



ISSN: 0975-833X

## REVIEW ARTICLE

### PERSONALIZED LOOK AND FEEL THROUGH WEB USAGE MINING

<sup>\*</sup>,<sup>1</sup>Madhavi M. Mali, <sup>1</sup>Sonal S. Jogdand and <sup>2</sup>Deepali P. Shinde

<sup>1</sup>Department of Information Technology, Pimpri Chinchwad Polytechnic, Sector No.26,  
Near Akurdi Railway Station, Nigdi Pune 411044

<sup>2</sup>Department of Computer, Pimpri Chinchwad Polytechnic, Sector No.26,  
Near Akurdi Railway Station, Nigdi Pune 411044

#### ARTICLE INFO

##### Article History:

Received 06<sup>th</sup> December, 2014  
Received in revised form  
25<sup>th</sup> December, 2014  
Accepted 17<sup>th</sup> January, 2015  
Published online 26<sup>th</sup> February, 2015

#### ABSTRACT

This paper represents personalization in terms of web usage mining and e-commerce. This paper gives useful information in the world of web personalization. To introduce web personalization we require to know about data mining with its application like web mining. It also gives detailed description about aspects of web mining with introduction of data mining. Due to this the user can relate importance of web mining to extract the knowledge from the web called as a web personalization.

##### Key words:

Data mining, Web mining,  
Web usage mining, Personalization.

Copyright © 2015 Madhavi M. Mali et al. This is an open access article distributed under the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

## INTRODUCTION

Due to information globalization and technology a power tool used is World Wide Web. WWW is a source of information and acts as a tool to store, retrieve and propagate the information according to the user's need. To search on a particular website it is necessary for web developer to use web personalization. Web personalization is the life bold of web usage mining and e-learning process to improve the system design as per the user's interest. In (Web Usage Mining and Personalization Bamshad Mobasher) web personalization is simply defined as the task of making web-based information systems adaptive to the needs and interests of individual users. In order to fulfill the user's needed and requirement a web personalized website recognizes its users, collects information about their preferences and adapts its services. Using the web personalization, it causes to improve the web experience of a visitor by collecting the information which user need in appropriate manner and at the appropriate time. Web personalization is a e-business and it is a mechanism to learn about the customer needs to identify future trends and so that it causes to increase customer loyalty to the provided service. We describe the process of personalization in terms of an application of a data mining to the collected web data.

**\*Corresponding author: Madhavi M. Mali,**  
Department of Information Technology, Pimpri Chinchwad  
Polytechnic, Sector No.26, Near Akurdi Railway Station, Nigdi  
Pune 411044.

Web personalization uses web mining as a tool to discover usage patterns. Web mining is a advanced research area in web personalization. To discover interesting patterns on the web, web mining is used who the application of data is mining.

#### Data mining and web mining

Data mining is the process of extracting data from source systems and bringing it into the data ware house for extraction, transformation and loading.

Web mining is a data mining technique of exploring the information from the web as per user usage. Web mining is classified into following types:

#### Web content mining

Web content mining is finding the information from the sources of World Wide Web. Web content mining extracts the data from collected web documents. It is used to identifying the most frequently accessed information. It allows scanning of entire web to retrieve needed information from clustered pages and provide the same to search engines. Web content mining also helps to give high quality results to the uses when required to search engines. Due to this it increases the productivity because of direct use of content mining of text and visuals. Web content mining is also known as text mining.

## Web structure mining

### The web pages might be of static or dynamic

(How to Win Online: Advanced Personalization in E-Commerce An Oracle White Paper March 2011) and its linking is through XML tags and hyperlinks. So that web structure mining associates with linking of different web pages.

## Web usage Mining

WUM is the process of discovering and interpreting patterns of user access to the web information system. Web usage mining is most widely used method to record and develop web user behavioral patterns from the log data generated by web and application server. The main data sources for web usage mining are web structure data, web content data, user profile and weblog. The aims of web usage mining are:

- It keeps track of patterns identified during web usage mining process.
- Such patterns can be used to better understand behavioral characteristics of visitors.
- It also helps to organize the site efficiently and create a personalized view of the page.

collected from the web servers and from the information sent by the client. Packet which is sent across the network is also monitored. This data collection is used for personalization.

