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Connecting Social Media to E-Commerce: Using Microblogging

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***Abstract*: The borders between Online Media and E-commerce are diminishing due to the online World. Almost persons in a metropolitan daily use both social media like Facebook, Twitter, etc. Using networking and the internet, many huge purchases are made on e-commerce sites like Amazon, Flip Kart, Snap deal, etc. We can log in to e-commerce websites using our social accounts like Facebook and using social media login to an e-commerce site, we can share our recent purchase details on social media through various links provided on product pages of an e-commerce site. Here, by grasping the information or by gaining the knowledge from using a social account, we are focusing on the cold start product recommendation. This enables to evaluate the needs of the user who are in cold start state situations. When a user logs in to the e-commerce website for the first time, we don't have any information about the history of browsing, purchases, shopping trends, etc. This is nothing but cold start state as any history is not available. When we have users social account information like users posts, friends, comments, shares, etc. then we can tackle this according to our users. For example, we will apply data mining algorithms to access the micro-blogs of the user which has created by the user and extract the useful keywords from micro-blogs. This extracted data, from the users microblogs, becomes the basis for our product recommendation in the cold start situations.**

***Keywords*: Information Systems, Database Management, Query processing, Database Administration**

1. Introduction

The borders between Online Media and Ecommerce are diminishing due to the online World. Different e-commerce websites like eBay include many of the features of social media, including realtime status updates and connections between its customers and salesperson. Many of the e-commerce websites support the system of social login. This social login allows new users to log in with their existing login information from social media facilities such as Facebook, Twitter or Google+. To deal with this challenge, we propose to deploy the linked users across social media sites and e-commerce websites (users who have social media accounts and have made purchases on ecommerce websites) as a bridge to map user's social media features to unused features for a product recommendation.

We suggest understanding both users and products feature representations from information from e-commerce websites using recurrent neural networks and then applying a modified boosting trees method to transform user's networking features. We then evolve a feature predicated matrix factorization approach which can grasp the learned utilize embedding for the cold-start product recommendation. We have built our own dataset for microblogging.

The investigational outcomes on the dataset have indicated the feasibility and efficiency of our proposed framework. The outlines of our main contribution are given below: • We prepared a different quandary of recommending products from ecommerce site social media users in cold-start situations. To the best of our understanding, it has been generally studied before.

We suggest applying the recurrent neural networks for learning co-related quality description for both users i.e. ecommerce user and social user and products from data gathered from ecommerce sites.

We suggest a modified gradient boosting trees techniques to change users' micro blogging features to unused feature presentation which can be easily included for the product recommendation.

2. Literature review

Wayne Xin Zhao, Sui Li, Yulan He, Edward Y. Chang, JiRong Wen and Xi-aoming Li, "Connecting Social Media to ECommerce: Cold-Start Product Recommendation using Microblogging Information" [1]. In this paper, we give product recommendation using social and demographic information of user like age, gender, location, community etc.

J. Wang, W. X. Zhao, Y. He, and X. Li, "Leveraging product adopter information from online reviews for product recommendation" [2]. In this paper experimental results on over 15 million reviews crawled from JINGDONG, the largest B2C e-commerce website in China, show the feasibility and effectiveness of pro-posed framework for product recommendation.

J. Lin, K. Sugiyama, M. Kan, and T. Chua, "Addressing coldstart in app recommendation: latent user models constructed from twitter followers" [4]. In this paper, he describe a method that accounts for nascent information culled from Twitter to provide relevant recommendation in such cold-start situations. He use Twitter handles to access an apps Twitter account and extract the IDs of their Twitter followers.

Steffen Rendle, "Social Network and Click-through Prediction with Factorization Machines Social Network Analysis" [5]. In this work, it was shown how Factorization Machines (FM) can be applied to predict the follower-relation.

In this research two tasks of KDD Cup 2012 are to predict the followers of a microblogger (track 1) and to predict the click-through rate of ads (track 2).

H. Ma, T. C. Zhou, M. R. Lyu, and I. King, “Improving recommender systems by incorporating social contextual information ”[7]. He propose a factor analysis approach based on probabilistic matrix factorization to alleviate the data sparsity and poor prediction accuracy problems by incorporating social contextual information, such as social networks and social tags. In this paper experimental results show that the method performs much better than the state-of-the-art approaches.

M. Zhang, J. Tang, X. Zhang, and X. Xue, “Addressing cold start in recommender systems: a semi-supervised co-training algorithm” [3]. The proposed algorithms are evaluated on two real-world datasets. The experimental results show that with our method the recommendation accuracy is significantly improved com-pared to the standard algorithms and the cold-start problem is largely alleviated.

3. Proposed system

Below is the composition of the social and e-commerce site. In this system, a user can use both websites at the same location. If any user can purchase any product from the e-commerce website, he can send a review of the product on his/her social site. Once a user sends a review, then that post is upgraded on a social site for product recommendation to his/her friends. In this system, we will create two websites namely social site and e-commerce site. A number of users will be connected to both sites. The social site has functions like create and update profile, send and accept friend requests, giving feedback and sharing the product related information, etc. E-commerce site also has functions like Check product; Buy the product, give Feedback, give Rating to the product.

Obtaining the mining the results from both sites, the user can get to know correct product recommendation and purchases at e-commerce site also get increased by receiving feedback from the social site users.

