

An Effective Learning Automata for Recommending Users and Locations Based On Cloud

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ABSTRACT:-- *The advancement of personalized proposal frameworks has been an intriguing examination theme after the fast development in informal communication locales. In this paper, we propose a suggestion framework utilizing Learning automata (LA) and supposition investigation. LA is utilized to improve the suggestion score created by the proposed framework utilizing assumption investigation. The proposed Learning Automata-Based Sentiment Analysis System (LASA) suggests the spots close-by the present area of the clients by breaking down the input from the spots and along these lines ascertaining the score in light of it. Tests performed by us demonstrate that by utilizing LA, we can enhance the execution of the proposed framework, and, consequently, help a client to locate a particular area as per the need.*

Keywords— *Cloud, Learning Automata, Sentiment Analysis, Performance Evaluation*

1.INTRODUCTION

Recommender frameworks help clients by anticipating fascinating items and administrations in circumstances where the number and multifaceted nature of offers secures the client's ability to overview them and settle on a choice. Such frameworks are capacitated to anticipate recommendations that a client would give it on a thing or any social element. As expressed in recommender frameworks help in giving clients proposals about things that individuals with comparable perspectives and inclinations have loved previously. There are two courses in which recommender frameworks can create suggestions – community oriented separating and content-based sifting. Both of these methodologies are regularly joined and are named as Hybrid Recommender Frameworks. Cooperative sifting is one of the major approaches utilized for recommender frameworks that rely on upon the feelings and perspectives communicated by different clients. For instance, Foursquare prescribes places in view of the past registration of the client. Content-based sifting breaks down a arrangement of various attributes of a thing keeping in mind the end goal to suggest different things with comparative properties. For instance, Flipkart.com

recommends things in view of the quantity of individuals obtaining a thing and the criticism on the thing. In light of the above ideas, we have proposed a framework that is very valuable in the event that when a client goes to another place and needs some great suggestions for various things. Based on the past inputs on the spots identified with the questioned thing adjacent the client, the proposed framework fabricates score examination with the assistance of supposition investigation. Supposition investigation is a way to deal with discover clients' assessments. It comes as a piece of regular dialect preparing and message examination to decide and extricate valuable data from the given data. Assessment examination helps in distinguishing positive and negative reactions, feelings and perspectives. We utilize a half breed recommender framework approach for performing opinion examination. The proposed framework has been coordinated with a cloud stage.

In regular day to day existence, individuals settle on choices in view of the past encounters and histories. In like manner, our proposed framework considers the past went to spots of the client and the input on a similar thing. Our framework utilizes LA to perform the score examination in light of the clients past reactions on a specific thing or place. The proposed LA approach is helpful in evaluating the quantity of positive or negative reactions of a place or thing by an individual client. The utilization of LA approach for recommender frameworks is shown in late writing. Forsati et al. portrays an approach for compelling page suggestion utilizing the ideas of conveyed learning automata and affiliation lead mining. Talabeigi et al. shows a technique for web suggestion framework that utilizes half breed approach and ideas of cell automata. In this paper, we utilize LA ideas alongside feeling examination for proposal on cloud stages and informal communities for example, Foursquare and Facebook.

2.RELATED WORK

Learning automata is one type of Machine Learning algorithm studied since 1970s. Compared to other learning scheme, a branch of the theory of adaptive control is devoted to learning automata surveyed by Narendra and Thathachar (1974) which were originally described explicitly as finite state automata. Learning automata select their current action based on past experiences from the environment. It will fall into the range of reinforcement learning if the environment is stochastic and Markov Decision Process (MDP is used).

Sentiment analysis (also known as opinion mining) refers to the use of natural language processing, text analysis and computational linguistics to identify and extract subjective information in source materials. Sentiment analysis is widely applied to reviews and social media for a variety of applications, ranging from marketing to customer service.