2. Data Preprocessing- At this stage, we find out from where the data is received. This information is collected from the session information. Techniques are used to filter the data and use it in the next stage.
3. Pattern Discovery- The discovered patterns are usually represented as collections of pages, objects, or resources that are frequently accessed by groups of users with common interests. To determine the effective marketing strategies and optimizing the logical structure of the website analyzing of the users, how website is accessed is critical. According to the patterns required for web personalization which corresponds to the interests of the user. At this stage by applying the learning methods we insist the construction of user models.
4. Knowledge Post Processing: This is the last stage where extracted data is evaluated and represent in the human understandable forms such as reports and visual techniques.

## Personilization

Personalization is the process of analyzing user's navigational behavior and design pages as per the need.

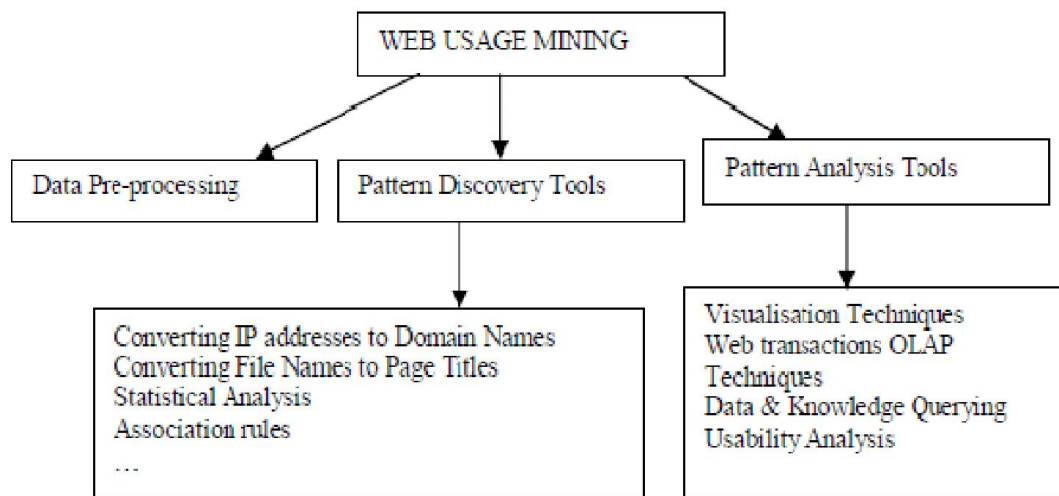


Fig. 1 for WUM

## Web usage mining and personilization

Web usage mining acts as tool for realizing the more personalized, user friendly and business web services. To avoid the overloading of information on website web personalization is used. By using web usage mining based on web personalization we are able to identify needs and preferences of each user about web navigation. WUM is the process of customizing the content and the structure of web sites in order to provide users with information.

### Web usage mining has following data mining stages:

1. Data Collection/Tracking- At this stage the user interactions are captured and acquired. The data is

Commercial applications of web personalization include advertisements of products and marketing to increase e-business. It provides suggestions to the customers as per his preferences and history.

Web personalization can be done in the following methods:

1. Implicit:-Implicit personalization will be performed by system or web page based on the user behavior on the web.
2. Explicit:-User will be able to modify the system using the feature provided by the system itself.
3. Hybrid:-It is a combination of both implicit and explicit.

A Web personalization system performs following functions: The personalization functions are: memorization, guidance, customization and task performance support (A Near Real-Time Personalization for eCommerce Platform Amit Rustagi). Each of these is discussed in more detail below.

**Memorization:-** In this method users information is recorded from his past activity and this is done with the help of cookies and his browsing patterns.

**Guidance:-** In this method the web sites provide customize view to the users and suggest alternatives and assistance for which he is in need.

**Customization:-** In this method the web page provided to the customer is customized depending upon his preferences and interests. The layout of the page different contents display, colors and most frequently accessed information is shown to the user. Its main purpose is to make the page user friendly.

**Task Performance Support:-** Task performance support is a client side personalization system which acts on behalf of the user. It is very similar to the adaptive learning systems used in educational models.

approach are Yahoo!'s personalization engine and web sphere Personalization (IBM).

(b) Content-based filtering systems- In this approach the different filtering systems are used to filter out the contents of the website and show only those contents which are relevant to the user. This is done by analyzing the personal preferences and the browsing history of the user.

(c) Social or collaborative filtering systems- In this approach, statistics of browsing is analyzed and accordingly filtering is done to show the contents which are most accessed. Most commonly used in amazon.com electronic shop. The Recommendation Engine (Net Perceptions) and web sphere personalization (IBM) are examples of products that use also this method.

