Venue Recommender For Event Based Social Network Using Deep Learning

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Abstract- *Occasion based online social stages, like Meetup and Plancast, have encountered expanded prevalence and quick development lately. In EBSN arrangement, choosing reasonable scenes for facilitating occasions, which can draw in an extraordinary turnout, is a key test. In this paper, we present a profound learning based scene suggestion framework DeepVenue which gives setting driven setting proposals to the Meetup occasion hosts to have their occasions. The core of the proposed depends on the idea of similitude between numerous Meetup elements like occasions, scenes, bunches and so forth We foster profound learning strategies to figure a minimal descriptor for every substance, to such an extent that two elements (say, settings) can measure up mathematically. Remarkably, to moderate the shortage of scene related data in Meetup, we influence on the cross area information move from mainstream LBSN administration Yelp to remove rich setting related substance. For facilitating an occasion, the proposed DeepVenue model registers a triumph score for every applicant scene and positions those settings as per the scores lastly suggest the top k settings. Our thorough assessment on the Meetup information gathered for city Chicago shows that DeepVenue essentially beats the baselines calculations. Definitely, for 84% of occasions, the right facilitating scene shows up in the best 5 of DeepVenue suggested list.*

Keywords*-* Machine-Learning, User-Interface, EBSN, Recommendation System.

I. INTRODUCTION

THE expanding famous occasion based informal organizations (EBSNs) [1], like Meetup1 and Douban Event2, give online stages to clients to make, find and offer disconnected Get-together, like shows, presentations and standard ties. Every occasion distributed in EBSNs is related for certain qualities including a coordinator who makes the occasion, an area where the occasion will be held, a time stamp when the occasion will begin and text based substance portraying the occasion. As a huge volume of occasions are distributed relentlessly in EBSNs, it is hard to track down alluring occasions for clients. Customized occasion recommendation frameworks show up as a successful answer for reduce such a data over-burden. One huge contrast between occasion suggestion and other proposal errands, e.g., film proposal, is that occasion has exceptionally short life cycle and just occasions have been distributed in EBSNs however not yet began ought to be prescribed to clients. Since few client criticism exists for occasions that have not occurred, genuine cold-start issue merges normally in occasion suggestion situation.Some past studies abused numerous context oriented elements (e.g., spatial, transient, substance and social data) to lighten cold-start issue in occasion proposal. These examinations principally center around proposing impending occasions for people, however disregard producing suggestions for a gathering of clients who need to go to occasions together, e.g., going to shows with companions, and going with families. The principle challenge lies in discovering the occasions to fulfill all gathering individuals with jumpers inclinations. For instance, a few individuals in a gathering may like going to shows, while others may like to travel. The customary techniques expecting to suggest for people don't consider this inclination struggle between bunch individuals and can not create proposals for a gathering of clients straightforwardly. Gathering recommendation frameworks have been proposed to tackle this issue. Perhaps the most mainstream bunch proposal approaches depends on accumulation, which models bunch inclination by totaling bunch individuals' inclinations utilizing some predefined procedures The primary disadvantage of this strategy is that it disregards the communications among bunch individuals . Ongoing examination proposed some model-based methodologies which consider connections among individuals by displaying the generative cycle of a gathering and show preferable execution over collection based strategies, yet the cool beginning issue in occasion suggestion for a gathering of clients has not been all around contemplated.

The main differences and contributions of this paper can be summarized as follows:

We investigate the correlation between organizer and content of event, i.e., the events held by same organizer have

more similar content than those held by different organizers. We argue that modeling correlation between organizer and content is helpful for improving group event recommendation.

We propose content-venue-aware topic model to learn group content preferences and venue preferences. Moreover, the correlation be- tween textual content and organizer is modeled to alleviate the sparsity of textual content, where some events are described with very few words.

We conduct comprehensive experiments to evaluate our model on two real-world data sets. The experimental results show that our model outperforms the state-of-the-art methods and has a good interpret ability.

II. LITERATURE SURVEY

[1] X. Liu, Q. He, Y. Tian, W.-C. Lee, J. McPherson, and J. Han, "Event-based social networks: Linking the online and offline social worlds, " in proceedings of KDD 12, New York, NY, USA: ACM, 2012, pp.Newly emerged event-based online social services, such as Meetup and Plancast, have experienced increased popularity rapid growth. From these services, we observed a new type of social network { event-based social network (EBSN). An EBSN does not only contain online social interactions as in other conventional online social networks, but also includes valuable online social interactions captured in online activities. By analyzing real data collected from Meetup, we investigated EBSN properties and discovered many unique and interesting characteristics, such as heavy-tailed degree distributions and strong locality of social interactions. We subsequently studied the heterogeneous nature (co- existence of both online and online social interactions) of EBSNs on two challenging problems: community detection information ow. We found that communities detected in EBSNs are more cohesive than those in other types of social networks (e.g. location-based social networks). In the context of information ow, we studied the event recommendation problem. By experimenting various information diffusion patterns, we found that a community-based diffusion model that takes into account of both online and online interactions provides the best prediction power.

