

Keyword Conscious Provision Endorsement Method

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Abstract: - Service suggestion systems increase interaction with users to provide them with a richer experience. This is accomplished by providing the users with related suggestions based on their inputs. With this project, we propose a Keyword Conscious Provision Endorsement aims at presenting a personalized service suggestion list. It aims to act as an intermediate application and tries to bring in the dimension of service provider. Explicitly, the keywords provided are used to indicate users' preferences. The algorithm used here to generate appropriate suggestions is a user-based Collaborative Filtering algorithm. To address the analysis and processing problems in a Big Data environment, KCPE is implemented using the Map Reduce parallel processing framework. We have also attempted to incorporate certain other small features that produce significant value. Overall the KCPE has been implemented as an application that can be used both by users and service providers effectively and efficiently.

I. INTRODUCTION

The numbers of customers and services they require have grown swiftly. Also online information has become easily available and in large. The existing recommender systems for user act as a tool. They provide only the recommendations. The dimension of the service providers is not shown. Keyword Conscious Provision Endorsement Method acts as interface between user and vendor to access the application.

1.1. Keyword Conscious Provision Endorsement Method

The Keyword Conscious Provision Endorsement Method in this project describes about the hotel management between the user, vendor and administrator in the system. This method acts as an interface between user and vendor [1]. User and vendors are provided with separate registration system. User can register and search for hotel based on keywords [2]. Vendor can register their hotel details in the system, and can provide information to the user based on the keyword search.

This keyword search method can be done as follows. The user and the vendor enter details through the application which is then sent to the application server. The details provided are then stored in the corresponding databases. The databases used are both relational and NoSQL in order to facilitate the storage of big data [3]. The suggestion processor retrieves the data as and when required. It then performs computations on it in order to provide the suggestions [2]. The computation involves a set of processes implementing the collaborative filtering algorithm. After the computations the suggestions are sent

to the user and vendor accordingly [1]. The database and the suggestion processor entities are managed and supervised by the admin.

1.2. Features of the system

KCPE is implemented in such a way that it is easy for both users and vendors to access the application and be fed with information that required by both. The users are provided with the suggestions on entering the input of keywords and their importance [4]. The vendors can maintain their own details at ease with the option of updating if ever required. They are also provided with the information about the competing hotels which helps the vendors stay in the industry with all details.

This project also aims to bring in the facet of the actual hotel information providers viz. the vendors to the public forum [3]. KCPE allows vendors to maintain their own personalized accounts which allow them to enter details of their hotel. Also the vendor can also update the details of their hotel in the database in case any change is made actually.

Another significant feature the KCPE provides is the competitors' information. This option is exclusively available only to the vendors in order to enable them to keep track of the hotels that prove as competition to their own [1]. This feature is enabled by displaying the details about the hotels which have almost the same rating in almost all aspects according to the user. This information is displayed on the vendor's login page.

The embarrassing recommendation scenario which arises in the existing system when the first user logs in is overcome here [6]. The admin provides the default ratings for all the hotels in the database after a verification and validation process which is highly beneficial for the first user who looks for recommendation. After the process the users can provide the reviews and ratings which is in turn utilized for other users.

II. KEYWORD ALERT SERVICE SUGGESTION SYSTEM

The KCPE provides the hotel management service between the user, vendor and administrator in the system. Recommender Systems are valuable software tools and techniques providing recommendations or suggestions for items which are of use to a user [5]. Basically the provided suggestions are aimed at helping their users to take various smarter decisions, such as what music to listen, what items to buy or what news to read.

The KCPE system describes about hotel management system in which, vendor provides information about the hotel in the database. User can search for hotels based upon the keyword. If the algorithm found best matching query value from database, that will be shown as output [7]. Vendor can able to update the features of different hotel such as availability of rooms, air conditioner, swimming pool, gym etc in the database. User can filter those search results based upon the keyword search.

