

RECOMMENDATION WITH DATA MINING ALGORITHMS FOR E-COMMERCE AND M-COMMERCE APPLICATIONS

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Abstract

Recommendation is widely used technique to guide user to choose the right product online as it becomes the essential feature for the successful E-commerce or M-commerce application, as information grows exponentially over the time on the internet the accurate recommendation with less processing time is the greater challenge, several approach is proposed about recommendation like collaborative filtering and others, but is causes the scalability and processing problem as information grows, the proposed system is simple user rating based simple product analysis and gives better recommendation about any product using some data mining approach like classification, clustering, association and other Technique. The Java EE based web application as Java Server Pages (JSP) is user as View to accept the parameter from user, the database maintains with Hibernate Technology as a Model and application support Model View Design Pattern, also data mining analysis done using WEKA Data Mining tool and based on the user parameter like product name, brand, price range and specific features or specifications the system will all sort of analysis using exiting user rating, feedback and other processing the final result will be generated as recommendation product. The Mobile based user interface is also given like Java Based Mobile Application using J2ME and Android User Interface using Android API.

Keywords:-E-commerce, M-commerce, Java EE, Java Server

1. INTRODUCTION

The modern E-commerce system widely used good Recommendation system which will not only guide user to choose correct product at correct time but also it helps attracting the customer to do business online effectively, Recommendation system saves time and give new different experience to the user, the various approaches of recommendation system in both E-commerce and M-Commerce is studied and based on that the analysis is done, the proposed system uses simple user rating mechanism using past data, and feedback of the user which is currently using the product and their rating and feedback is considered to recommend the product to the new user who like to purchase the product based on the mating parameters, the brand new product will not falls in this category however for the brand new product overall

brand value and feedback is considered. The proposed system uses simple traditional approach to recommend any product. User will provide some parameter like Product Name, Product Brand, Product Features, Specification and Price Range he or she looking for based on the given user parameter the system will analyze the user request and done all the processing to give accurate recommendation product, the analysis mechanism uses past user rating by existing customers their brand value and customer feedback will be analyze before recommendation of the product, currently no proper recommendation is loyal which provide up to date information to the user about the currently purchase the product. The system uses Model View Controller Based Web application development architecture for the overall development of the application development, and the different view like web user interface and mobile user interface will be provided to the user to perform user operation in the simplest manner, The Java EE based development on the server with JSP as View and Hibernate as a Model with MySql Database, also system uses simple small devise interface to the java enable phone as jar file as deliverable and android based apk file as deliverable.

2. RECOMMENDATION

Recommender Systems referred as (RSs) are nothing bunt software tools and techniques providing suggestion for item to be use for user[1,2,3,4] it also helps in decision making for the user to make decision related to e-commerce. The main goal of the Recommender system to generate recommendation results for users based on user parameters and needs for example Amazon, Netflix designed such a successful Recommender systems in the past The various ways like Collaborative Filtering system or Content Based Filtering may be considered for the better results[5]. Recommender in e-commerce systems have become business relevant in filtering as information available in internet to present useful product recommendations to the user. Recommender systems are one of the most interesting and important technologies in E-commerce or M-Commerce to help users to filter out the

huge information from the internet many technique and algorithms are proposes, traditional algorithms like collaborative filtering algorithms having serious issues with scalability and sparseness in order to address this issue new alternative technique and algorithms need to be considered [6] The recommendation referred as static most of times as their need dynamic updates, new products are introduced in the market very quickly whereas old ones vanish over the period of time. Hence, the products offered in a web application change, and the recommendations have to base on the currently offered range of goods this is totally different problem altogether. However, as discuss conventional collaborative filtering suffers from sparse data problem and the lack of scalability. Therefore, new algorithms based recommender system technologies are needed to address the sparse data problem and quickly produce high quality recommendations especially in large scale mobile environment as M-commerce applications. As the amount of information in e-commerce and mobile commerce grows explosively filtering irrelevant information is also a challenge to find useful contents and reliable sources. Recommender system has become a classic tool that interlinks users with information content and sources. Collaborative filtering (CF) is such a personalized recommendation technique that has been very promising both in research and industry.

