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Efficient And Effective Location Recommendation Through Content Analysis

ESTD : 2000

SUBMITTED BY
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ABSTRACT

Recent research has studied how to recommend locations with social and geographical information, few of them addressed the cold-start problem for new users

A novel approach has been implemented which recommend location based on machine learning process

User reviews are taken into consideration as dataset

Natural Language Processing (NLP) will evaluate with a large-scale Location Based Social Network (LBSN) dataset in which users have profiles and textual content

INTRODUCTION

The growing number of locations of interest, such as hotels, restaurants and attractive places offer people more opportunities for amusement than ever before

People really enjoy exploring neighborhood and visiting locations to their interests

Location recommendation using user feedback has been exploited to help people discover interesting places and speed up users familiarization with theirsurroundings

EXISTING SYSTEM

Location recommendation has recently become a popular research topic, with thesupport of massive data

A novel scalable Implicit-feedback based Content-aware Collaborative Filtering(ICCF) framework uses page ranking system

It ranks a location based on number of views

PROBLEM IDENTIFICATION

In the existing system, location recommendation is based on the number of viewsand not on the preference of the user

It may lead to recommend a least preferred location on the top

It also has cold-start problems

LITERATURE SURVEY

Reference Paper [1]

TITLE: Content-aware collaborative filtering for location recommendation based on human mobility data in 2015 [1]

Sampling-based methods don't perform as well as a method that considers all unvisited locations as negative but assigns them a lower confidence. To this end, an Implicit-feedback based Content-aware Collaborative Filtering (ICCF) framework will help to incorporate semantic content and steer clear of negative sampling. For efficient parameterlearning, we develop a scalable optimization algorithm, scaling linearly with the data size and the feature size

Reference Paper [2]

TITLE: Collaborative filtering meets mobile recommendation: A user-centered approach [2] User-centered collaborative location and activity filtering is used to pull many users' data together and apply collaborative filtering to find like-minded users and like-patterned activities at different locations. We model the user location-activity relations with a tensor representation, and propose a regularized tensor and matrix decomposition solution which can better address the sparse data problem in mobile information retrieval. We empirically evaluate it using a real-world GPS dataset collected from 164 users over 2.5 years, and showed that our system can outperform several state-of-the-art solutions to the problem.

PROPOSED SYSTEM

Recommendation process takes place through feedback or review of users
Analyzing user reviews is one of effective methods togenerate efficient recommendation to new user
It includes content based analysis to attain maximum accuracy in result
This process has been done through NLP which identify whether user review is positive or negative
Accurate classification of user review as either good or bad efficient classification SVM is used

MODULES

Content feedback from user
SVM
Identifying positive feedback
User query and result

Content feedback from user

The feedbacks collected from users through social networks
It is done by posting images and giving comments with respect tolocation information
Data are gathered from various users are considered and loaded indatabase
This data are used for analysis

Support Vector Machine (SVM)

SVM is a supervised machine learning algorithm, which has achieved state-of-the-art performance on many Natural Language Processing (NLP) tasks
NLP can be used to interpret free text and make it analyzable
There is a tremendous amount of information stored in free text files
It allows analysts to sift through massive free text to find relevant information in the files

Identifying positive feedback

The loaded comment database is utilized for analysis of positivecomments with respect to location
A location is good place to visit or not is decided through average calculation based on user feedbacks
If maximum average calculation attains negative value then it will benot considered to be recommended

User query and result

User can enter their keyword and search in the analyzed and processed database

Recommendation has been done through best places suggested by users after visiting those places

