

Recommendation of online Products Using Microblogging Information in social media

K. Srinivas, V Shivanarayana Reddy, B Ramya



Abstract: (Please read carefully abstract of the template). With the usage of social network like Facebook or Twitter sign-in's as e-commerce sign-in where user are enabled to post on micro blogs linking to the e-commerce webpages, this mechanism has weakened the restrictions between e-commerce and social networking. A process of referring products to users of social networking by E-commerce sites in Cold-Start situations which is very rare is proposed where the question for knowledge isolation becomes the issue. This problem can be overcome by linking social networking and E-commerce pages as a bridge using features signs and information from neural networks adopting an improved ascent helping Tree method to move social networking users as user embedding's. This can be done by employing a matrix factorization and trial done on Chinese micro-blogging service SINA WEIBO and Chinese B2C E-commerce website JINGDONG show that the proposed method is efficient.

Index Terms: E-commerce, Social media, OSN, SINA WEIBO, ColdE, CBOW.

I. INTRODUCTION

The abridgment of information which can be used in growth of revenue, cost-cutting is called as Data Mining or Knowledge Discovery where information is collecting by using various viewpoints, angles and sort as per the relationships [1-3]. Theoretically it is a process of discovering associations or arrangements in the various fields of relation databases available based on the below 4 relations.

Classes: The data already available can be used to improve the circulation by using special deals. For an instance a restaurant can improve the customer count by knowing what is ordered frequently or most is like mostly.

Clusters: Assembling data base on the logical relations or the consumer inclinations.

Associations: To know about the connotations data mining can be used, the best example is beer-diaper.

Sequential patterns: To forestall the behavior of designs and trends [4], data mining is used. For instance the outdoor kits retailer knows the backpack sold to consumers as sleeping bags and hiking shoes.

The important elements of Data Mining are five:

1) Abstracting and transforming the data into data warehouse

system.

2) In Multidimensional database system, data can be accumulate and accomplish

3) Offer access of database systems to business analyst and data professionals

4) Software using for Study the data

5) Finally, to put data in a handy/practical format of graphs/table

The types of Analysis are:

- **Artificial neural networks:** These networks are not linear and predict things by training and resemble biological structure

- **Genetic algorithms:** This algorithm uses genetic arrangement, mutation and natural selection concepts

- **Decision trees:** Trees stating sets of decisions generating ruled for a dataset, trees as CART-Classification and Regression Tree gives 2-way split and CHAID-Chi Square Automatic Interaction Detection creates multi-way splits hence requires more preparation [5-6]. These trees give some rules to get a new dataset which records the output.

- **Nearest neighbor method:** It organizes records based on arrangements of classes of k-records which are same as per the prior dataset called as k-nearest neighbor method

- **Rule induction:** Using if-then rules from database

- **Data visualization:** It uses the graphic representation of complex arrangements of multidimensional data

The Features of Data Mining are:

- **Large volume of data:** High amount of data is required which has to be analyzed for satellite information, credit card transactions by automated methods.

- **Noisy, incomplete data:** Vague data exists

- **Complex data structure:** It's not easy to use usual methods for data analysis

II. LITERATURE SURVEY

E-commerce websites always try and recommend a good product irrespective of user will, the recommendations depend on the time. For instance a user buying laptop now might buy a replaceable battery after 2 years hence it is not good to recommend a battery purchase at the time of buying a new laptop. Recommending right product at right time is important hence a new opportunity model is proposed which approximates the user purchases and recommends based on zero query pull and proactive push based scenarios using various metrics. Results given by experiments conducted on datasets in real world proves and approximates the user purchase based on time hence improves the conversion rate in pull-based systems and the user satisfaction/utility in push-based systems

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Using demographic information of a customer and deriving a system to implement retail chain to recommend products. Demographic data had 600 products at store level and a recommended system was based on online thin Singular Value Decomposition. The modeling improves the performance compared to a single aggregate model proved already [7]. The primary results from the experiment conducted on a test store data collected for one year period prove the system to be efficient in growing sales.

