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A SURVEY ON RECOMMENDATION SYSTEM USING SOCIAL NETWORK KNOWLEDGE BASE

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***Abstract*—The recommendation system is the popular approach among all e-commerce websites such as Flipkart, eBay, infibeam, amazon etc. It is the widely used approach to recommend items to users. The recommendation system uses various techniques such as content based filtering, Collaborative filtering, Hybrid filtering. In this paper we describe the techniques and algorithms used for developing the efficient and optimized recommendation system. The research has shown that friends have a tendency to choose the same items and give similar ratings. We can generate the efficient and improved quality of recommendations by using information from social media, Analytical Hierarchy Process, Inversion count algorithms.**

Keywords— ***Analytical Hierarchy Process, Merge-and-Sort algorithm, Sort-and-Count algorithm, social networks, recommendation system, e-commerce websites***

Abbreviations and Acronyms used-
AHP - Analytical Hierarchy Process, FB – Facebook, P.V – Potential Value, N – Used for top N (Integer constant) number of nodes out of all friends nodes (in phase II), $\hat{w}$ - Row average matrix, A = comparison matrix (in phase II)

I. INTRODUCTION

Recommendation system is nothing but filtering information that may predict a rating or a review that the user may give to items (e.g. books, movies, music, images etc.) or a social element (e.g. people, events or groups). Recently there has been a lot of rise in social networking sites and web applications as there are many active users using these sites. Users may store their personal data which creates a large depository of such personal information on the web. These depositories are nothing but what we call as Big Data or huge chunks of data.

As such a data is stored in web it is very difficult for the website to suggest a best product to the user. Many approaches have been developed during the past years but recommendation system will still need new and better approaches and techniques thus becoming a renowned research area. In order to overcome the difficulties in processing the huge amount of data a tool is used for recommending users based on their social networking sites which displays their personal information and history based on purchase of products by user and his friends on a particular e-commerce website.

E-commerce websites widely use recommendation systems where customer's interests are taken as inputs to produce a list of recommended products or items. Generally the recommendation system focuses on the set of data which contains items purchased by the user on a particular website. Now as the recommendation system is improving day by day the recommendations are also based on user's interests on the social networking site. Next it includes processing them and linking user's recommendation to the data from any social networking websites.

The e-commerce recommendation system works in many challenging areas. The first challenge was the process of optimizing huge amount of data which is followed by getting recommendation in real time that is not more than half a second which also produces high quality recommendation of products. It also generates few recommendations for those users who are new to the social networking websites since they have limited information. It is providing older users with abundant amount of recommendation based on their purchase history and field of interests.

II. EXISTING SYSTEMS

The paper [2] states that due to plenty of artifacts in software development projects, recommendations systems have become renowned that assist developers in finding reusable and similar contents. However, our analysis indicates that recent systems have a lot of limitations like their non-exigible architecture

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and the negligence of implicit context information. We have identified the following research areas:

- Recommendations to seize experiences and share information.
- Semantic analysis and descriptive working context.
- Automatic contextual awareness and triggering of recommendations.

In paper states that user based collaborative filtering algorithm has been implemented as well as evaluated. The rank or quality of the predictions is sorted with similar algorithms. It exhibits a behavior that is similar to the best of algorithms.

III. EXISTING SYSTEMS FOR MEMORY-BASED COLLABORATIVE FILTERING

Collaborative Filtering is the process of information filtering using techniques involving collaboration among many different agents, their viewpoints and data sources. These methods are based on collecting and analyzing information which in return gives good quality recommendations. It just utilizes the user-item database to get list of recommendations. This approach building a model from user's behavior as well as similar decisions made by other users and this model is then used to predict items that the user may have interest in. It compares the collected data to similar and dissimilar data which is already collected from others and calculates to generate a list of recommended products for the user. Most famous example of this filtering is item-to-item Collaborative filtering.

This system generates recommendations using the information only about rating profiles for different users. Collaborative systems locate the users of same quality with a preference history equivalent to the current user and generate recommendations using this neighborhood. Applications typically involve very large data sets.

IV. EXISTING SYSTEMS FOR CONTENT-BASED FILTERING

Content-Based filtering is also an important class of recommendation system. It recommends the items based on a comparison between the content of items and a user profile. It analyzes the content of textual information and makes recommendations finding regularities in the content. These systems rely on features of users and items for predictions. This approach utilizes a list of different characteristics of a product simply to recommend more additional items with similar properties. The recommendations system generates suggestions from two sources: the features related with products and the ratings that a user has given them.

V. EXISTING SYSTEMS FOR HYBRID RECOMMENDER SYSTEM

The term Hybrid is used here to describe any recommendation system that combines multiple different recommendation techniques together to generate its outcome. In this Hybrid technique, we combine collaborative filtering with content-based filtering to improve prediction and recommendation performance. Approach of this system is to make predictions on the basis of weighted average of the collaborative and content based recommendation. To overcome the some of the common problems (which occurs because of their strength and weaknesses) of collaborative and content-based these system is used. This system provides more accurate recommendations than pure approaches.