Therefore most related content has been retrieved to respective user

FLOW CHART

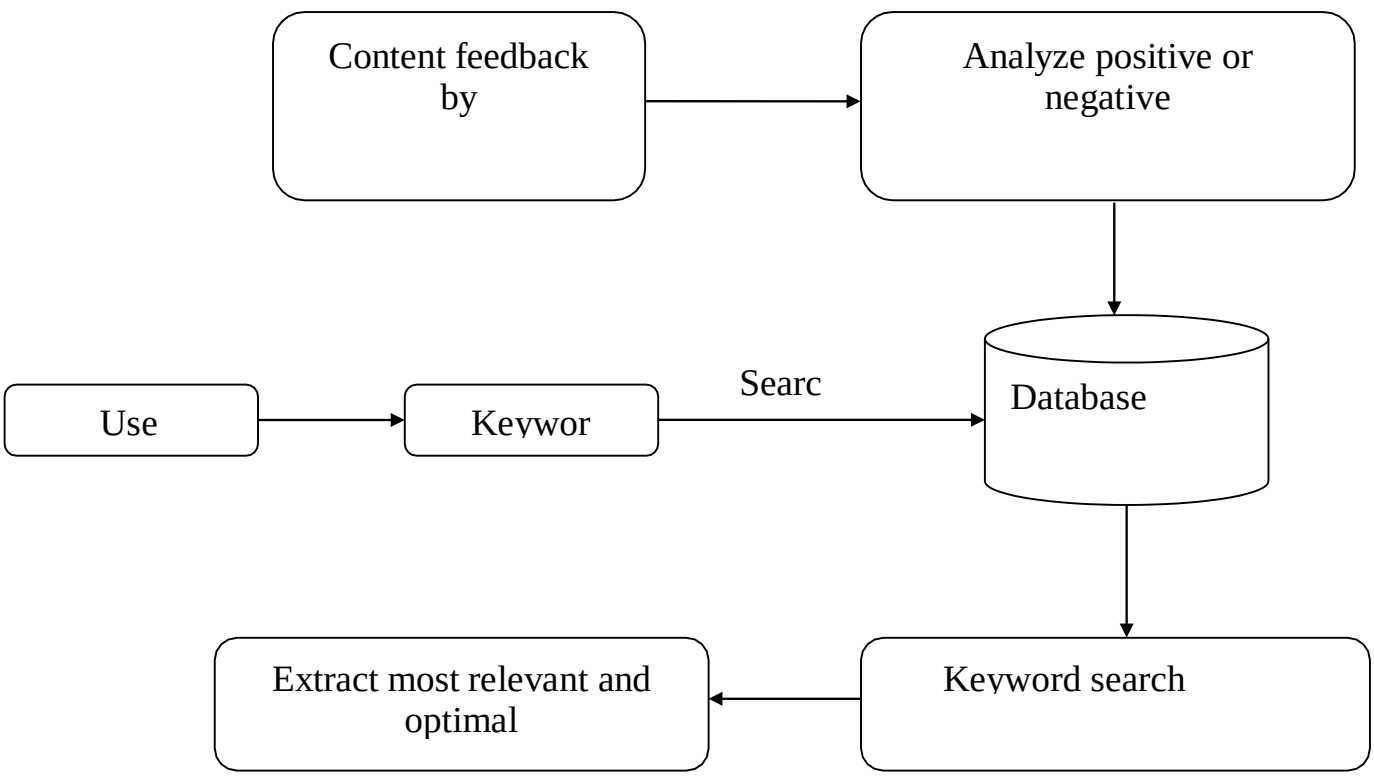


Fig. 1. Architectural diagram

EXPECTED MERITS

Efficient location recommendation

Avoid cold start problem

Content based analysis

Expecting high accuracy

CONCLUSION

The feedbacks collected from users are collected and loaded in database

They are processed using Support Vector machines

NLP is used to interpret free text and make it analyzable

A location is either good place to visit or not is decided through averagecalculation

User can enter their keyword and search in our analyzed and processed database to get the location recommended by other users