Most of the e-commerce websites use customer information to list out products as customer's rate their experience and the viewed items gives their interests. Online store Amazon.com personalizes the website based on customer interests. Basically there are three ways to solve this problem like cluster models, traditional cooperative filtering [8], and search-based methods. Comparing this method where item to item filtering is adopted with the above mentioned 3 methods it proves to recommend in real time and scales huge data.

1. In order to grow sales and give user a good experience e-commerce websites use product recommenders where the product information is made limited. A system called METIS-MERCHAN T Intelligence recommender system which using micro-blogging matches the user information provided through demographic learning is used [9]. This method is different from the basic in the below aspects
Can track users purchase in any e-commerce website in real time and refer accordingly
2. Products are referred learning rank problem, where the users data is fed along with reviews given by users

Using this system in Sina Weibo has proved as an effective and practical even in live where users registered and received recommendation in real-time.

III. SYSTEM ANALYSIS

Present day E-commerce websites use information about the prior transaction records whereas cross-site, cold start is not much used and hence a large group is conducting studies on the same. Emphasis on category level and brand happens using an expert classifier hence cannot be applied directly on cross site cold start product reference action. Data is based on age, gender and Facebook likes which cannot be applied on all methods. Methods used to transfer varied data from social media to websites using e-commerce is not considered which is actually important to check with cross-site cold-start process. Cross Site - Cold Start is the proposed method for e-commerce where social networking users information is used. It becomes difficult to transfer data from social media to features in database, hence users are linked and reference of products happens. Analyzing user and product features from the gathered data using repetitive neural networks and applying to boosting trees in order to move users from social networking into user embedding. Later matrix factorization is done based on the references

ADVANTAGES OF PROPOSED SYSTEM:

- ❖ The proposal is effective in solving cross site cold start issue
- ❖ Will improve the research and industrial studies as it is rarely studied
- ❖ To know more about recurrent neural networks information from user end and also product's end is gathered
 - ❖ Boosting tree methods are used to transform users

micro blogging features to general feature which can be put in referring a product

IV. IMPLEMENTATION OF MODULES

OSN System Construction Module

- ❖ Online Social Networking(OSN) module is developed which is used by new users and to authenticate where existing users can send and receive data publically and privately with in-built options where posts can also be shared, search other profiles and accept/send friend requests
- ❖ The basic requirements are featured in this initial module as to prove and analyze the system
- ❖ E-commerce website holding users, products and purchase records in the form of binary values which are associated with purchase timestamps and subset of users are connected to their micro-blogging accounts.

Microblogging Feature Selection

- ❖ Micro blogging feature selection is done here by listing out the features of connected users, generating distributed feature patterns using data by deep learning of ecommerce websites [16-17]. Later using distributed feature representation pairs of data is formed and linked to users as training data
- ❖ User details such as gender, age and education often referred as Ademographic /Demographic profile is used by e-commerce to give personalized services

Learning Product Embedding

- ❖ The previous model does not directly connect users and products. If a user is automatically connected to the product in the same feature space it becomes easy for comparison
- ❖ Symbol with fixed length are known to use the data and map the surrounding positions. If product Id is taken as work token the purchase records can be converted to time stamps using learn product embedding's unlike matrix factorization where prior data of a user can be directly taken.

Cold-Start Product Recommendation

- ❖ A local host dataset holding transaction records such as User ID, product ID and the purchase time stamp are grouped and listed based on products purchased
- The results of ColdE are compared with CBOW and skip gram where skip is not as effective as CBOW.

V. FEASIBILITY STUDY

A. Figures and Tables

The practicality of the system is checked along with cost implementation and further proposed to the business such that it does not a problem to the company. The basic checks are

Economical feasibility: The cost implementation effects along with cost incurred in research and development is put as limited and the software methods used are free of cost, only certain products are made available [18-20].

Technical feasibility: The technical resources are checked here without holding high demands imposed on clients hence should have a simple/small change requirement for implementing the system.

