iJRASET
International Journal For Research in Applied Science and Engineering Technology

INTERNATIONAL JOURNAL FOR RESEARCH

IN APPLIED SCIENCE & ENGINEERING TECHNOLOGY

Volume: 11 **Issue:** VIII **Month of publication:** Aug 2023

DOI: https://doi.org/10.22214/ijraset.2023.55457

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International Journal for Research in Applied Science & Engineering Technology (IJRASET)
ISSN: 2321-9653; IC Value: 45.98; SJ Impact Factor: 7.538
Volume 11 Issue VIII Aug 2023- Available at www.ijraset.com

Analysis of Final Ratings in Tourism Using Various Machine Learning Techniques

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Abstract: ***User-generated ratings are a tremendous asset to product descriptions and significantly impact decision-making in Context-Aware Recommender Systems. Researchers exploit this information to predict user preferences, model the item's attributes, and offer intelligible recommendations. However, not all contextual ratings are significant because they may be posted by various users for various reasons and based on different routines. Further, as users care about different attributes of multiple contexts, not all user ratings equally reflect the users' opinion of the overall rating, a primary concern in recommender systems. This article predicts the overall rating using user-user and item collaborative filtering with significant contexts and the outcome tested on various machine and deep learning models using the contextual segments.***
Keywords: Context-Aware Recommender Systems, Contextual ratings, item-item collaborative filtering, user-user collaborative filtering.

I. INTRODUCTION

The tourism industry plays a major role for the growth of country's economy. In order to scatter the tourism information the internet plays a major role in most of the countries. Currently everyone wishes to energize themselves in the vacation by visiting the locations all around the globe in the categories of middle and upper sections of users. Once in a year the users plan their vacations due to an increase in socioeconomic factors. To fulfil their aspirations online travel platform is one of the great opportunity. To resolve the information overload issue, the recommender system was introduced to help the users by analysing the user preference information. Based on recommendation approach the recommender systems can be categorised in to content-based, collaborative filtering (knowledge-based), and hybrid. The content based recommendation only believe on users past preferences to construct their profile and select suggested items. To identify the candidate items, the collaborative filtering approaches examine the behaviours of similar users .Recommender systems are extensively utilized in most of the multimedia RMSE in order to improve personalization capabilities by focusing media products to the corresponding customers. Due to excess recommender systems, many customers receive non-detailed, non-personalized recommendation services such as old spam emails. Hence from the hotel's opinion, it is essential to precisely recognize and increase the customer visit.

II. LITERATURE SURVEY

Samad [1] had introduced supervised and unsupervised machine learning model for analysing the customers' online reviews. Author had introduced fuzzy rule machine learning model and clustering approach for recommendation. The intrusion of clustering technique will boost up the scalability and accuracy of the recommendation system. Self-Organizing Map (SOM) approach was introduced to cluster data in the Trip Advisor. In the experimental section the performance measure of MAE, precision and f measure are evaluated. From the surveys taken there is a research gap when the user's preferences and priorities are insufficient. So in this research the multiple regression backward elimination with item-item collaborative filtering approach is introduced to identify the significant context.

Sagar et al. [2] had proposed collaborative and regression model for travel recommender system based on social media reviews due to COVID-19 pandemic. To examine the final score and find out the guest type, and also to replace the missing values, the collaborative filtering approach is introduced. In this research, the author had analysed only the Asian continent user opinion.

Camacho & Alves-Souza, 2018[3], which provides new fuel for the development of RS. Also, there are several user groups on e-commerce platforms. Users in different groups have different criteria preferences and users in the same group share similar criteria preferences. Accurately identifying these user groups and preferences can also improve the accuracy of multi-criteria recommendations. In addition, the criteria ratings often do not affect the overall rating linearly due to the complexity of users' decision-making. Accurately building the relationship between the overall rating and the criteria ratings is another approach to improve recommendation accuracy. PROP

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III. PROPOSED SYSTEM

In this study the work is processed under three stages namely data extraction, data pre-processing and rating prediction. The first stage is data extraction and in this stage the data are extracted from the Trip Advisor. Here, the data pre-processing is executed by item-item collaborative filtering approach. In addition to this the similarity is measured by the adjusted cosine similarity metrics. The final stage is prediction. In this stage based on multi regression backward elimination approach is introduced to analyse the impact on contextual segments.

IV. RELATED WORK

In this paper, we study the optimization of the accuracy and scalability of multi-criteria recommendation systems using social relationships and criteria preferences information. We firstly construct a hybrid social recommendation algorithm to investigate the advantages of social relationships, and extend the application scope of the algorithm by an implicit social relationship inference technique. Then the nonlinear aggregate functions are adopted to uncover the relationship between criteria and the overall rating. Besides, we cluster users and train the aggregate function for each user group with a much smaller sample size, which is useful for improving the training efficiency. Finally, we validate the proposed approaches on Trip Advisor multi-criteria rating data sets with different sparsely. The proposed social recommendation model outperforms traditional approaches for both active and cold start users in predicting criteria ratings (Fig. 1). Multi-criteria ratings enhance accuracy on the condition that criteria ratings can be accurately predicted. Our results also confirm the benefits from nonlinear aggregate functions and cluster analysis, especially when the data set is extremely sparse.

