limitation: A Review

Shraddha Sharma  
Shri Shankaracharya Technical Campus  
Dept. of Computer Science and Engineering  
Bhilai, Chhattisgarh, India

Abhishek Kumar Dewangan  
Asst Prof.  
Shri Shankaracharya Technical Campus  
Dept. of Computer Science and Engineering  
Bhilai, Chhattisgarh, India

## ABSTRACT

In today's Internet world each one experiences the web straight forwardly or in a roundabout way. Current programming based frameworks gather data about their activity and history in click through file. These files data can be used for analysis. The click through document having timestamps, IP address, month, date, and so forth. In today's web situation click through record examination get to be distinctly vital undertaking for dissecting the client's conduct and for enhancing the web applications and managing an account frameworks, and so forth. Rapid change in the technology, make analysis of these file to predict how system will behave in an uncertain situations. Hadoop and apache spark are well known parallel processing system. HDFS and MapReduce are parallel processing systems. Click through files which are created by the web servers contain information about the activities of the visitors like number of visitors and from which domain they are visiting. Thus analyzing those file are very tedious tasks. This paper present some of the techniques used to analyses Hit count of the users and present appropriate method for processing in parallel environment using click through document.

## Keywords

Hadoop, HDFS, Hit Count, Click Throgh Document.

## 1. INTRODUCTION

In today's extending world, everything is going on the web. Sectors like private, public and business has seen a noteworthy improvement in their particular fields. There has been an exponential development in information over the web. We have to dissect these information to give better support of different parts to enhance venture situation. Information is heterogeneous in nature and investigation of such information will give us essential data wherein log documents give an effective arrangement. Log documents are situated in the web server and it contains data about each individual's solicitations, which is put away in a log passage. The fundamental reason for utilizing Hadoop MapReduce is to investigate the datasets successfully.

Click Through documents are produced ordinary which are in the request of terabytes. Click through documents contain colossal measures of valuable data which can helpful to enhance business endeavors and future appraisal. Keeping in mind the end goal to pick up information about the client's exercises, regardless of whether he is buying the item, in the event that he is finding the application cordial to utilize or the issues he is confronting and how it can be settled, we have to investigate click through records. In this manner through click through document investigation, we pick up knowledge into all the previously mentioned inquiries and association of individuals with web applications.

Formula of Click Through rate given by:

$$CTR = \frac{Clicks}{Impressions} * 100$$

CTR – Click through Rate

Clicks – users who click on the link.

Impressions – number of people who viewed link.

## 1.1 Apache Hadoop and its Architecture

The Apache Hadoop programming library is a system that takes into account the distributed processing of extensive information sets crosswise over clusters of PCs utilizing simple programming models. It is designed to scale up from single servers to a large number of machines, every offering neighborhood computation and storage.

As opposed to depend on equipment to convey high-accessibility, the library itself is intended to recognize and handle failures at the application layer, so conveying an exceedingly accessible administration on top of a cluster of PCs, each of which might be inclined to failure.

## 1.2 MapReduce Architecture

Hadoop MapReduce is a software framework for executing tremendous measure of information i.e. terabyte data sets in parallel environment on large clusters (in a huge number of data nodes) which can be commodity hardware in a fault tolerant manner.

MapReduce jobs splits the input information set into different pieces of files which then are handled by the guide assignments in parallel form. The hadoop framework sorts the output of map phase which are then input to the reduce tasks. Both input and output files are stored on HDFS (Hadoop Distributed File System). The Hadoop framework has a duty of managing and scheduling tasks.

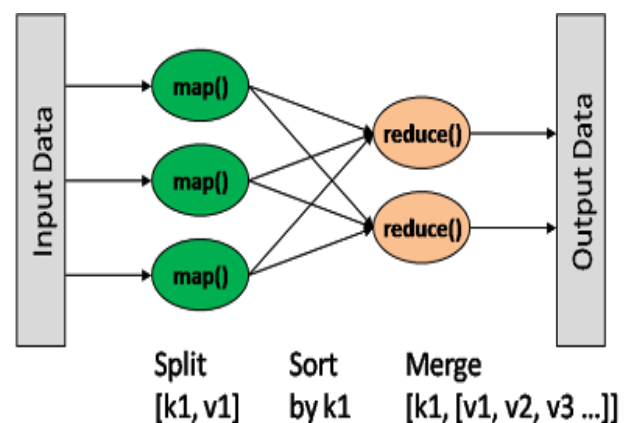


Fig. 1. Shows workflow of MapReduce

## 2. LITERATURE SURVEY

Lili Shan et al. [1] compare the performance and runtime complexity of our method with Tucker decomposition, canonical decomposition and other popular methods for CTR prediction over real-world advertising datasets. Our experimental results demonstrate that the improved model not only achieves better prediction quality than the others due to considering fully coupled interactions between three entities, user, publisher and advertiser but also can accomplish training and prediction with linear runtime.