Social feasibility: The approval of users is very important which can be done only by training users and making them feel the system as user friendly and raising the confidence in using the system as he/she has to give profile information as there are the final uses.

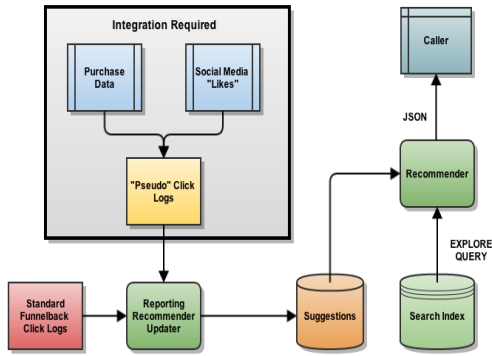


Fig. 1. System Architecture

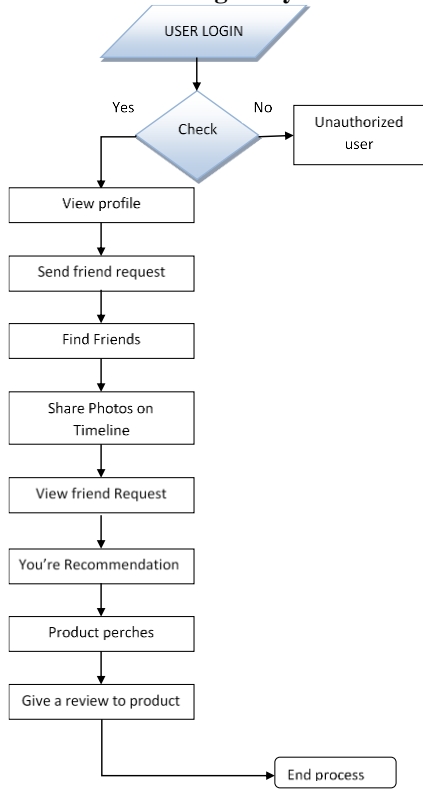


Fig 2. Flow diagram

VI. RESULTS

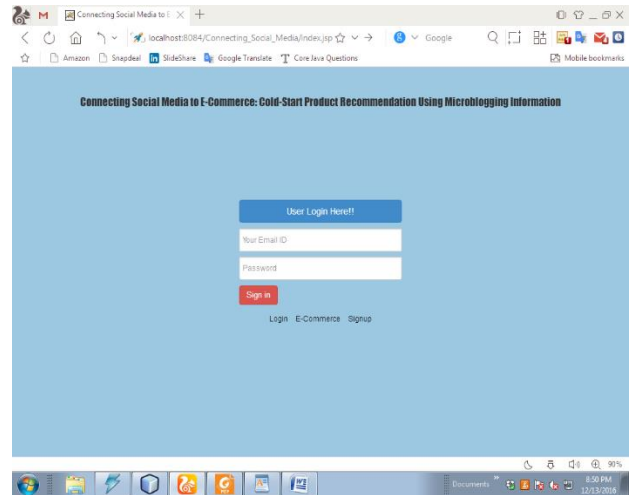


Fig.3. Login page for social media to E-Commerce (social media Login page)