3. RECOMMENDATION E-COMMERCE

Recommender system is an integral part of E-commerce system many portal, big E-commerce application already using it for various purpose the Amazon is using recommender system to attract customer. A recommender system learns from a customer and recommends that he or she find most appropriate and valuable as compare of different range of the product with same category or price range, we can analyze how recommender system helps E-commerce process to increase sales we arrange several sites. As we analyze different sites with recommendation the major factor attracting is information overload on the internet day by day as information growing exponentially the recommender system getting tougher day by day as it read to analyze huge dataset amongst the data. The main challenge is addressed in the proposed system as the amount of information grow the data is shifted to cloud the analyzed already done based on the query recommender system fetch data from cloud or it directly fetch analytical result from the cloud. Different solution proposed by different people amongst that information source for recommendation system is called prior rating which is based on users experience of virtual product in a mediated different environment which can be submitted to the user prior to the purchase some company used to give product prior to the purchase customer to test and experience and after same time user may take decision whether to buy a product or not but this system navigate lots of issue and problem and not suited in general environment , here in the proposal paper author like to

create different virtual environment so that user can get prior experience about the product and based on the experience the rating may be given and termed as prior rating mechanism.[7] Website like brides.com and rayban.com are implemented interfaces through which user are allowed to virtually try on different wedding dresses and glasses to better suits your product but the problem here is available media and interactions are very limited in comparison with virtual reality for example secondlife.com which gives totally different approach to the user in terms of virtual reality is concern [8]. The main objective of the good recommended system to generate meaning recommendation from user parameters, suggestion for books, movie ticket, electronic appliance, product are some of the common examples in day to day life, some of the technique used for recommendation is collaborative filtering which analyse historical data, while Content Based Filtering based on profile attribute, the hybrid approach is sometime appropriate to obtain better result [6]. In the resent past recommender expanded rapidly in the field of e-commerce, more and more algorithms with accuracy is proposed by many researcher, the classical algorithm user collaborative filtering algorithm in practice performed slowly, to overcome this item to item collaborative algorithm filtering is proposed it build correlation between pair and item, the wide range of user experience cantered research for recommendation includes The user recommendation lifecycle, this includes recommender system to compare or to adapt to different needs of new users vs. experienced users, and how they can balance short term with long term value , also risk of recommenders, including risk of privacy and challenge of presenting manipulation and shilling, the key here is to give users more control over recommendation, to increase the transparency in the overall system[9] .

4. ROLE OF DATA MINING IN E-COMMERCE AND RECOMMENDATION

Data mining is simply a process of extracting meaningful information and pattern from medium to large dataset, the most important analysis stage of the data is data mining stage. The data mining can play very important role in E-commerce as well as M-commerce applications. There is a close relation between Data mining and Recommendation in E-commerce, Data mining helps in Recommender system to predict the correct result of Recommendation and contributes in the overall E-commerce process. Data mining usually carry out with data warehouse, a large collection of the dataset, the various approaches of data mining includes Classification, Clustering, Association, Graphical and Web Mining, the proposed paper shown the required data mining algorithms useful for E-commerce data analysis and perform better Recommendations systems. The text analysis is also can be done under the process of data mining, User most of the time give rating and comments in textual form rather than a numerical form, for example user feedback about the product cannot

be taken in Numeric form, in this situations the text mining is useful process.

5. PROPOSED SYSTEM

The proposed system of recommendation is based on user rating mechanism to perform the recommendation from the past experience and feedback of the user, however the mechanism is strengthen to provide the simple user interface to provide rating input by the user from mobile as well as web application based on his or her mobile number. The User can simply perform user rating and feedback comment from his small devise and system can use this data from further analysis in the recommendation system

