

A Keyword-Aware Hotel Recommendation Method on Map Reduce for Big Data Application



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ABSTRACT

In the last decade, the amount of customers, services and online information has grown very rapidly which has caused a lot problem for big data analysis for recommendations systems. The traditional recommendations systems mostly face issues such as scalability and inefficiency while analyzing large amount of data. Traditional Recommendations systems only consider single criteria while Multi Criteria systems consider varying criteria for each item. Even though Multi Criteria systems have good accuracy still they are not able to consider diverse user preferences and thus fail to meet users' specifications. We propose the method of Keyword Aware Service for Hotel Recommendation which identifies the negative and positive reviews from online customers and recommend hotel to users' with their personalized requirements. A Collaborative Filtering algorithm is used to generate accurate results from collected reviews.

Keywords: Recommendation, Service, Big data, Scalability, Collaborative, Multi Criteria.

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I. INTRODUCTION

The traditional Recommendations system for presenting recommendations of hotels where able to consider only single criteria related to hotels, though the existing system where used few years back, now in this last decade the online users have increased to large extent thus making it very difficult for these old recommendations system to process this Big data and generate possible outcomes thus need to adopt a new and more efficient recommendations system. Big Data possesses new challenges to these existing service recommendation systems. A Multi Criteria system can surely overcome these challenges but is still not efficient to consider online users' specifications considerably. A Multi Criteria system is able to process ratings and also can recommend other users based on variety of available data. This system do takes into consideration a high dimensions features due to the different rating parameters, still these systems fail to take into considerations the semantics of the reviews collected from users. The user reviews are mostly in natural language

form, but the recommendations system need a structured set of data to build different model for processing and analyzing different parameters and give recommendations to users. Tourism industry faces a lot of problems because the inefficiency of recommendations system to analyze and produce recommendations for hotel which might have good accommodations for customers from all over the globe. Apart from this the most important aspect is the context of the customers. Every customer have diverse preferences before selecting a hotel to stay these preferences may include hotel service, food quality, and facilities provided by the various hotels, we need to have a recommendations system which will remove these constraints and give optimized results. Thus we would like to propose a Keyword Aware Recommendations system for hotel booking which will considers diverse users' preferences with even keywords like swimming, food, clean, etc. This system will generate a lot of reviews in positive and negative sense about various hotels.

We intent to apply Collaborative filtering algorithm to process these reviews and generate optimized results. NLP, Bag of Words, Removal of Words, quality attributes are some other techniques which will help in optimizing reviews to generate proper semantic meaning of the data. So in this proposed system we will consider reviews of online customers from various sources and apply collaborative approach on it and will generate more optimized recommendations for online consumer regarding selection of hotels.

II. LITERATURE SURVEY

The majority of traditional Collaborative Filtering systems mostly operate on 2D user preference data in which each the user reveals his/her admiration about an item according to a single criterion. However, users might consider more than one criterion in order to rate a single item. For example, before revealing his/her admiration about a movie, a user might consider success of the director and acting, effectiveness of the visuals, and expressiveness of the story of the movie he watched. Thus, overall rating for the movie is composed of four different rating given for each criterion. It was later introduced that finding the actual correlations between users is more likely if multi-criteria ratings are considered.

Collaborative Filtering methods basically have two different types more popularly known as Memory-based and Model-Based which is dependent on the algorithm used. The former approach did not require computation at model building time, as they provide predictions based on ratings of the closest neighbors. The latter use previous user interactions to first learn a predictive model that is afterwards used to generate predictions. The main advantages of former techniques used are simplicity, efficiency, justifiability, and stability. However, memory approaches have a few drawbacks, but are not limited to sensitivity to data sparseness, inability to be pre-computed for in online recommendations which should be fast.

The second type model-based approach can be very faster than the earlier at the request time but mostly they have costly learning phase. Hence model-based approaches are preferable when recommendation speed is a critical factor.

III. PROPOSED SYSTEM

The proposed system has a different architectural model specified with various phases. Fig. 1.1 shows the various phases through which data goes to produce recommendations.

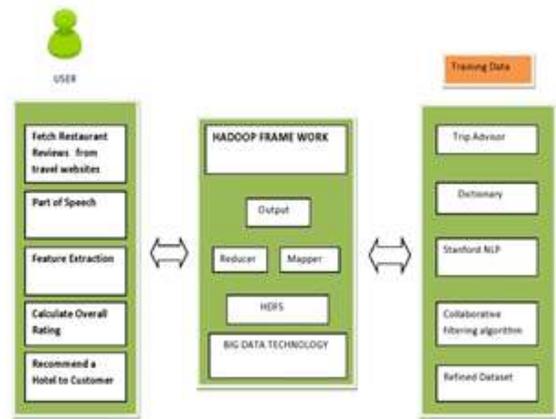


Figure 1.1: System Architecture

Fig. 1.2 shows the flow diagram of approach of the proposed system in detail.

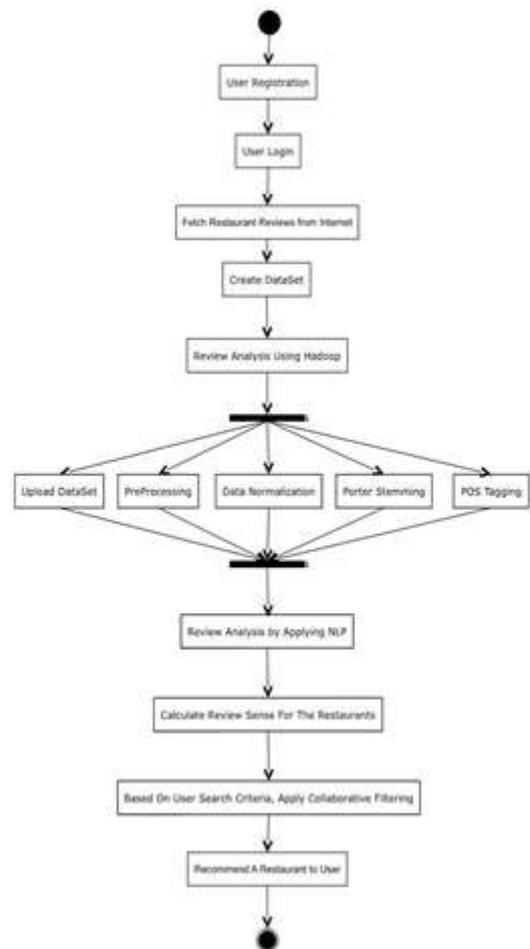


Figure 1.2: Data Flow Diagram

The fig 1.3 shows the component diagram of the proposed system which will make understand the way in which entire system will communicate with each other.



Figure 1.3: Component Diagram

IV. CONCLUSION

By implementation of this proposed system we can ease the process of online users as they will get benefited the most of this efficient recommendation system which involves keyword aware service. This system will easily find the hotel recommendations based on users' preferences of various services and their quality of service provided by various hotels near their location or worldwide. Thus by using this approach we try to overcome the challenges faced by the traditional systems and bring a significant change in Hotel Recommendations systems.

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