V. SAMPLE RESULTS

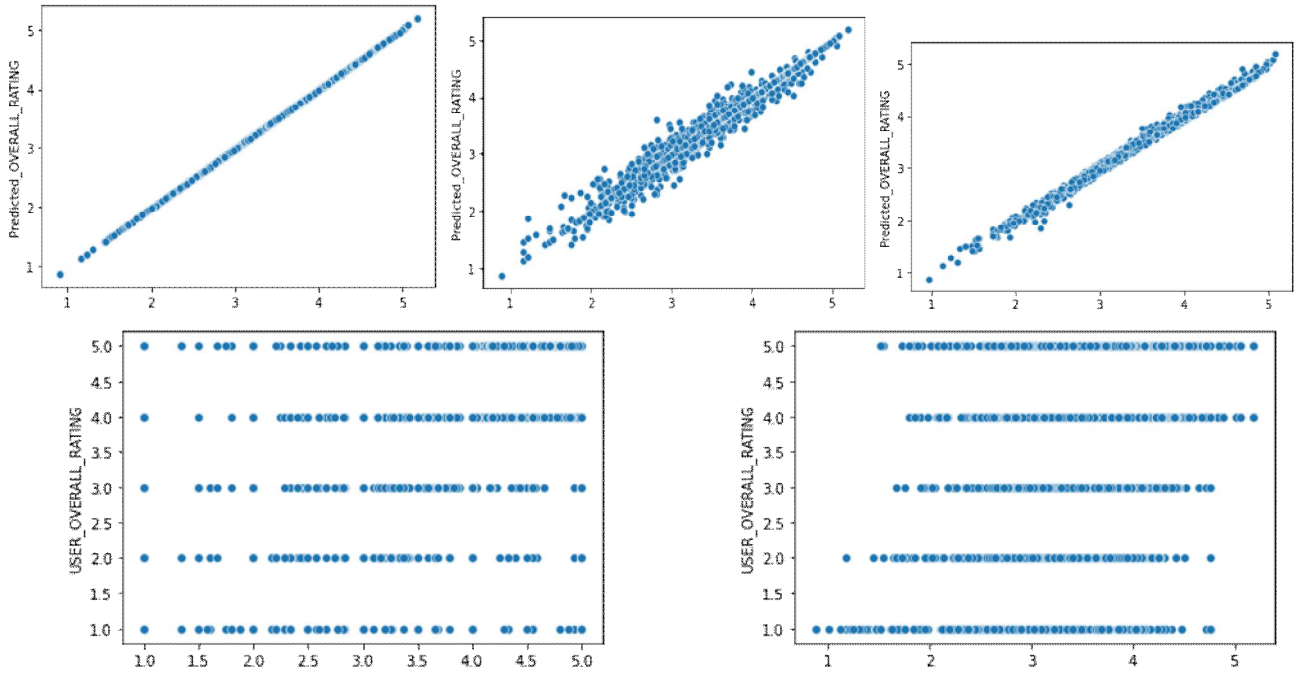


Fig. 1 Graphs of Predicted Ratings vs User- Overall Ratings

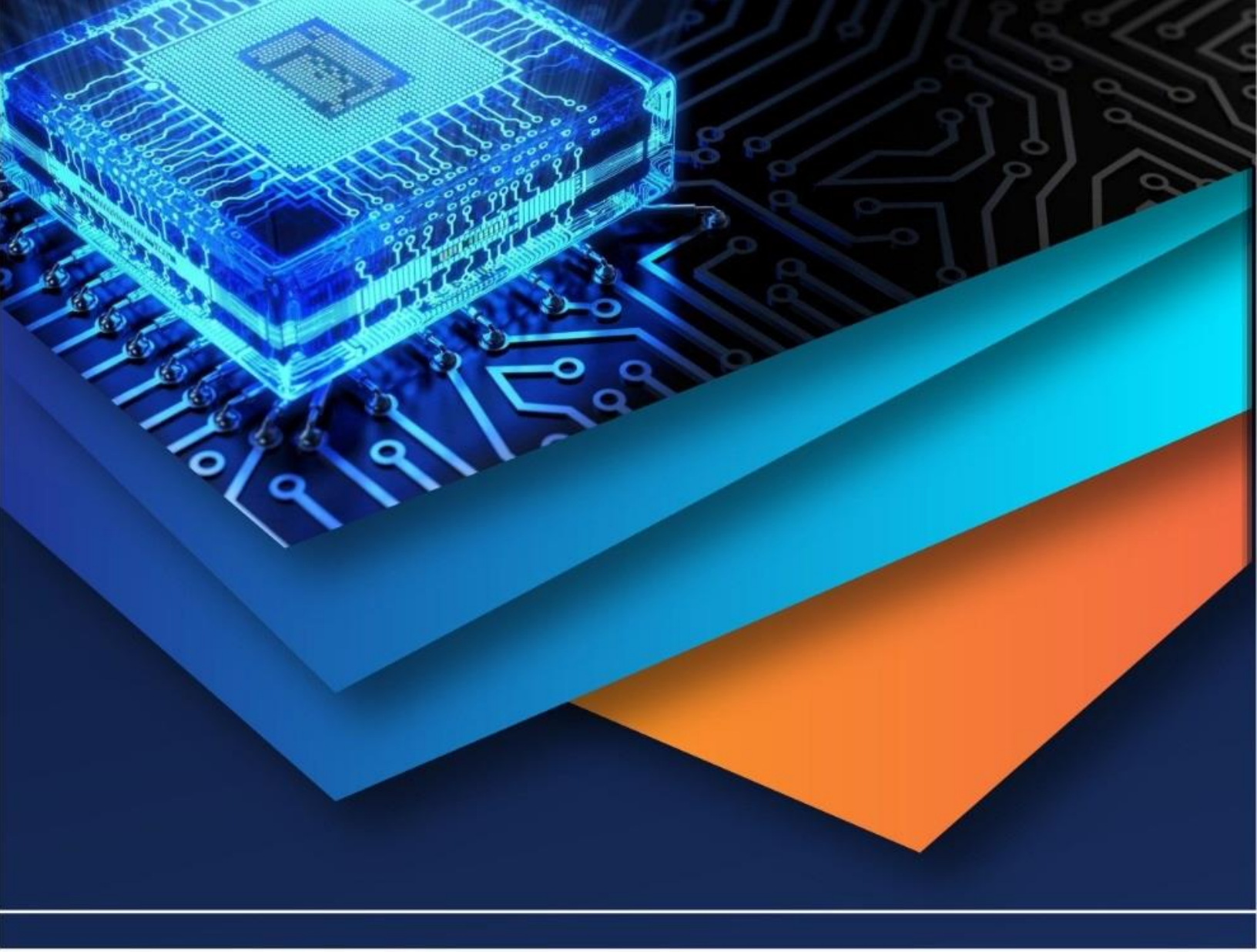
VI. CONCLUSION

In this research the scalability issue of the multi criteria system had not examined and in future it will be conducted using an efficient algorithm. Along with that, few additional metrics will also evaluated in future to determine the efficiency of architecture in recommendation system.

REFERENCES

[1] J. Li et al.Towards context-aware social recommendation via individual trust Knowledge-Based Systems(2017).
[2] Tsao H-Y, Chen M-Y, Lin H-C, Ma Y-C. The asymmetric effect of review valence on numerical rating: a viewpoint from a sentiment analysis of users of TripAdvisor. Online Information Rev. 2019 doi: 10.1108/OIR-11-2017-0307.
[3] Pereira N, Varma SL. Financial planning recommendation system using content-based collaborative and demographic filtering. In: Panigrahi BK, Trivedi MC, Mishra KK, Tiwari S, Singh PK, editors. Smart Innovations in Communication and Computational Sciences. Singapore: Springer; 2019.

[4] Geetha G, Safa M, Fancy C, Saranya D. A hybrid approach using collaborative filtering and content based filtering for recommender system. J Phys Conf Ser. 2018 doi: 10.1088/1742- 6596/1000/1/012101.
