Ads Recommendation Using Data Mining

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ABSTRACT
Every vendor wants to publicize their products. They do it by showing ads on various platforms like social media, television etc. These ads will sometimes be of use to customer or it won't be of any use to them. Sometimes unwanted ads may even annoy the customers. So in order to avoid such cases we develop a project that provides ads based on location, time and interest of the customer. The interest will be given by the user via social media and the location and system time will be calculated by the software. Therefore if a customer likes something in social media, that will be taken as interest and whenever user comes across such a location based on his interest, ads of such vendors or shops will be given. This will help both vendors to provide its ad and customers to get the ads it likes.

Keywords: User Interests, Location based, Recommendation, Data Mining, IP Address, Offers and Vendors.

1. INTRODUCTION

Data mining is a process that allows sorting of large data sets to identify patterns and establishing connections to solve a particular problem using data analysis. Data mining tools also allows the enterprises to predict their future trends.

In data mining, association rules can be created by analyzing the data that requires frequent use of if/then patterns, and using the confidence criteria one can locate the most important connections within the data. The other data mining parameters can include Classification, Clustering, Forecasting and Path Analysis.

Data mining techniques can also be used in many research areas including marketing, mathematics, cybernetics and genetics. While data mining techniques are meant to drive efficiency and predict the behavior, if correctly used, any business can set itself apart from other computational business through the proper use of predictive analysis. Data mining is primarily used by the companies which have a strong consumer focus like retail, financial, marketing organizations and communications.

In general, the benefits of data mining comes from the ability to uncover hidden patterns and relationships in data that can be used to make predictions that impact businesses.

Likewise, the development of data warehouse also uncovers the immediate way you are currently practicing: The requirement for an intense, easy-to-use and economic data warehouse created for the cloud to bank all your data in one-single point and use and analyze it later. Therefore, the modern data warehouse came as an effective data solution.

The proposed work is a web based application using location and interest of the user. First, we collect the interests of the users and store it in a file. The location and the ads of the vendors are provided to the admin by the vendors itself. The ads are verified based on certain criteria by the admin. The verified ads are added to the LIT software.

When the user reaches a certain location near to that of the vendor at a particular time, the ad will pop up on the screen. The user can now use the help of the LIT software and use the ad or can just ignore it. The decision is completely based on the user whether or not to use the ads.

2. RELATED WORK

In the recent years, wireless networks and mobile technologies have shown a rapid growth. This has led to opportunities for marketers and advertisers which include satisfaction of the customer, customer engagement etc. The main challenge for advertisers and marketers is to analyze huge amount of data emitted by mobile devices. And also provide customer engagement from the mobile data. Lei Deng et al. [1], addresses this challenge by introducing a framework that recommends ads by using big data analytics. The algorithm used here is clustering algorithm. GEO information integration with profile datasets is also been used. The framework proposed here provides a decision based approach to handle various cases associated in pushing ads towards the end users.

Ananthi Sheshasaayee and H. Jayamangala.[2], focuses mainly on a node in a network called the influential node or an information hub. This influential node has a large number of contacts in social networks. So, any recommendations of ads will reach a vast number of users. The technique used in order

to identify the information hub or influential node is beSt sPreadeR Identi_catioN using K-shelL graph structurE (SPRINKLE) approach. In future, more focus is given on popularity of the item relevant to the preferences, as they are considered as the main factor for recommendation of ads.

Social networking is not only seen as a means of entertainment, but also an active tool for marketing. Andy Bengal et al.[3], proposes a framework that empowers marketers and analysts by providing them with all the information related to tags that are deployed on websites in real time. In order to find any information about the behavior of a user of any webpages a "tag" is used. A tag is a small piece of code which will be embedded in the webpages in order to find any information related to the user of the webpage, for example, the visitor's browsing behavior. The method used here is real-time tag discovery and an analysis tool.

In business field, Internet has been used as a primary tool for advertising and marketing. Most of the advertising solutions these days use Behavior Targeting (BT) technology to provide services to the end users. Lei Deng and Jerry Gao. [4], proposes a system with the help of data mining algorithms and machine learning solutions. The main objective in this paper is to provide static services for advertisers. Services such as when, where what and how to place advertisements will be provided to the advertisers. This not only recommends the advertisements but also predicts trends. The system also uses NoSQL database technologies. This will allow advertisers to reduce cost and improve effectiveness. The algorithm used here is Synthesis Index Strategy (SIS) Algorithm. Ads will be recommended using location and current state of art technologies.

Nico Neumann. [5], discusses the development of advertising and marketing technology. The system is based on Automated buying processes and micro-targeting personalization. It also uses Location-based targeting combined with profile data.

Badrish Chandramouliet al.[6], presents a big data application for demand-side plat-form(DSP), for mobile display advertising. The algorithm used here is behavior targeting (BT) Algorithms with TiMR. In order to increase the efficiency of the campaigns through information collected based on visitors browsing data, by advertisers and marketers. Validate the approach by proposing a new end-to-end solution using temporal queries for BT.

3. ARCHITECTURE OF THE PROPOSED MODEL

An architecture model is concerned with a set of tradeoffs inherent in structure and design of a system.

The figure 1 shows the architecture of our system. The system is divided into two phases; train phase and test phase.

Initially, the file will contain all the user details like user interests. The Ads can be viewed by the user once their location is fetched by the LIT software.