VI. PROPOSED WORK

We have extracted the user and his friend's Social Network data (Facebook data) and also the purchase or rating history of each user from e-commerce website. Our recommendation tool will be functional on an e-commerce website so purchase history of users will be available. Our work is to collect the information from the Social Networking site (Facebook) and then perform AHP on the collected data and finds the set of closest highly prioritized friends to the user based on certain parameters. After that from filtered set of friends we select top prioritized friends and on this set we apply Inversion Method technique is followed by Memory based collaborative filtering for High-Quality recommendations in real time.

In our proposed approach we have used AHP(Analytical Hierarchy Process) followed by inversion count and memory based collaborative filtering algorithm for finding best recommendation. AHP is used to assist many corporate and government decision makers.Problems is decomposed into a hierarchy of criteria and alternatives. By using this approach most prioritized friends are identified and they are given rankings accordingly. The detailed algorithms are omitted due to paucity of space.

After finding best alternatives from the AHP inversion count is applied on it to get the unwanted products eliminated from the list. It gives the measure of agreement and disagreement between friends. Proper algorithms are used for finding the agreement and disagreement between user and his friends. This is termed in terms of inversions. After finding number of inversions memory based collaborative filtering is applied on it and optimized recommendations are obtained. Figure 1 represents the overview of AHP:

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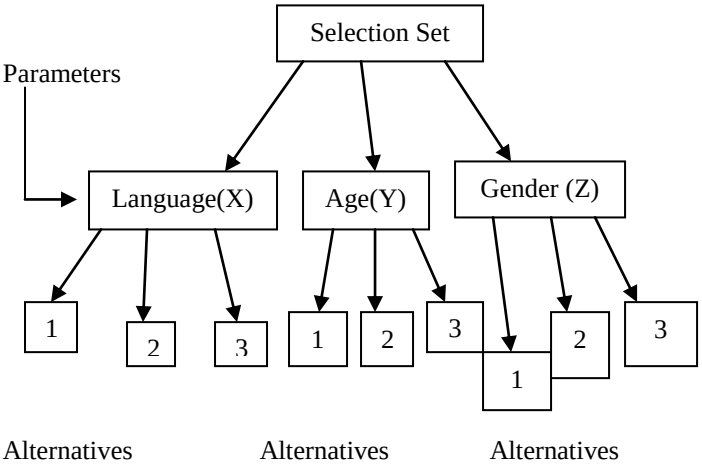

Figure 1. Overview of AHP

VII. CONCLUSION

From this survey, it can be stated that, while there are many systems for stress detection, very few systems particularly emphasize on stress prediction. There are also a few systems exploring both stress detection and prediction. Also, the systems above work on word analysis, rather than content analysis. Accuracy measures and parameters for systems are rather undisclosed in most papers for copyright reasons. The sentiment polarities explored are clichéd, conventional and inadequate. Still, the ongoing work presents a great hope for human sentiment analysis and prediction.

VIII. FUTURE WORK

For future work we focused on decreasing time complexity of Inversion Count from O (nlogn) to O (n √log n) which increases the speed of execution considerably. Also, as the information of user keeps on changing on Facebook after a period of time thus our code retrieved is dynamic so as to keep up with the updates. Our future work also includes data retrieval of friends of friends which makes the proposed recommendation system more robust and efficient.

IX. REFERENCE

[1] Maddali Surendra Prasad Babu and Boddu Raja Sarath Kumar, "An Implementation of the User-based Collaborative Filtering Algorithm" (IJCSIT) International Journal of Computer Science and Information Technologies, Vol. 2 (3) , 2011, 1283-1286
[2] Hans-Jörg Happel and Walid Maalej , "Potentials and Challenges of Recommendation Systems for Software Development" ACM November 10, Atlanta, Georgia, USA
[3] Mukta Kohar, Chhavi Rana, "Survey Paper on Recommendation System", (IJCSIT) International Journal of Computer Science and Information Technologies, Vol. 3 (2) , 2012,3460-3462.
[4] http://en.wikipedia.org/wiki/Recommender_system.
[5] Lalita Sharma, Anju Gera ,"A Survey of Recommendation System: Research Challenges", International Journal of Engineering Trends and Technology (IJETT) Volume4Issue5- May 2013,1989-1992
[6] Gediminas Adomavicius, Alexander Tuzhilin,"Toward the Next Generation of Recommender Systems:A Survey of the State-of-the-Art and Possible Extensions",IEEETKDE: IEEE Transactions on Knowledge and Data Engineering, 17, 2005.
[7] Md Zeeshan, Dheeraj Kumar Chouwdhary, Rohan Lal Das, Prasun Ghosal,"An Efficient and Optimized Recommendation System Using Social Network Knowledge Base", 2014.
[8] Developing Facebook Application, Available: http://developers.facebook.com/

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