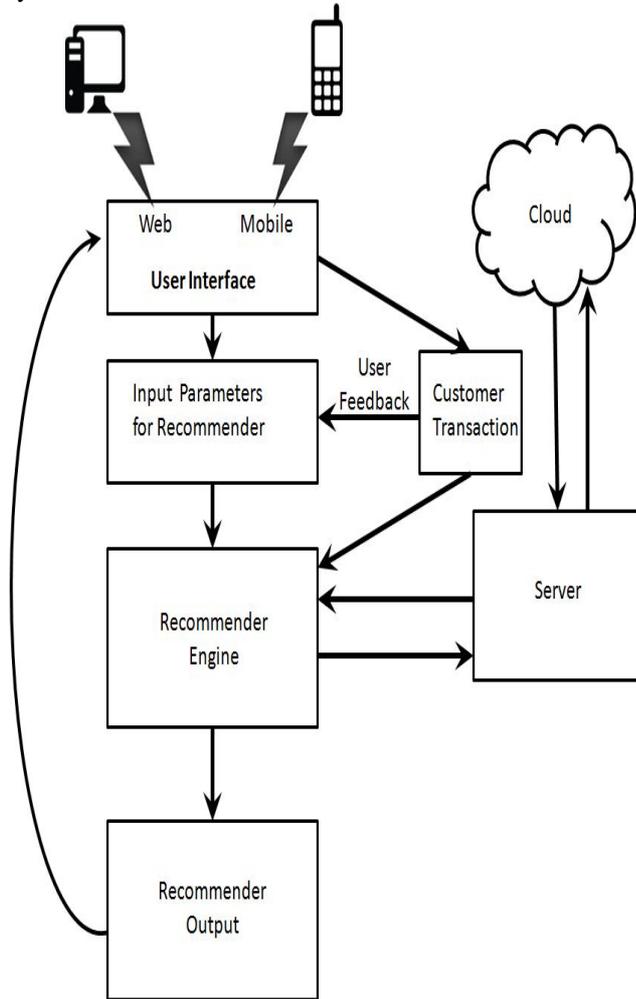


Fig.1 Proposed Architecture

Figure shows the simple block diagram of the recommender system, the system use user rating and other analysis factor and based on that some mathematical analysis will be done at server side that majorly includes higher rating, lower price, good feedback and less value for maintenance and service. All this factors will be evaluated and finally accurate product will be suggested to the customer, the system provide best possible result to the user before e-commerce transaction it is common that user like to compare different product with proper analysis with limited period of time, the proposed system is exactly shown that result in this way.

Output Screens

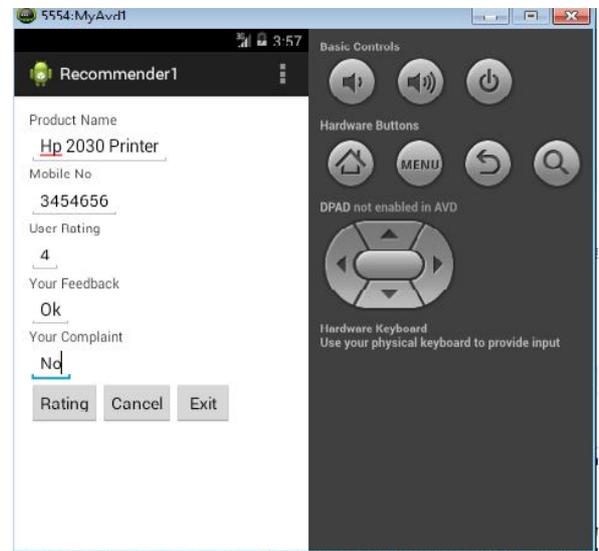
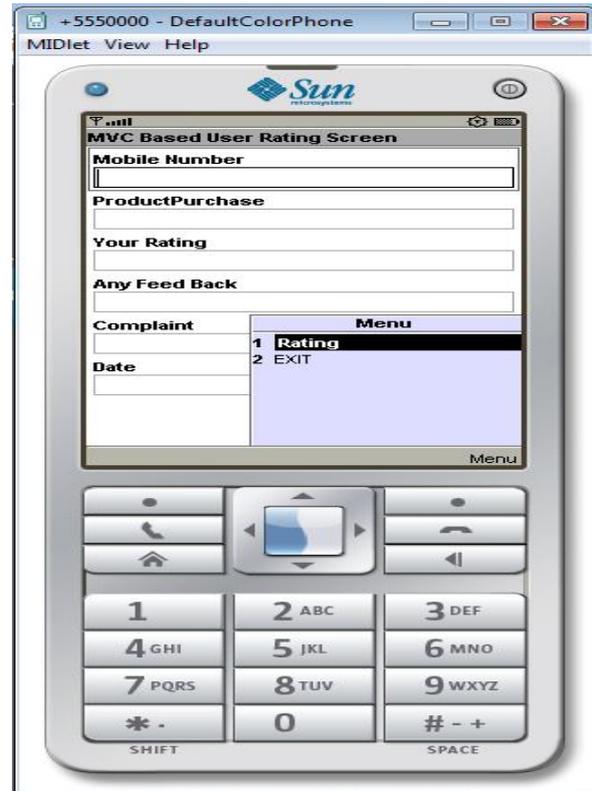


Fig2 Output Screen for Java Based and Android Mobiles
The Fig 2 shows the output screens of mobile applications in both the format i.e. the J2ME jar application format and Android based apk format, the output screens shown in J2ME Emulator and Android Virtual Device simulators. User can perform simple operations using their small devices from anytime, anywhere and do the E-commerce effectively with the enhancement as M-Commerce. The data stored on cloud through Server and provides data analysis accurate for Recommendation process.

6. CONCLUSION

The Result shows using Data Mining techniques the Recommendation system provides better and accurate result by using proper data mining algorithm we can enhance the Recommendation process and it can also solve the issues related to Recommendations.

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