In Paper [2] A. Mnih and R. R. Salakhutdinov, "Probabilistic ion," in Proceedings of NIPS< 08, 2008.PP. matrix factorizat Many existing approaches to collaborative filtering can neither handle very large datasets nor easily deal with users who have very few ratings. In this paper we present the Probabilistic Matrix Factorization (PMF) model which scales linearly with the number of observations and, more importantly, performs well on the large, sparse, and very imbalanced Netflix dataset.

We further extend the PMF model to include an adaptive prior on the model parameters and show how the model capacity can be controlled automatically. Finally, we introduce a constrained version of the PMF model that is based on the assumption that users who have rated similar sets of movies are likely to have similar preferences. The resulting model is able to generalize considerably better for users with very few ratings. When the predictions of multiple PMF models are linearly combined with the predictions of Restricted Boltzmann Machines models, we achieve an error rate of 0.8861, that is nearly 7% better than the

In paper [3]- P. Lops M. De Gemmis and G. Semeraro, " Content- based recommender systems: State of the art and trends," in Recommender handbook.   Springer,   2011, pp. 73 105. Recommendation systems have the effect of guiding users in a personalized way to interesting objects in a large   space   of   possible   options.   Content-based recommendation systems try to recommend items similar to those a given user has liked in the past. Indeed, the basic process performed by a content-based recommender consists in matching up the attributes of a user profile in which preferences and interests are stored, with the attributes of a content object (item), in order to to the user new interesting items. This chapter provides an overview of -based recommendation systems, with the aim of imposing a degree of order on the diversity of the different aspects involved in their design and implementation. first part of the chapter presents the basic concepts and terminology of content based recommendation systems, a high level architecture, and their main advantages and drawbacks. The second part of the chapter provides a review of the state of the art of systems adopted in several application domains, by thoroughly describing both classical and advanced techniques for representing items and user profiles. most widely adopted techniques for learning user profiles are also presented. The last part of the chapter discusses trends and future research which might lead towards the next generation of systems, by describing the role of User Generated Content as a way for taking into account evolving vocabularies, and the challenge of feeding users with serendipitous recommendations, that is to say surprisingly interesting items that they might not have otherwise discovered.

[4] Z. Qiao, P. Zhang, Y. Cao, C. Zhou, L. Guo, and B. Fang, " Combining heterogenous social and geographical information for event recommendation," in proceedings of AAAI conference on Artificial Intelligence, July 27 -31., 2014, pp. 145 151. With the rapid growth of event-based social networks (EBSNs) like Meetup, the demand for event recommendation becomes increasingly urgent. In EBSNs, event recommendation plays a central role in recommending

the most relevant events to users who are likely to participate in. Different from traditional recommendation problems, event recommendation encounters three new types of information, i.e., heterogenous online+offline social relationships, geographical features of events and implicit rating data from users. Yet combining the three types of data for offline event recommendation has not been considered. Therefore, we present a Bayesian latent factor model that can unify these data for event recommendation. Experimental results on real-world data sets show the performance of our method.

[5] Q. Macedo, L. B. Marinho and R. L. Santos, " Content – aware event recommendation in event-based social networks," in proceedings of ReeSys'15. New York, NY, USA: ACM, 2015, pp, 123 130.The Web has grown into one of the most important channels communicate social events nowadays. However, the sheer volume of events available in event-based social networks (EBSNs) often undermines the users' ability to choose the events that best _t their interests. Recommender systems appear as a natural solution for this problem, but differently from classic recommendation scenarios (e.g. movies, books), the event recommendation problem is intrinsically cold-start. Indeed, events published in EBSNs are typically short-lived and, by definition, are always in the future, having little or no trace of historical attendance. To overcome this limitation, we propose to exploit several contextual signals available from EBSNs. In particular, besides content- based signals based on the events' description and collaborative signals derived from users' RSVPs, we exploit social signals based on group memberships, location signals based on the users' geographical preferences, and temporal signals derived from the users' time preferences. Moreover, we combine the proposed signals for learning to rank events for personalized recommendation. Thorough experiments using a large crawl of Meetup.com demonstrate the effectiveness of our proposed contextual learning approach in contrast to state-of-the-art event recommenders from the literature.