SCREENSHOTS

Fig. 1. Signup Page

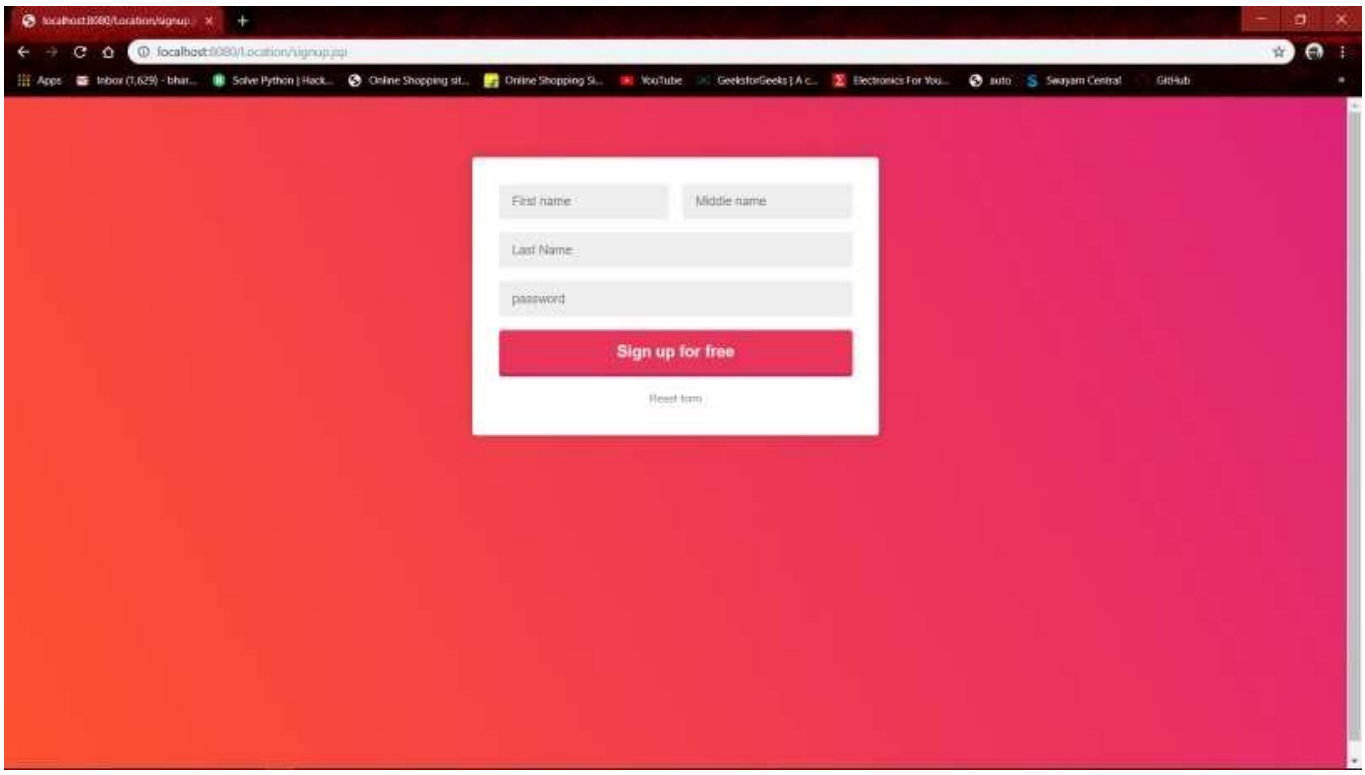


Fig. 2. Login Page

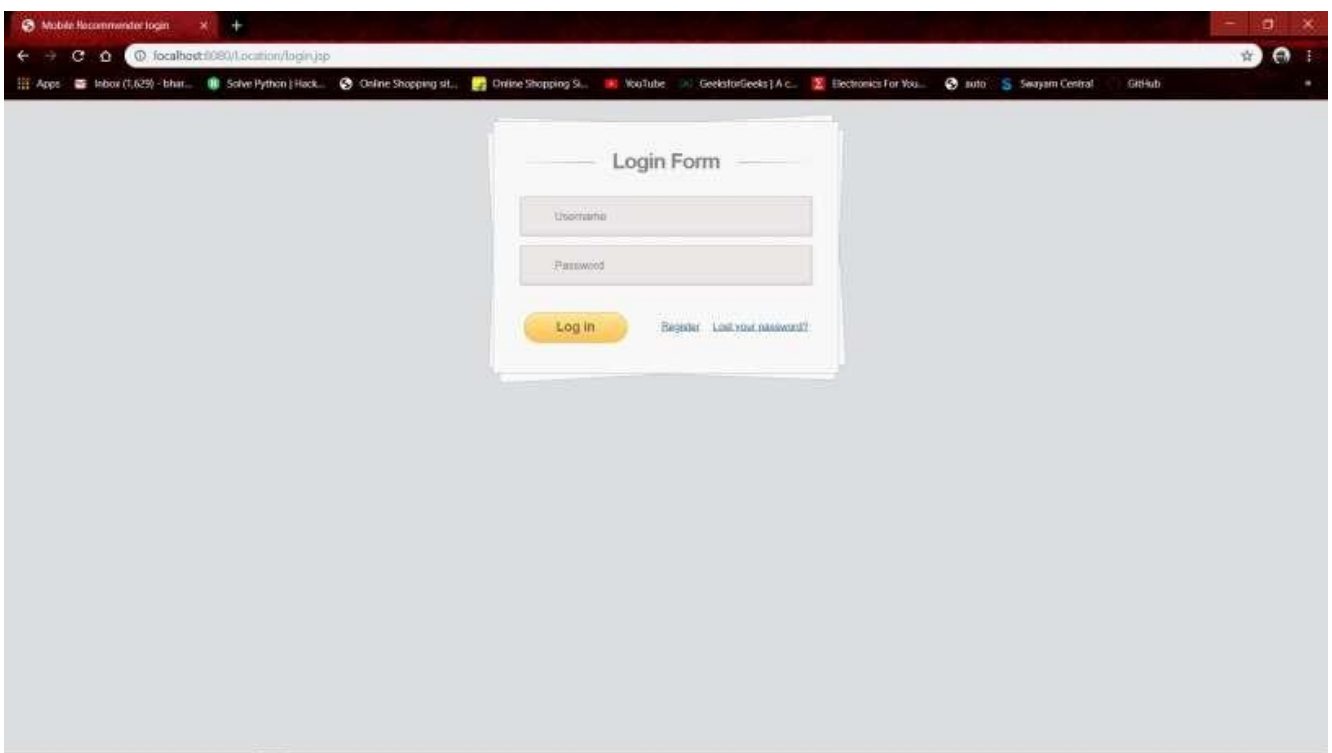
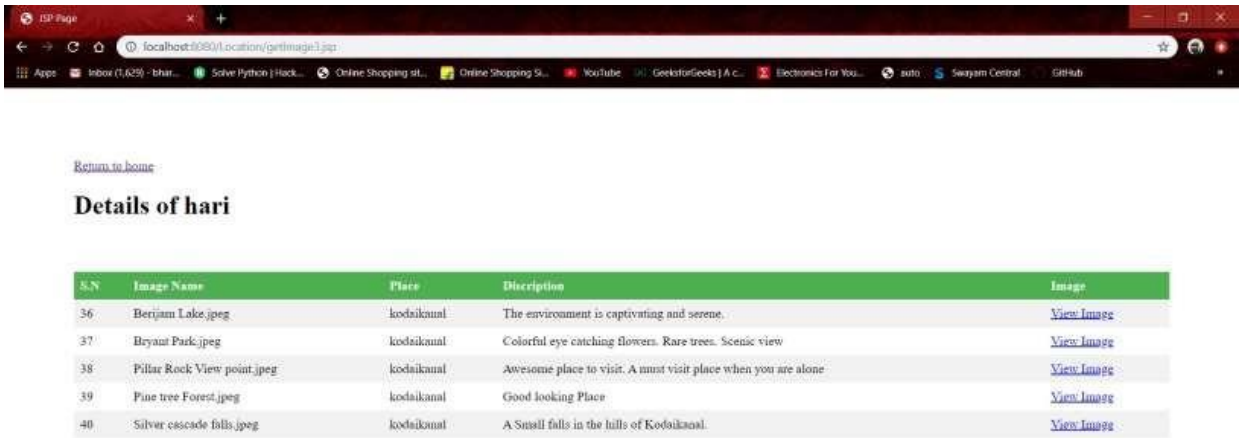