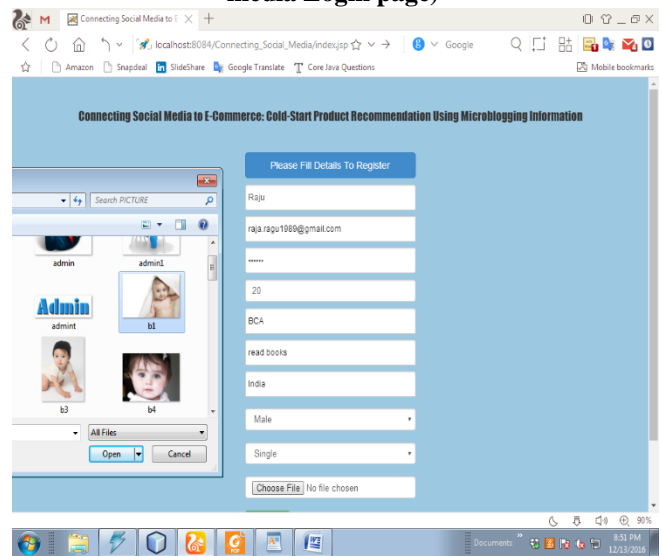


Fig.4. Registration page view

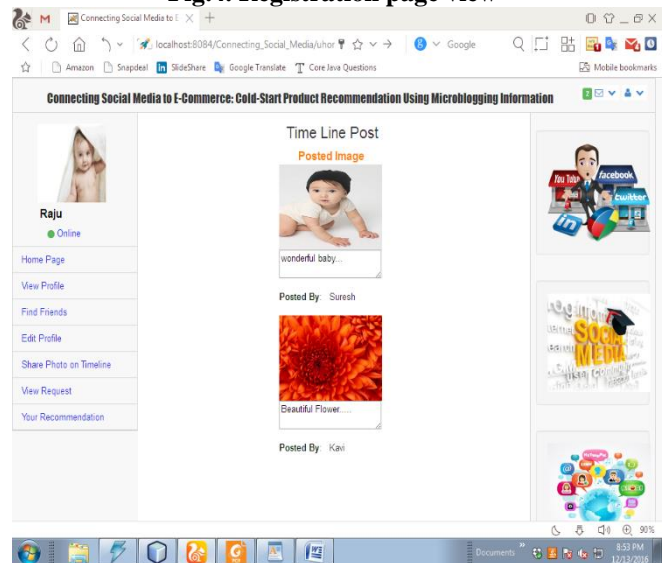


Fig.5. Home page for the application

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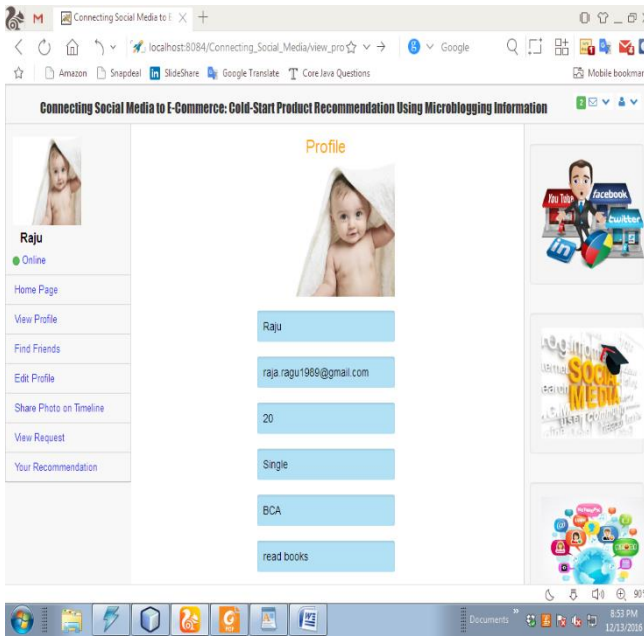


Fig.6. Profile page (user profile)

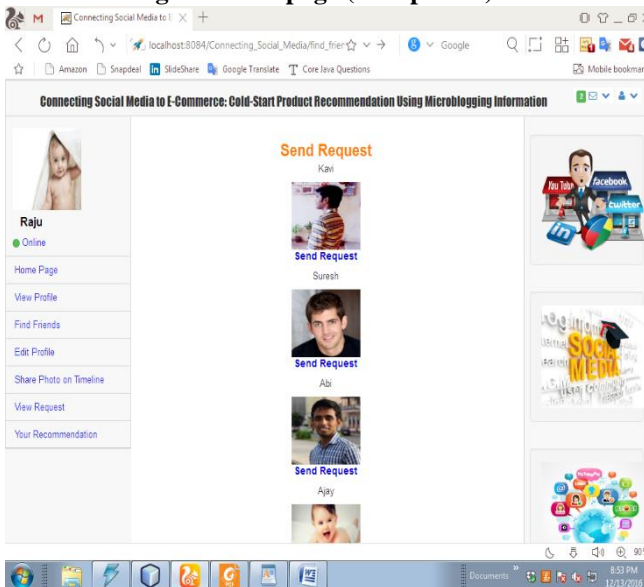


Fig.7. Request sending (friend requesting)