[6] Meng Jiang, Peng Cui, Xumin Chen, Fei Wang, Wenwu Zhu, Social Recommendation with Cross-Domain Transferable Knowledge Recommender systems can suffer from data sparsity and cold start issues. However, social networks, which enable users to build relationships and create different types of items, present an unprecedented opportunity to alleviate these issues. In this paper, we represent a social network as a star- structured hybrid graph centered on a social domain, which connects with other item domains. With this innovative representation, useful knowledge from an auxiliary domain can be transferred through the social domain to a target domain. Various factors of item transfer ability, including popularity and behavioral consistency, are determined. We propose a novel Hybrid Random Walk (HRW) method, which incorporates such factors, to select transferable items in auxiliary domains, bridge cross-domain knowledge with the social domain, and accurately predict user- item links in a target domain. Extensive experiments on a real social data set demonstrate that HRW significantly outperforms existing approaches.

[7] Sangkeun Lee, Sang-il Song, Minsuk Kahng, Random Walk based Entity Ranking on Graph for Multidimensional Recommendation In many applications, flexibility of recommendation, which is the capability of handling multiple dimensions and various recommendation types, is very important. In this paper, we focus on the flexibility of recommendation and propose a graph-based multidimensional recommendation method. We consider the problem as an entity ranking problem on the graph which is constructed using an implicit feedback dataset (e.g. music listening log), and we adapt Personalized PageRank algorithm to rank entities according to a given query that is represented as a set of entities in the graph. Our model has advantages in that not only can it support the flexibility, but also it can take advantage of exploiting indirect relationships in the graph so that it can perform competitively with the other existing recommendation methods without suffering from the sparsity problem.

III. WORKING OF THE PROPOSED SYSTEM

Our proposed system focus on recommending venue for a group or single user. In this system users can add their past and future events successfully hosted in their venue and also the users who attended the events can also add the event details by doing this we can avoid data sacristy. While searching for a venue based on event the end user has to select type of recommendation whether it is a single or group recommendation. For single user recommendation user can select their preference that user wishes to attend the events based on the user preference past and present events available for user nearby places will be displayed. In group recommendation end user can select list of people going to participate in an event, location of all the selected members will be collected and center point of location gathered calculated and based on user preference venue will be recommended user can select the venue and send place details to the group the route map for the location will be displayed for the users.

IV. MODULE DESCRIPTION

User Authentication & Create Groups:

User has an initial level Registration Process. The users provide their own personal information for this process. The server in turn stores the information in its database and user can create a group to add people from their contact list of people in their list.

Add Events and View Nearby Events:

Proprietor can add the events hosted in their venue and also the guest Attended the event can add event in database, user hosting events in their house can also select and add event detail, User can see list of events hosted within 2km radius from their location.
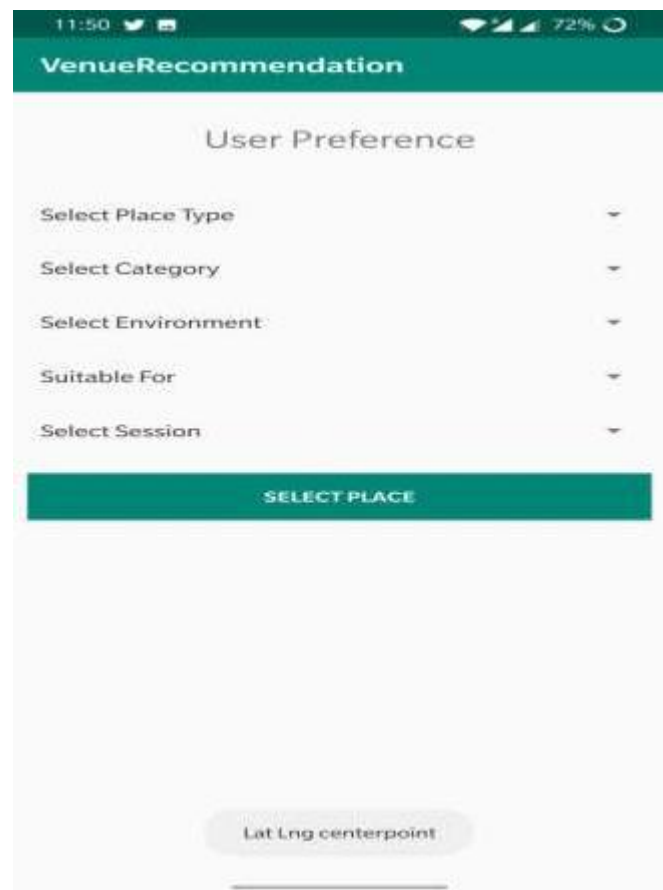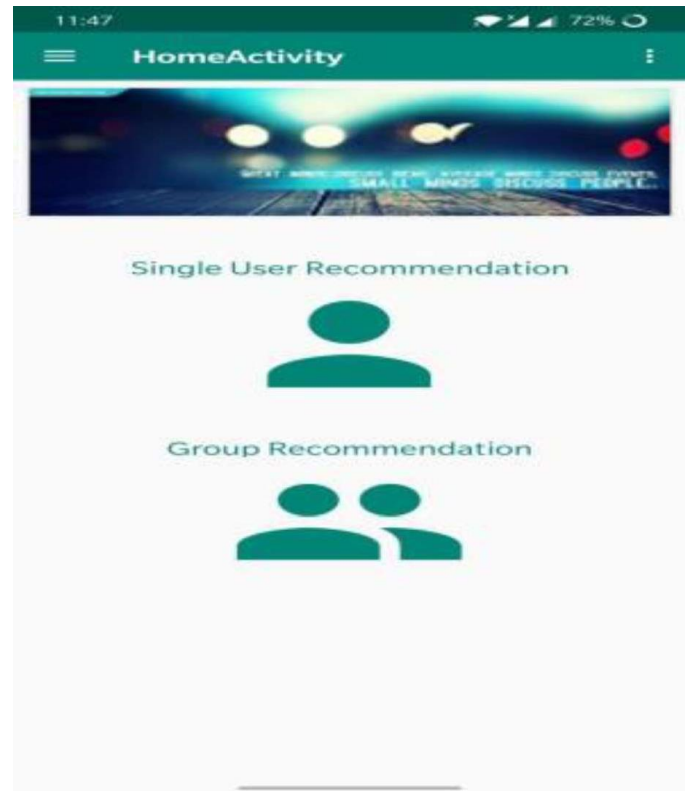
Single User Recommendation:

