
Personalize your web site

Summary: *Would you like to give your customers a personalized feel on your site? Something that would be akin to the personalized service they can receive from a neighborhood store?*

Intelligent Databases: The facilitators of advanced personalized websites

How would you expect the storekeeper at your nearest store, where you are a frequent visitor, to offer you personalized service?

Well, he would know your favorite items and preferred brands, won't he? So, he organizes them to be in your easy reach. Perhaps he may himself suggest a new product, which was introduced recently, that falls within your interest area. Now this is not very imaginative isn't it? It required quite a few visits for you to get this personalized service. What about someone just like you who is coming to this store for the first time?

Websites that use cookies to offer personalized services to their visitors do the same thing. Cookies only help you identify a particular user and then you try to personalize your site for that visitor. Cookies do not give you any information about the behavior for e.g. what pages did the visitor visit before clicking this page and what pages did he visit after this page; what did he shop for etc.

To make it clearer, now consider your storekeeper friend. Based on his data about you, he can go a step further and watch your buying pattern. He also tries to understand all the youth in a similar age group and then tries to say that all youth in the age group 21- 29 who come to my store prefer these types of products. Their buying peaks in summer and therefore it make sense to run promotions targeting youth in summer.

One can broadly state that this is an example of collating all information about youth who visit a store and analyzing their behavior. This is exactly what intelligent databases permit you to do. Hit

counters and cookies give you data, which does not translate to information. If you want information on which you like to take some action then you will have to consider data warehousing, web housing and data mining. Let us now try to understand what these are.

Data Warehousing, Web Housing, Data Mining

Web warehousing is essential to analyze the click stream data and understand customer behavior. WEB housing is collecting data from log files. A very important thing to note here is that Web housing does not spy. It just takes the data in your Web Site Log files.

Now, 90% of web sites do not do anything with log files. Here we are saying that if you want your site to do better, you need to understand how users behave on your site and we are only analyzing the data in the log files. Log files have simple text info of all the incidents happening on your site, Example will be to get to a web site and take a log file. Like for example if you use IIS server on Windows; under system32 directory you will see a log file directory. If you open a log file it will typically give you the timestamp of a hit; the page accessed; the IP address of the request etc.

Data mining is mining through your data using sophisticated algorithms to find some pattern or seasonal predictability. Data warehousing is the analysis of your data in your RDBMS or DBMS. This is extremely useful for ad-hoc reporting, getting reports on the fly without user / MIS help.

Data warehousing and Data mining are related topics. With Data Warehousing, you take data, extract it, cleanse it and then put the data in a data mart / data warehouse so that it can now be analyzed. Data mining is to do with the ready data - analysis of this data, determining the patterns / seasonality / trends hidden in this data.

1. Introduction

One of the major problems that were pointed out at the advent of online stores was the lack of personal touch. An online store looked no match for the local storekeeper. He remembers your name, what you bought last time, your spending habits, etc. He makes you feel comfortable because of the knowledge he has and because of the way he communicates the knowledge.

Personalization of the website was the solution offered to make online stores more personal. Personalization goes beyond just saying, "Welcome back, John". The personalization should be

smart enough to collect data and present it in an intelligent fashion. Throwing back the information the visitor had given is not very smart. (Imagine giving a fake name of Moby Dick and presented with a message, "Welcome back, Moby Dick") Personalization should enrich the user experience and increase the loyalty.

There are two kind of personalization that can be offered on a website - overt and covert.

2. Overt personalization

Here, the site displays information that the user has given explicitly. One of the typical examples would be data collected during checkout. The user is typically required to give the following details

- ▶ Credit card details
- ▶ Billing address
- ▶ Shipping address

Now when the user returns, he wouldn't want to type these details again. He would like the web site to remember this.

Another good example of overt personalization is asking users their shopping preference. Would they like to view the hot deals always on the home page? Would they like to view top selling books on the book page? These would be some of the questions the user is asked to answer. Knowing answers to these questions could enhance the user's experience.

2.1 Internet Privacy

Discussion on overt personalization by default brings up the issue of privacy. Internet Privacy had always been a hot topic. Visitors are very sensitive to privacy issue. It helps to publish a thorough, accurate and clear privacy policy on the site. Making sure that all stakeholders approve this privacy policy is also a good practice.

2.2 Data collection

Asking the right questions is another part of overt personalization. It is important not to ask questions that could turn-off a user. One good rule of thumb is not to ask questions that are not useful.

3. Covert personalization

Covert personalization is accomplished by collating data about the visitors. This is not data given by user explicitly. This is more as a result of data mining.

3.1 Recommendation engine

You might have noticed "Customers who bought this book also bought" heading at www.amazon.com. This is covert personalization.

A recommendation engine has typically two parts

a. The data collection part

This part constantly digs the database to come up with patterns. A typical scenario would be

- Clustering customers based on their orders
- Clustering products (those who bought the pen also bought the ink)
- Collecting demographic information and trying to relate that to items purchased
- Items bought by long-term purchasers and short-term purchasers

b. Recommendation part

This is where you would set rules based on the data collected. Amazon for example gives users a combo offer tempting the customer to buy that one more item he wasn't planning to purchase. The intelligence comes from knowing that lot of people who bought book 1 had also bought book 2.

3.2 Anonymous profiling

It is a fact that most of the visitors to your site might never register with you. These anonymous visitors might never give you any explicit information. But nevertheless they are important and it pays to enrich their user experience.

One good example of this scenario would be asking an Indian visitor if he knew that it's possible to pay in Indian rupee. It is possible to know from the IP of the visitor which country he is from. There are companies offering services in this area. For example akamai (www.akamai.com) offers to help web sites to deliver customized content based on parameters like country, region, city, time zone, etc.

3.3 Click-stream analysis

Click-stream analysis is the process of collecting, analyzing and reporting data about the pages visitors visit. It is possible to know in which order the pages were visited, how long the visitors spent on each page, etc. All this data is usually stored in the web server logs. Alternately data could be captured by applications too.

The data can be analyzed and patterns can be extracted out of it.

A more sophisticated usage is Real-time click-stream analysis. This is helpful for covert personalization because the visitor could be served customized content based on his behavior on the site.

4. Summary

The visitor expects the web sites to start behaving intelligently. They expect the sites to adapt to their usage without threatening their privacy. Personalization is the solution.

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