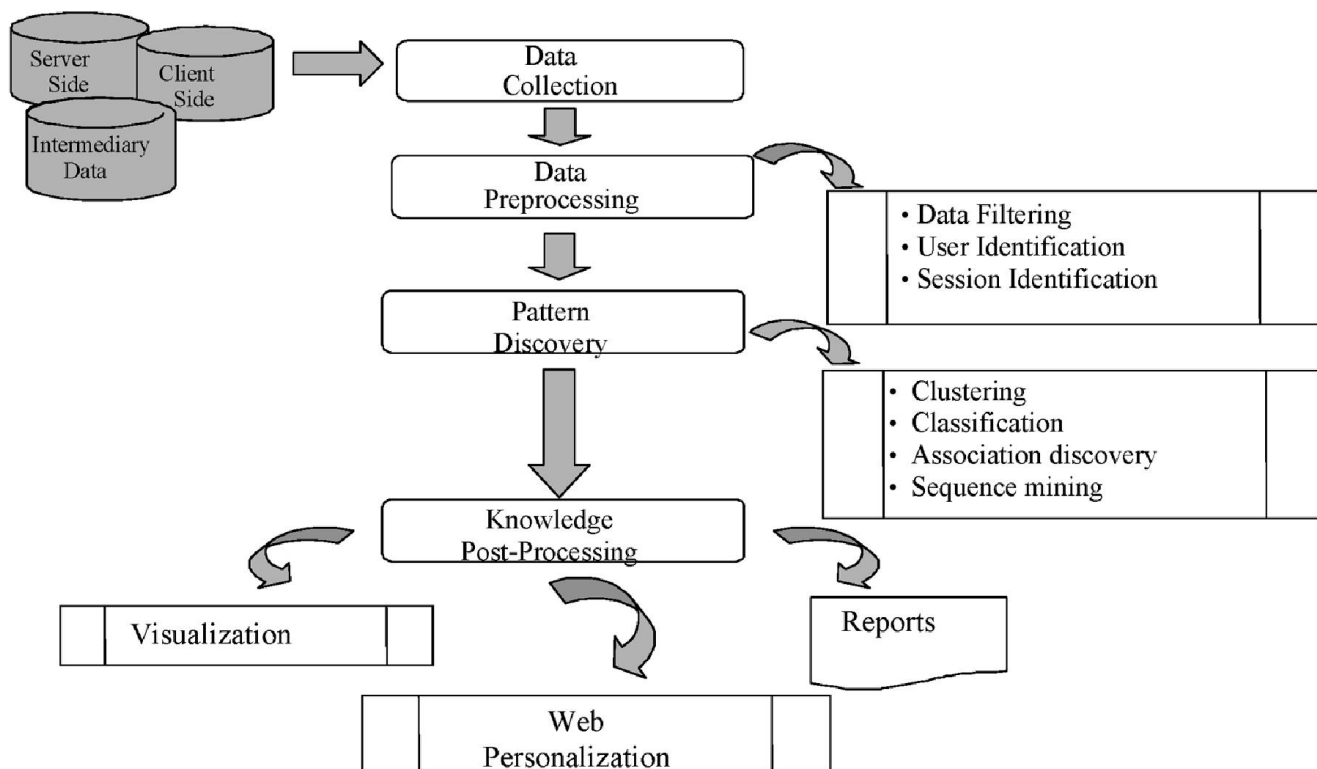


Fig. 2. Web usage mining process

### Approaches to web personalization

During the evolution of the web, personalization has been recognized as a remedy to the information overload problem and as a means of increasing visitor loyalty to a Web site. Considering the importances of web personalization for customize services following are the approaches in brief:

(a) Manual decision rule systems- In this approach the web contents are decided by the web designer after through study of user activities while accessing a particular website. Two examples from a wide range of products that adopt this

### Acknowledgment

We are thankful to those who contributed in the development of subject herein.

### Conclusion and future directions

Analysis of business goals, development of business requirements, use cases and metrics are required by personalization. If this is done properly using personalization

will not be a difficult task for organizations to increase their business throughput.

How to Win Online: Advanced Personalization in E-Commerce An Oracle White Paper March 2011  
Web Usage Mining and Personalization Bamshad Mobasher, DePaul University

## **REFERENCES**

A Near Real-Time Personalization for eCommerce Platform  
Amit Rustagi

\*\*\*\*\*