Generally speaking, sentiment analysis aims to determine the attitude of a speaker or a writer with respect to some topic or the overall contextual polarity of a document. The attitude may be his or her judgment or evaluation (see appraisal theory), affective state (that is to say, the emotional state of the author when writing), or the intended emotional communication (that is to say, the emotional effect the author wishes to have on the reader).

With the rapid growth of the World Wide Web (WWW), finding useful information from the Internet has become a critical issue. Web recommender systems help users make decisions in this complex information space where the volume of information available to them is huge. Recently, a number of web page recommender systems have been developed to anticipate the information needs of on-line users and provide them with recommendations to facilitate and personalize their navigation. Recent studies show that a web usage recommender system which focuses solely on access history has some problems because sometimes this information is incomplete or incorrect. One common solution to this problem is to incorporate some semantic knowledge about pages being recommended into system. In this paper we exploit this idea to improve the dynamic web recommender system which primarily devised for web recommendation based on web usage and structure data. We propose a hybrid web page recommender system based on asynchronous cellular learning automata with multiple learning automata in each cell which try to identify user's multiple information needs and then assist them to recommend pages to users. The proposed system use web usage data, content and structure of the web site to learn user information needs and predicting user's future requests. Our experiments show that incorporating conceptual relationship of pages with usage data can significantly enhance the quality of recommendations.

3. EXISTING SYSTEM

Recommender systems aim to support users in their decision making while interacting with large information spaces. They recommend items of interest to users based on preferences they have expressed, either explicitly or implicitly. Recommenders systems help overcome the information overload problem by exposing users to the most interesting items, and by offering relevance.

Collaborative filtering is a widely used approach to solve the recommendation problem. The stored interaction (explicit or implicit) between the users of the system and the item set helps generate informed guesses for recommendations. Content-based filtering collects the information regarding the items and based on user preferences filters the results that the user is most likely to prefer. It simply depends on item description rather than the user ratings. Hybrid filtering is simply the combination of two or more recommendation strategies.

DISADVANTAGES

- User model is built analyzing user preferences and item attributes.
- Hard to found massively used examples -personalized news feeds.
- Item and user model is set of ratings

4. PROPOSED SYSTEM

In proposed system, when a user goes to a new place and needs some good recommendations for different items. Based on the previous feedbacks on the places related to the queried item nearby the user, the proposed system builds score analysis with the help of **sentiment analysis**. Sentiment analysis is an approach to find out users' opinions. It comes as a part of natural language processing and text analytics to determine and extract useful information from the given information. Sentiment analysis helps in identifying positive and negative responses, emotions and views. We use a hybrid recommender system approach for performing sentiment analysis. The proposed system has been integrated with a cloud platform.

ADVANTAGES

- ✓ Proposed system takes into account the past visited places of the user and the feedback on the same item.
- ✓ This system uses LA to perform the score analysis based on the users past responses on a particular item or place.
- ✓ The proposed LA approach is useful in estimating the number of positive or negative responses of a place or item by an individual user.

✓ The use of LA approach for recommender systems is demonstrated in recent literature.

6: S checks exist item name
7: if not exist then

5. MODULES

1. Identifying geo-location
2. Sentiment Analysis
3. Learning phase

Modules Description

1. Identifying geo-location

The initial phase of the system, works on identifying the geographic location of the connected nodes, which can include computer terminals or the mobile phones. A request is to be sent to the device to allow identifying its location. On acceptance by the user, the call back response is collected on the server, which includes the latitude and the longitude representing a real-world geographic location. According to geo-location detected, various items (places) are searched in the nearby radius based on the user’s query. These results are indexed on the server and are used in the next phase.

2. Sentiment Analysis

This phase includes processing of the data indexed by the server on the user’s query request. The comments and the user’s feedback are fetched and processed for sentiment analysis for getting a positive or negative classification on it. This is also combined with a confidence level indicated by probability factor between 0 and 1. The score is calculated by turning these feedback responses into numeric values by converting positive to +1 and negative to -1 and multiplying by the calculated probability.