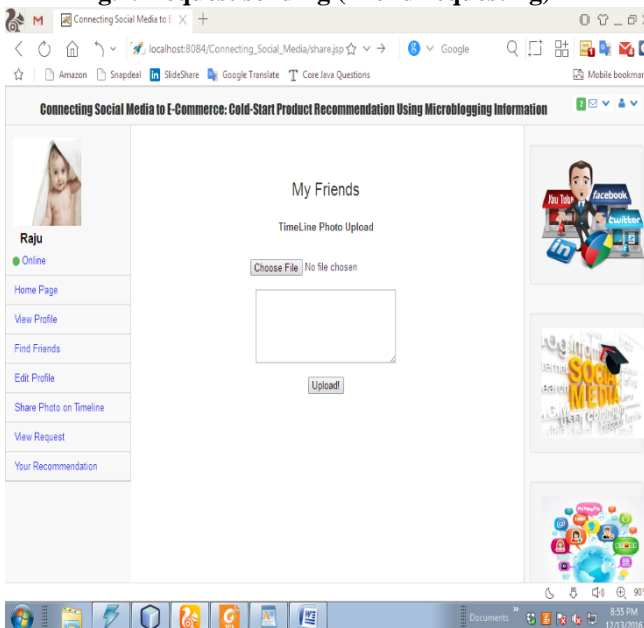


Fig.8. Photo uploading

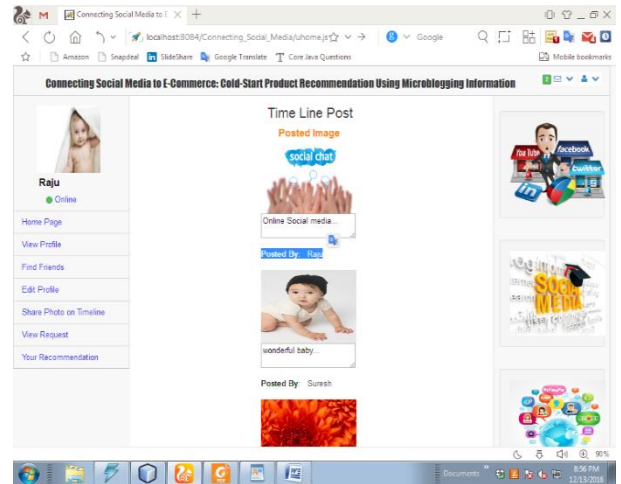


Fig.9. Photo posting

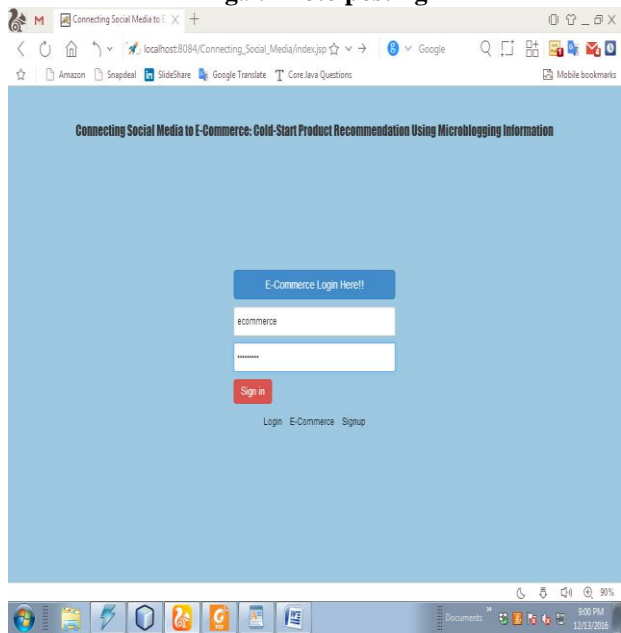


Fig.10. E- commerce Login Page

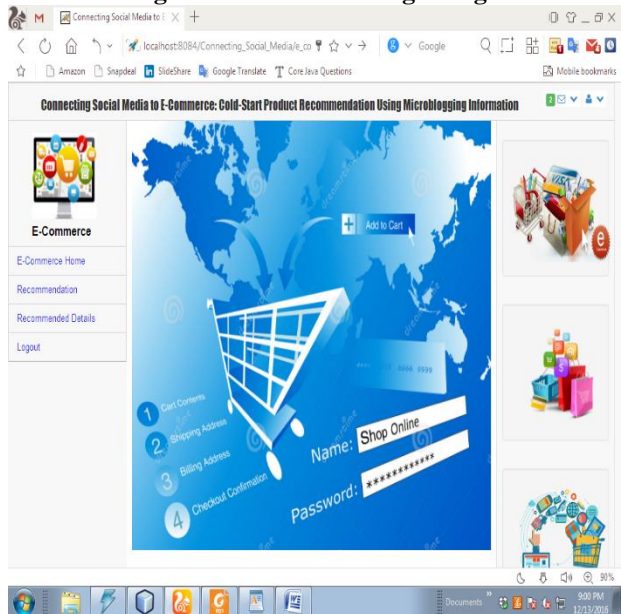


Fig.11. Online shopping (E- Commerce)

VII. CONCLUSION

E-commerce websites to use micro-blogging based on the prior data records is the recommended method to over the cross site cold start issue. The website uses a similar feature space for both users and products by using learn product embedding's. User features taken from social networking sites are mapped using boosting tree method where a bridge is created among e-commerce and social networking sites using some connected users. Using matrix factorization approach mapped features are put in effectively and a good database is created for WEIBO and JINGDONG. Hence it proves that this method is effective for cross site cold start issue which great impact on industrial communities and research. Presently, a modest neural network is implemented but with more learning in mere future a convolutional neural network can be established.

REFERENCES

1. J. Wang and Y. Zhang, "Opportunity model for E-commerce recommendation: Right product; right time," in Proc. 36th Int. ACM SIGIR Conf. Res. Develop. Inf. Retrieval, 2013, pp. 303–312.