Fig. 3. NLP based location recommendation



REFERENCES

D. Lian, Y. Ge, F. Zhang, N. J. Yuan, X. Xie, T. Zhou, and Y. Rui, "Content-aware collaborative filtering for location recommendation based on human mobility data," in *Proceedings of ICDM'15*. IEEE, 2015, pp. 261–270

V. Zheng, B. Cao, Y. Zheng, X. Xie, and Q. Yang, "Collaborative filtering meets mobile recommendation: A user-centered approach," in *Proceedings of AAAI'10*. AAAl Press, 2010

M. Ye, P. Yin, W.-C. Lee, and D.-L. Lee, "Exploiting geographical influence for collaborative point-of-interest recommendation," in Proceedings of SIGIR'11. ACM, 2011, pp. 325–334.

W.-Y. Zhu, W.-C. Peng, L.-J. Chen, K. Zheng, and X. Zhou, "Modeling user mobility for location promotion in location-based social networks," in Proceedings of KDD'15. ACM, 2015, pp. 1573–1582.

B. Liu, Y. Fu, Z. Yao, and H. Xiong, "Learning geographical preferences for point-of-interest recommendation," in Proceedings of KDD'13. ACM, 2013, pp. 1043–1051

H. Gao, J. Tang, X. Hu, and H. Liu, "Exploring temporal effects for location recommendation on

location-based social networks," in Proceedings of RecSys'13. ACM, 2013, pp. 93–100.

Q. Yuan, G. Cong, Z. Ma, A. Sun, and N. M. Thalmann, "Timeaware point-of-interest recommendation," in Proceedings of SIGIR' 13. ACM, 2013, pp. 363

Q. Yuan, G. Cong, and A. Sun, "Graph-based point-of-interest recommendation with geographical
and temporal influences," in Proceedings of CIKM'14. ACM, 2014, pp. 659–668

A. Noulas, S. Scellato, N. Lathia, and C. Mascolo, "A random walk around the city: New venue recommendation in location-based social networks," in Proceedings of SocialCom'12. IEEE, 2012, pp.144–153

P. Lops, M. De Gemmis, and G. Semeraro, "Content-based recommender systems: State of the art
and trends," in Recommender systems handbook. Springer, 2011, pp. 73–105