3. Learning phase

The learning phase bases on the user’s previous history, including the feedback and check-ins at various places and comments on it, and, thus, gives a suitable personalized recommender system. This information is collected from various data sets and is processed. Thus, the system also learns by itself and improves the efficiency to provided better recommendations.

Algorithm

U <- User
S <- System
BEGIN
1: U login -> S
2: U enter Uid, Psw -> S
3: S authenticate
4: S give entry form -> U
5: U enter item name -> S

```

goto step3
else
    S perform sentiment analysis
End if
9: checks is responsive positive/negative
10: if response positive then
    updateScore
else
    reward/penalizeScore
    updateRating
    give response->U
end if
END
    
```

6. SYSTEM ARCHITECTURE

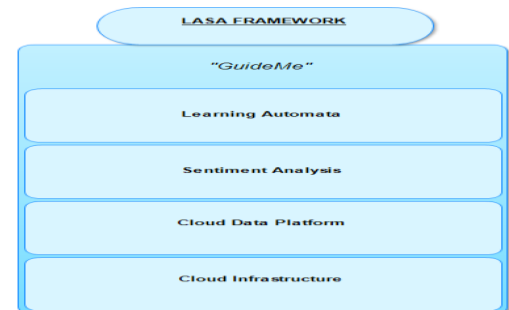


Fig.1 LASA Framework

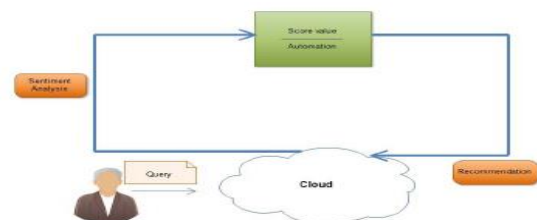


Fig. 2 Interactions between the cloud and the learning system

‘Guide Me’ is the name of the application that is deployed on LASA framework, as shown in Fig. 1. The user sends query to the system about the recommendation of the place. The cloud based system takes the request from the connected node, i.e., the user and processes the request to the server. It will go through various phases as shown in Fig. 1. The request served by the system fetches necessary information from the cloud data storage and passes to perform the sentiment analysis. This process evaluates the necessary

[10] S. Misra, P. V. Krishna, K. I. Abraham, N. Sasikumar and S. Fredun, "An Adaptive Learning Routing Protocol for the Prevention of Distributed Denial of Service Attacks in Wireless Mesh Networks", *Computers & Mathematics with Applications*, Elsevier, Vol. 60, No. 2, 2010, pp. 294-306.

[11] Amazon Web-service, <http://docs.phpfog.com/faqs/#difference-af-pf>

[12] P. V. Krishna, S. Misra, M. S. Obaidat and V. Saritha, "An Efficient Approach for Distributed Dynamic Channel Allocation with Queues for Real-Time and Non-Real-Time Traffic in Cellular Networks", *Journal of Systems and Software*, Elsevier, Vol. 82, No. 6, 2009, pp. 1112-1124.

[13] R. Chandrasekar, S. Misra and M. S. Obaidat, "FORK: A Novel Two- Pronged Strategy for an Agent-Based Intrusion Detection Scheme in Ad- Hoc Networks", *Computer Communications*, Vol. 31, No. 16, 2008, pp. 3855-3869.

[14] R. Chandrasekar, S. Misra and M. S. Obaidat, "A Probabilistic Zonal Approach for Swarm-Inspired Wildfire Detection Using Sensor Networks", *International Journal of Communication Systems*, Wiley, Vol. 21, No. 10, 2008, pp. 1047-1043.

[15] P. V. Krishna, S. Misra, M. S. Obaidat and V. Saritha, "Virtual Backoff Algorithm: An Enhancement to 802.11 Medium Access Control to Improve the Performance of Wireless Networks", *IEEE Transactions on Vehicular Technology*, Vol. 59, No. 3, March 2010, pp. 1068-1075.