To implement this concept, three algorithms are considered in the approach. Content-based approaches recommend services similar to those the user preferred in the past i.e., utilize a series of discrete characteristics of an item in order to recommend additional items with similar properties. Collaborative filtering approaches recommend services to the user that users with similar tastes preferred in the past, then use that model to predict items (or ratings for items) that the user may have an interest in. Collaborative Filtering algorithm [2] is a classic personalized recommendation algorithm, which is widely used in many commercial recommender systems. In item-based systems, the predicted rating depends on the ratings of other similar items by the same user. While in user-based systems [4], the prediction of the rating of an item for a user depends upon the ratings of the same item rated by similar users. Hybrid approaches combine content-based and collaborative filtering approaches.

III. PROBLEMS TO BE SOLVED

In the modern world, the user specific recommendations will be needed in all the areas of computer era. The KCPE algorithm will be used to generate the user specific service recommendations. Large amount of data can be stored in database to store information about the user, vendor and administrator. User can receive more suggestions, ratings and reviews among the other system. The data will be present on previous user preferences as well as current user specific preferences. So the user can have more suggestions. Scalability and efficiency can be improved by reviewing the necessary suggestions. This enables the user to learn the concepts clearly and suggestions will be provided to the user and finally the history will be maintained.

IV. METHODOLOGY

Service recommender systems are valuable tools for providing appropriate recommendations to users based on their likes and preferences. The existing system proposes a Keyword Conscious Provision Endorsement Service method, named KCPE acts as a tool which is used for providing recommendations to the user based on their preferences. This tool doesn't have and provide a dimension of service provider or the vendor who runs the hotel. The existing KCPE system concentrates mainly on providing the suggestions to the user, and not on obtaining the information

from the hotel-running vendors and publishing the information. : Sometimes due to poor rating, the user may be misguided to a hotel which does not match the preferences of the user at all even to a small extent [8]. The existing system provides a confusing scenario. The recommendations for any user are provided based on the reviews and ratings of the previous user. When the first user signs up for the application, providing the recommendation becomes a difficult job.

So, to improve the efficiency, we are going for Keyword Conscious Provision Endorsement (KCPE) which can able to overcome the entire above mentioned problem.

4.1 KCPE system

The Keyword Conscious Provision Endorsement process aims to achieve a balance between user and the service provider [7]. The system mainly strives to juggle the information between the user and the vendor by storing, retrieving and computing on the data whenever and wherever required. The proposed KCPE system is implemented as a web application on the java platform using both relational and NoSQL databases[6].

KASS allows users and service providers (or the vendors) to access the application by creating their own accounts. This account creating process is authenticated and validated by the admin. The basic structure of the KCPE is as follows – whatever information or suggestion is requested by the user is already stored in the database which was provided by the vendor [5]. So it is just the matter of performing the computation on the data extracted from the vendor's database and providing the resulting suggestions to the user.

The entire process is supervised by a factor called admin who keeps a tab on the number of users, vendors who keep an account in the application. Also the admin has the job of verifying if the details provided by the vendor about the hotel is true. So, one of the tasks of the admin is to verify the details provided by the vendor [7].

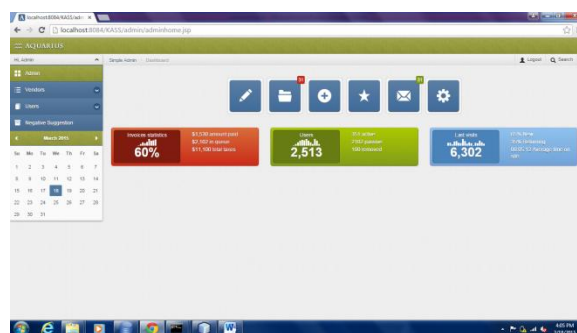


Figure 4.1.1 Basic home page

The recommendations are provided by using the User-based collaborative filtering algorithm. Collaborative filtering approaches recommend services to the user that users with similar tastes preferred in the past [7]. In user-based systems, the prediction of the rating of an item for a

user depends upon the ratings of the same item rated by similar users.