2. M. Giering, "Retail sales prediction and item recommendations using customer demographics at store level," SIGKDD Explor. Newsl., vol. 10, no. 2, pp. 84–89, Dec. 2008
3. G. Linden, B. Smith, and J. York, "Amazon.com recommendations: Item-to-item collaborative filtering," IEEE Internet Comput., vol. 7, no. 1, pp. 76–80, Jan./Feb. 2003.
4. V. A. Zeithaml, "The new demographics and market fragmentation," J. Marketing, vol. 49, pp. 64–75, 1985.
5. W. X. Zhao, Y. Guo, Y. He, H. Jiang, Y. Wu, and X. Li, "We know what you want to buy: A demographic-based system for product recommendation on microblogs," in Proc. 20th ACM SIGKDD Int. Conf. Knowl. Discovery Data Mining, 2014, pp. 1935–1944.
6. J. Wang, W. X. Zhao, Y. He, and X. Li, "Leveraging product adopter information from online reviews for product recommendation," in Proc. 9th Int. AAAI Conf. Web Social Media, 2015, pp. 464–472.
7. M. Giering, "Retail sales prediction and item recommendations using customer demographics at store level", *SIGKDD Explor. Newsl.*, vol. 10, no. 2, pp. 84–89, Dec. 2008.
8. G. Linden, B. Smith, J. York, "Amazon.com Recommendations: Item-to-Item Collaborative Filtering", *IEEE Internet Computing*, vol. 7, no. 1, pp. 76–80, 2003