The locations of the vendors are verified and also their Ads based on admin's strategies. The admin can discard or use the

given Ads. The verified Ads are added to the LIT software. The user when arriving at a certain location at a certain time, he can view the Ads based on his interests. The user can ignore or visit the store of the vendor.
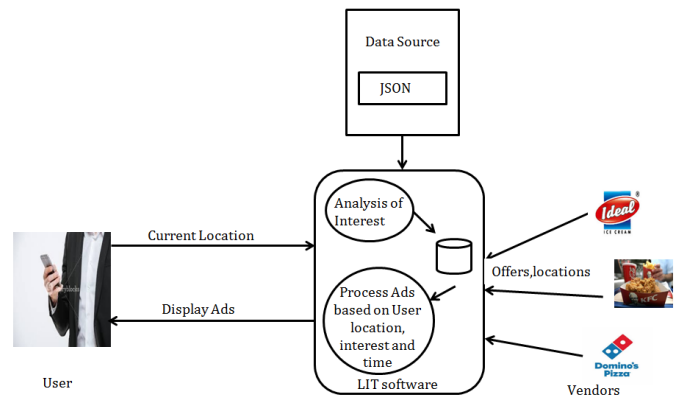

Figure 2: Architecture diagram for ads recommendation

4. IMPLEMENTATION

4.1 Front End

Front end is through which all end-users interact with the software. There are many styling languages because it is mainly concerned with the design. We have used JSP to design our front end. JSP is nothing but JavaServer Pages which is used to create web pages dynamically. It is similar toASP and PHP but here Java programming language is used.

4.2 Pseudo code

The pseudocode for Admin end is as follows:

1. **BEGIN**
2. **IF** admin login is successful
3. IMPORT JSON and CSV
4. **IF** successfully imported
5. EXTRACT keyword
6. UPDATE user interest table with user interest and weight
7. **ELSE** DISPLAY error message
8. ADD Vendors and provide login credentials to vendor
9. Admin LOGOUT
10. **ELSE** DISPLAY invalid credentials.
11. **END**

The pseudocode for Vendor end is as follows:

1. **BEGIN**
2. **IF** vendor login is successful
3. ADD offers,DELETE offers,UPDATE offers
4. Vendor LOGOUT
5. **ELSE** DISPLAY invalid credentials
6. **END**

The pseudocode for User end is as follows:

1. **BEGIN**
2. **IF** user registration is successful
3. ENABLE Location
4. LOGIN to view ads
5. **IF** login is successful
6. **IF** offer is available
7. DISPLAY OFFERS based on user location and interest
8. **ELSE**   DISPLAY no offer available
9. **ELSE**   DISPLAY invalid credentials
10. User LOGOUT
11. **END**

4.3 Back End

The back end is where the data is stored and is accessed by end-users from the front end. In our system, the software database is kept at back end and mySQL is used in order to access or manipulate data.

5. RESULTS AND ANALYSIS

The software has been used at various places in order to check the output which the software has to yield.

The performance which is measured in time here is compared with the size of dataset.

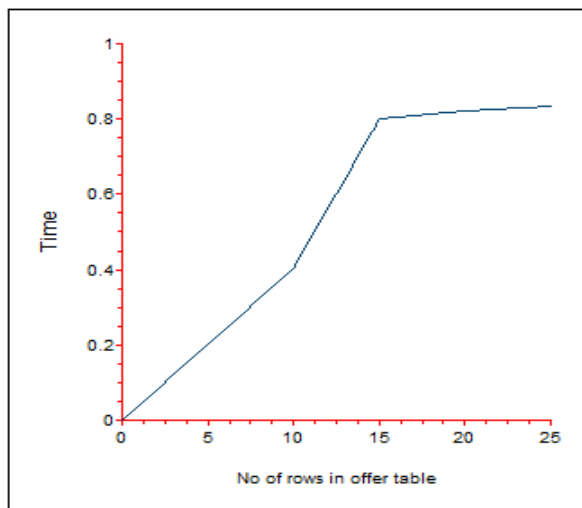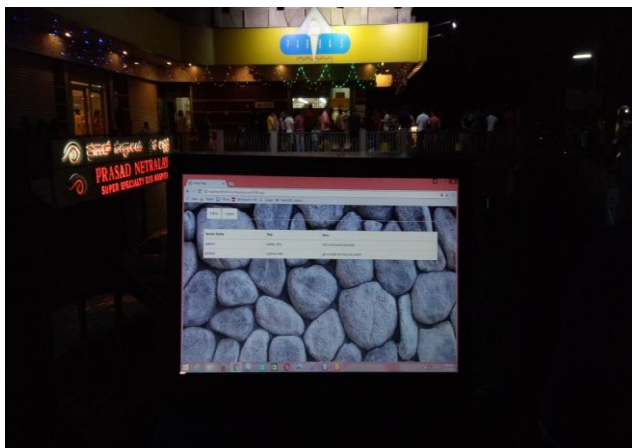A graph is obtained which is shown in figure 4.

Figure 1: Represents the place - 1

6. CONCLUSION

The proposed system recommends ads based on three factors i.e., Location of the user, Interest the user has shown in social media and until the time the offer is valid for. The system will provide details about the ongoing offers around him. The objective of the system is to avoid unwanted ads which one gets while he is nowhere concerned about it.

Figure 3: Represents place - 2

Figure 4. Graph: time vs dataset

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