User can select their preference on which type of place they wish to attend an event, All the nearby events which suits the user preference will be displayed in Google map User can select and view the location and event hosted in that venue based on the user preference the venues are recommended
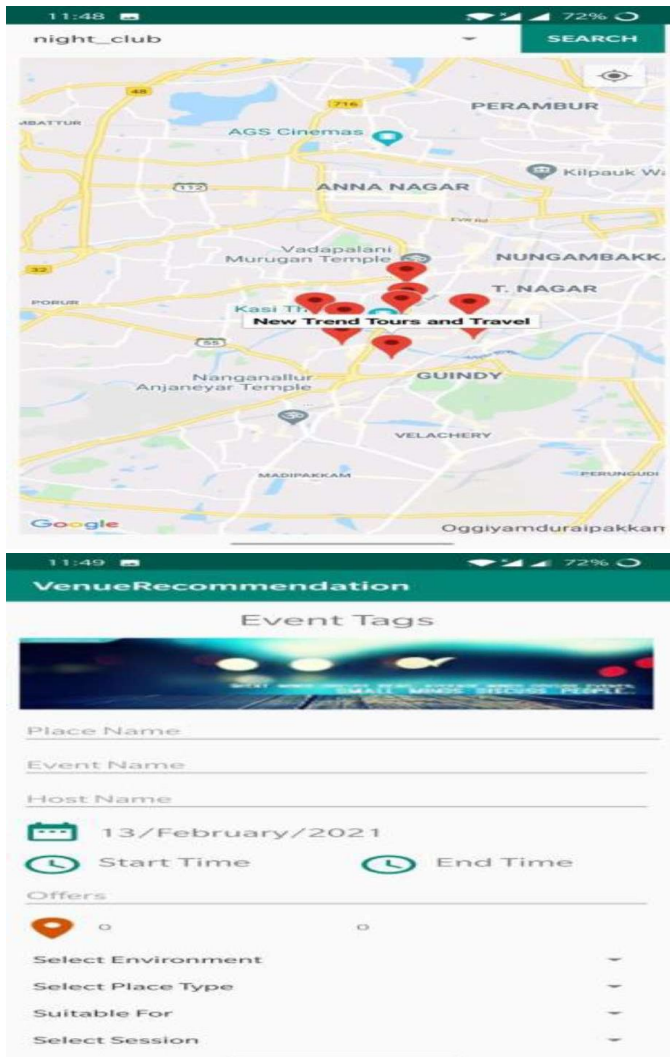
Group Recommendation:

In group recommendation end user can select list of people going to participate in an event, location of all the selected members will be collected and center point of location gathered calculated and based on user preference venue will be recommended user can select the venue and send place details to the group the route map for the location will be displayed for the users.

V. IMPLEMENTATION

With the help of android development , we developed two application to help the users to get best place for their event by previous recommendation via Learning algorithms(content based filtering).We also helped the users by guiding them about other events organized near their location with the help of Google maps integration.

VI. CONCLUSION

The Results are showed that our application is capable for recommendation of Events and Venues, whereas more entities can able to interact with each other. This Recommendation System was designed and modified by using the techniques of the Deep Learning . Our Application is capable of performing in various kinds of recommendation using the suitable algorithm. Therefore, this application is able to recommend various events to a single or a group of users based preferences and perfect context.

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