[5] Patro SG, Krishna BK, Mishra SK, Panda RK, Long HV, Tuan TM. Knowledge-based preference learning model for recommender system using adaptive neuro-fuzzy inference system. J Intelligent Fuzzy Systems. 2020 doi: 10.3233/JIFS-200595.
[6] Deldjoo Y, Schedl M, Cremonesi P, Pasi G. Recommender systems leveraging multimedia content. ACM Computing Surveys (CSUR) 2020;53(5):1–38. doi: 10.1145/3407190.
[7] Weismayer Christian, Pezenka Ilona, Gan Christopher Han-Kie. Aspect-based sentiment detection: Comparing human versus automated classifications of TripAdvisor reviews. In: Stangl Brigitte, Pesonen Juho., editors. Information and communication technologies in tourism. Berlin: Springer; 2018. pp. 365–380.
[8] Xiang Z, Qianzhou Du, Ma Y, Fan W. Assessing reliability of social media data: lessons from mining TripAdvisor hotel reviews. Information Technology Tourism. 2018;18(1):43–59. doi: 10.1007/s40558-017-0098-z.
[9] Borges-Tiago MT, Arruda C, Tiago F, Rita P. Differences between TripAdvisor and Booking com in branding co-creation. J Business Res. 2021 doi: 10.1016/j.jbusres.2020.09.050.
[10] Renjith Shini, Sreekumar A, Jathavedan M. An extensive study on the evolution of contextaware personalized travel recommender systems. Info Processing Management. 2020;1:102078. doi: 10.1016/j.ipm.2019.102078.
[11] C. Xu A novel recommendation method based on social network using matrix factorization technique Information Processing & Management (2018)



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