Sayalee Narkhede et al. [2] applied this Hadoop MapReduce programming model for analyzing web log files so that we could get hit count of specific web application. This system uses Hadoop file system to store log file and results are evaluated using Map and Reduce function. Experimental results show hit count for each field in log file. Also due to MapReduce runtime parallelization response time is reduced.

Marlina Abdul Latib et al. [3] highlight the characteristics of Big Data as well as Hadoop Framework that has been widely used as Big Data application. Results from the papers reviewed shows that majority researchers applied MapReduce as the main component of Hadoop for analyzing the log files and HDFS as the data storage. Previous researchers have also used other tools

and algorithms together with the Hadoop Framework for analyses purposes. The findings of this paper provide a comprehensible review of Hadoop usage performance in analyzing different types of log files and recommend understandable results for end users to use in future work.

Avneesh Tiwari et al., [4] analyses huge datasets need a parallel processing mechanism. Hadoop and apache spark are well known parallel processing system. HDFS and MapReduce are parallel processing systems. In this paper, authors propose a log analysis system which is run over hadoop MapReduce and Apache Spark environment. Both the framework proposes log data in parallel system using all the mechanism in the hadoop and spark cluster and computes result efficiently. Output in the form of some parameters of log such as IP addresses, month, date, time etc. so that it can be useful for real time projects, companies, banks etc.

Xuerui Wang et al. [5] develops models and methods to smoothen CTR estimation by taking advantage of the data hierarchy in nature or by clustering and data continuity in time to leverage information from data close to the events of interest. In a contextual advertising system running at Yahoo!, we demonstrate that our methods lead to significantly more accurate estimation of CTRs.

**Table 1. Shows Comparison between Various Existing Approaches and its Limitation**

<i>Ref...</i>	<i>Dataset Used</i>	<i>Application Area</i>	<i>Algorithms</i>	<i>Approach Used</i>	<i>Limitations</i>
Lili Shan et al.	Publisher Dataset	Tracking Advertisement	Tensor Factorization	Tucker decomposition, canonical decomposition and other popular methods for CTR prediction over real-world advertising datasets.	Uses Standalone System
Sayalee Narkhede et al.	Web Logs of user Click	Tracking Logs	MapReduce / Cloud	This system uses Hadoop file system to store log file and results are evaluated using Map and Reduce function.	Size of dataset is taken small hence need for improvement.
Marlina Abdul Latib et al.	Web Server Dataset	Tracking Logs	MapReduce	Utilized Hadoop MapReduce Framework in pseudo distributed mode.	Works in pseudo distributed mode only.
Avneesh Tiwari	Web Log	Counting User Rate	Hadoop / Spark	Processes data in parallel system using all the mechanism in the hadoop and spark cluster and computes result efficiently.	Response time is more
Xuerui Wang	Yahoo Advert Dataset	Yahoo! Web Advertisement	Empirical Bayes Method	Smoothen CTR estimation by taking advantage of the data hierarchy in nature or by clustering and data continuity in time to leverage information from data close to the events of interest.	Only 60% Deduction in average KL divergence against the baseline without smoothing.

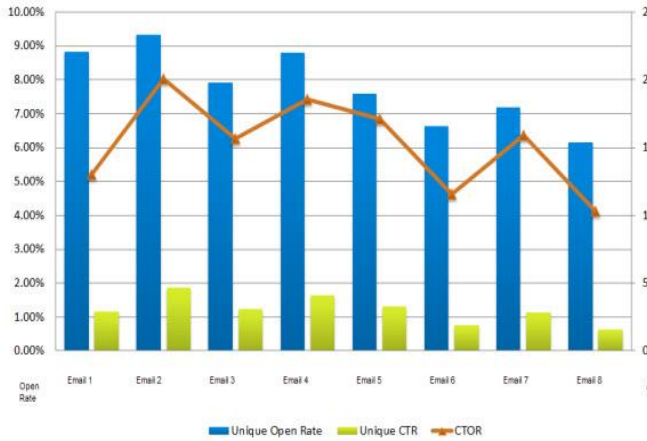


Fig.2. Shows Click through rate of Email Links

### 3. CONCLUSION

Evaluating CTRs for uncommon occasions are critical however exceptionally difficult. We outlined various strategies to manage the sparsely issue lying in the uncommon occasions. The strategy such as Bayes based empirical formula or Map Reduce Framework based approach, they both are succeeded in process the huge file. But have some disadvantages such as slow processing time, higher response time etc. CTR has to be analyzed in very small duration of time due to target many number of users effectively. Numerous web based promoting conditions depends on Click through rates.

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