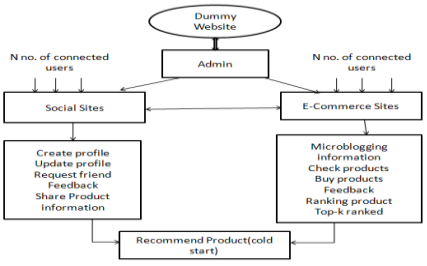

Fig. 1. System Architecture

4. Application

It is used in Data Mining. Where, when the user's opinion or idea gets on any product review, this product review is analyzed and mining methods are used for a product recommendation. This system is useful where Strong authorization is more important.

5. Outcome

Accurate analysis of data or information is done using many features and techniques for a product recommendation.

Multiple reviews and feedbacks are obtained from multiple users for the purpose of correct analysis.

6. Results

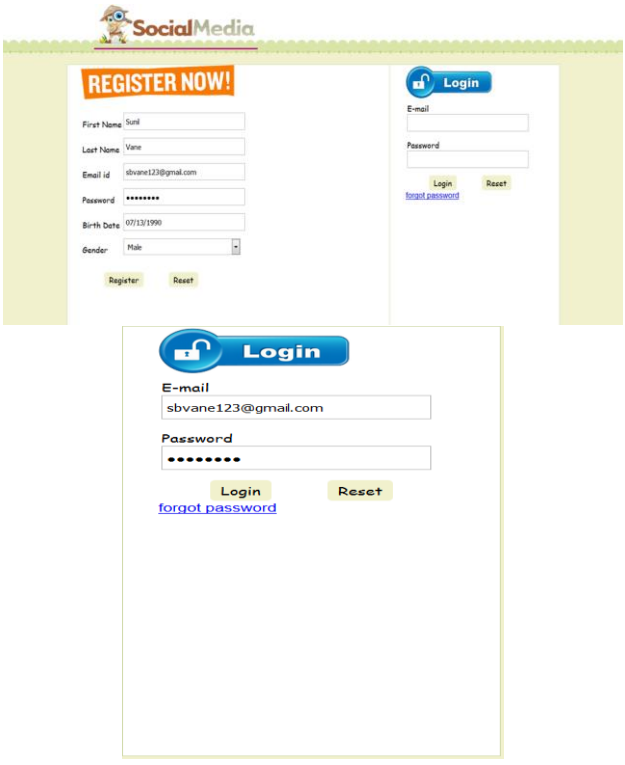

Fig. 2. Register and Login page

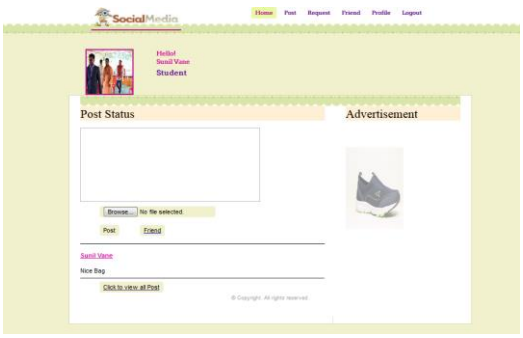

Fig. 3. Post Status

Fig. 4. Send friend request

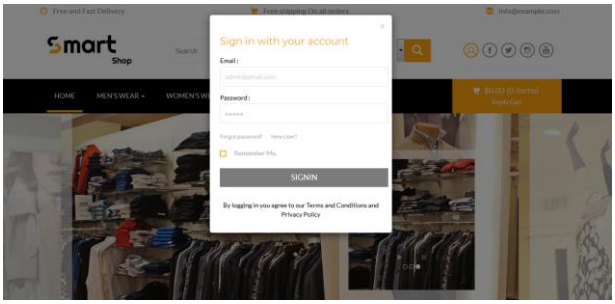

Fig. 5. Sign in

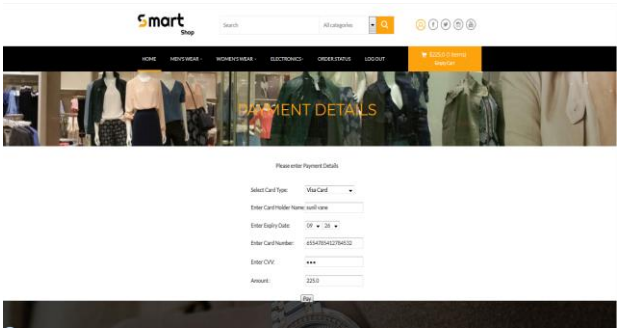

Fig. 6. Payment details

7. Conclusion

We have studied an alien problem, cross site cold-start product recommendation, i.e., recommending the product from ecommerce websites to micro blogging users without historical purchase records. Our main idea is the e-commerce websites, users and products can be presented in the same latent feature space with the recurrent neural networks. Using a set of linked users across both sites as a bridge, we can learn feature mapping functions using a modified gradient boosting trees method, which maps user's attribute extracted from social networking sites onto feature representations learned from different e-commerce websites. For cold start product recommendation mapped user features can be effectively incorporated into a feature based matrix factorization approach. The result shows that our proposed framework is indeed effective in addressing the cross-site coldstart product recommendation problem. We believe that our study will be a profound impact on both research and industry communities. Currently, only simple neural network architecture has been employed for user and product embeddings learning. In the future, more advanced deep learning models such as Neural Networks can be used to explore feature learning.

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