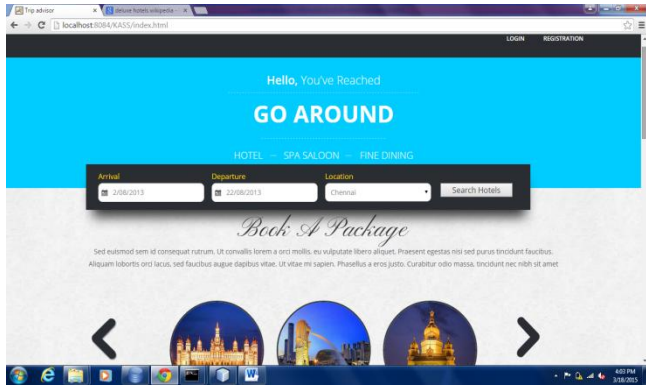


Figure 4.1.2 Keyword search

Thus we propose a web application which acts as an intermediate for both users and vendors and is also efficient enough with multiple authentications, validations. This system also proposes the use of user-based collaborative filtering algorithm[5] to provide apt suggestions for the users and implements the entire concept using Map Reduce in order to overcome the problem of Big Data analytics.

4.2. Database Maintenance

This process allows the user/vendor to create an account in the application in order to use the resources of this application. The account creation/registration process involves user/vendor providing their personal details like Name, Username, Mobile number, Email. The details are then stored in the client database. This process is implicit with the authentication.

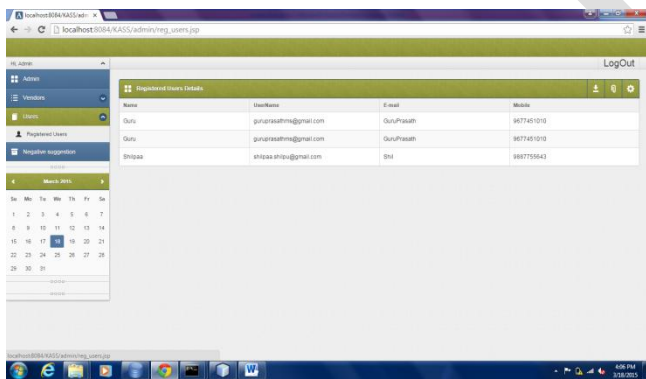


Figure 4.2.1 Database storage

Vendor will enter the details of their hotel along with all the features. The features may include the likes of conference hall, Wi-Fi, swimming pool, fine dining facility, air conditioning and so on [3]. After entering the details they can also view the details about the other currently trending hotels that are in the same league as theirs. This feature we feel helps the vendor stay updated about the trends in the hotel industry.

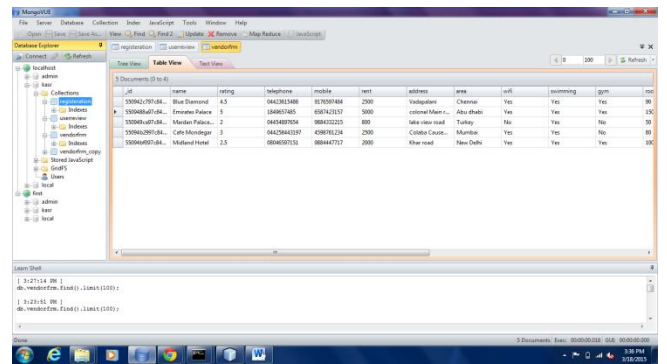


Figure 4.2.2 Keyword selection from database

Apart from registration and hotel booking, the user can give the rating of any hotel he/she has visited. The user can then also provide any review, description for the hotel. These details provided by the users are stored in the main server database. Uploading photo option is also provided [4]. This feature provides a visual description when it is retrieved for other users when requested by them. The ratings and the reviews that are provided by each user is stored in the database [2]. These details are computed upon using the collaborative filtering algorithm, matched according to the preferences and then provided as suggestions to other users when requested.

Admin manages and keep track of the details of the users, vendors, hotels and so on. Administrator's task maybe approval of pending requests from the vendors, the requests approves already, the hotels that need to be verified, verification process finished hotels [6].

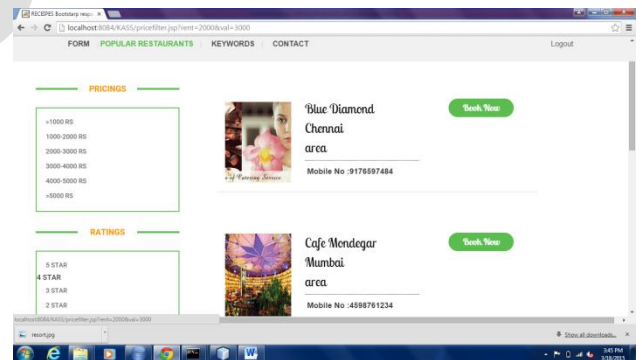


Figure 4.2.3 Keyword search retrieval

Important statistics are also displayed on the admin database like the count of the registered users, the number of visitors, works to be done by the admin and so on[3]. The admin is the supreme manager of this application and keeps tabs on the normal functioning of this application.

4.3. Keyword search & Optimization

The main concepts of collaborative-filtering algorithm & MapReduce approach implemented at this phase. Once the user presses the suggest button in the user page, the first information collected is the keywords that are

requested and selected by the user [6]. The algorithmic implementation are as follows. The first process is to Capture the user-preferences through keywords. Then the review of previous user are considered for keyword search [4]. Based on the keyword provided by the user, the previous user rating and collaborative filtering algorithm, best suggestion will be provided by the system.

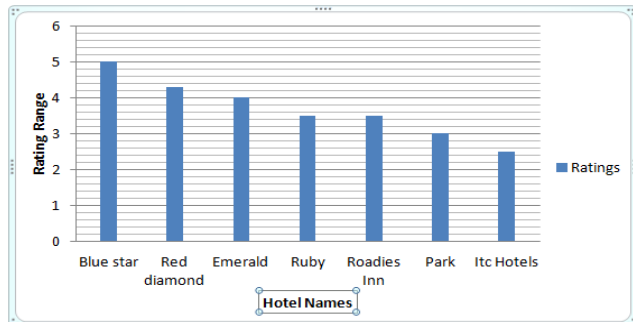


Figure 4.3.1 Rating graph representation

To enable the usage of this algorithm for even big data, the concept of MapReduce is used [7]. The process of MapReduce involves the concept of parallel processing framework. This involves splitting the database into a large number of smaller databases in order to increase the efficiency while retrieving the requested information for suggestions. The results are then directed to the user page [7].

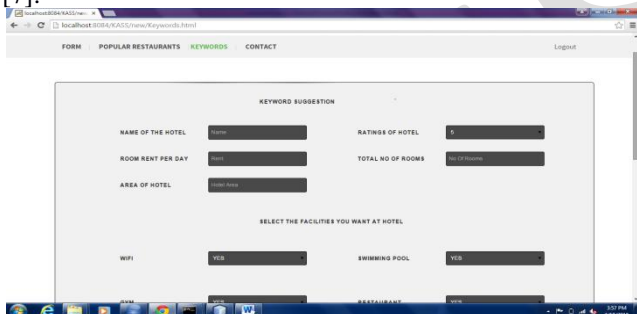


Figure 4.3.2 Keyword Suggestion

Finally KCPE system provides the best keyword search approach to optimize the hotel management system.

V. CONCLUSION & FUTURE WORK

In this paper, we have proposed a keyword-aware service recommendation method, named KCPE. In KCPE, key- words are used to indicate users’ preferences, to generate appropriate recommendations . The active user gives his/her preferences by selecting the keywords and the preferences of the previous users can be extracted from their reviews for services according to the ratings and reviews of previous user . Our method aims at presenting a personalized service recommendation list and recommending the most appropriate service(s) to the users.

Moreover, to improve the scalability and efficiency of KCPE, we have maintained the data in MongoDB in Big Data environment .So that we can easily store large amount of data and user can have numerous suggestions to select his preferable one Finally, the experimental results demonstrate that KCPE significantly improves the accuracy and scalability of ser- vice recommender systems over existing approaches . In our future work, we will do further research in how to deal with the case where term appears in different categories of a domain thesaurus from context and how to distinguish the positive and negative preferences of the users from their reviews to make the predictions more accurate.

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