MJRET

Open Access

Multidisciplinary Journal of Research in Engineering and Technology

Journal homepage: www.mjret.in

ISSN:2348 - 6953

TO STUDY MULTI DIMENTIONAL TRUST BY DATA MINING E-COMMERCE FEEDBACK COMMENT SYSTEM

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Abstract:*Generally Electronic commerce or E-commerce applications such as EBay and Amazon use reputation reporting system for trust evaluation where they gather overall feedback ratings from the sellers to compute the reputation score for a seller. The main issue raised with the reputation conduct system is "all good reputation" problem where most of feedback ratings are positive leading to high reputation scores for all sellers. In this case it is difficult for buyers to select the best or accurate seller that he/she can buy from. So in order to overcome this issue we propose an approach called the CommTrust which evaluates the multidimensional trust for seller by analyzing buyer's opinions on free text feedback comments. The main idea behind reputation analyzer is an algorithm CommTrust algorithm which is a topic modeling technique proposed for mining the online feedback comments by grouping aspect expressions into dimensions and compute dimension ratings for a seller.*

Keywords: *Social network, Recommendation System, Similarity graph*

1. INTRODUCTION

The World Wide Web i.e. www has generated several innovative probabilities to communicate with stranger persons around the globe. This conversation can be chat or a deal or it may be something else. When considering about deals that is fundamental goal is on trusts in. These days there are multiple examples in about the forgery dealings happening.

In e-commerce applications, the fundamental goal is consolidates towards generating the accurate trust. Various popularity methods are exist which provides the entire trust ranking to support the buyer to select sincere dealer out of a set of dealers. So here we need the exact trust evaluation which is important for each e-commerce system for its acquirement.

However the current methods fail to generate the precise trust ranking because these only concentrate on the advantageous scores. Here in these systems the all magnificent goodwill is fundamental problem for these methods. If we consider an example of EBay which is immensely one-sided towards the positive review these advantageous preconception cannot data buyers to prefer the dealer to handle with. By studying the data in the feedback comments posted by buyers we can approximate buyer opinions towards divergent features of deal and evaluate whole trust in user profile for supplier. Consider an example of opinions "looks good but slow distribution" intimates the positive opinions towards elements part and slow distribution conveys the dismissive thoughts towards the separation part. So here with exploration e-commerce reviews comments comprehensive trusts in data are prepared for dealers by combining dimension stature ratings and weights plus general trust ratings by collecting dimension stature ratings. By using data mining on e-commerce reviews feedback is the initial bit of task that numbers fine- grained multidimensional believe in profiles sequentially by exploration reviews comments.

To concentrate opinion view point case from review remarks and distinguish their opinions insights for each we present a plan that calculates trustworthy relation by using natural language processing. We are using here CommTrust algorithm computation concentrated around trustworthy concerned analysis to cluster prospective assert into computation and sign-up collect dimension evaluation and weights. Classification is operates on the trustworthy regards demonstration of situation viewpoints elucidation.

1.1 Problem Statement

In e-commerce applications sellers provide products and services to buyers and buyers pay for them. While the process of finishing these transactions firstly the quality of products second communication of sellers (whether the seller has friendly communication with buyers), third delivery time (whether the seller delivers items on time) and fourth shipping charges (whether the charges are reasonable). These are some of the dimensions which buyers are interested mostly. In online feedback comments various customers describe different aspects of dimensions in the comments. So in order to accurately identify these dimensions expressed in natural language textual comments is our second task.

2. LITERATURE SURVEY

The strong positive rating bias methods in the eBay reputation system has been well documented in literature [1] [2] still there are no effective solutions have been reported till now.

- J. O'Donovan and B. Smyth presented in[3] proposed to examine feedback comments to bring seller reputation scores down to a reasonable scale in which comments that do not demonstrate explicit positive ratings are deemed negative ratings on transactions.

- In [4] a comprehensive overview of trust models is presented. In which first Individual level trust models are aimed to compute the reliability of peers and assist buyers in their decision making. Whereas in [5]–[6] system level models are aimed to regulate the behavior of peers and prevent fraudsters and ensure system security.

- The multi-dimensional approach to fine-grained trust computation has been presented in some researches [7]. In this system individual and social reputations are computed and their ratings are combined to form an overall rating.

- N. Griffiths have presented in [8] the dimension scores are computed from direct experience of individual agents and then aggregated by weighted addition.

- [16] Presented a set of techniques for exploration and tighten views targeted around information exploration and natural language operation systems. further recommended implementing sentence details examples to improve the part shifting precision. But, these works do not collect prospective conclusion expression into parts.

- Reece et al. have proposed in [9] a probabilistic approach considering the correlation among dimension during aggregation.

Out of these trust models weightings for dimension trust are either not considered. However there are many factors considered in these models are not readily available in e-commerce applications.

3. SYSTEM IMPLEMENTATION

CommTrust presented effective criteria to describe calculating trust scores and computing loads undeviating by getting characteristics view utterance from review comments to choose trusted sellers out of all sellers present.

We are developing this work as a web application using Java technology and MySQL database. The web application is consisting of various modules like Login/Registration, E-commerce System, Trust evaluation module in order to calculate the multidimensional trust.

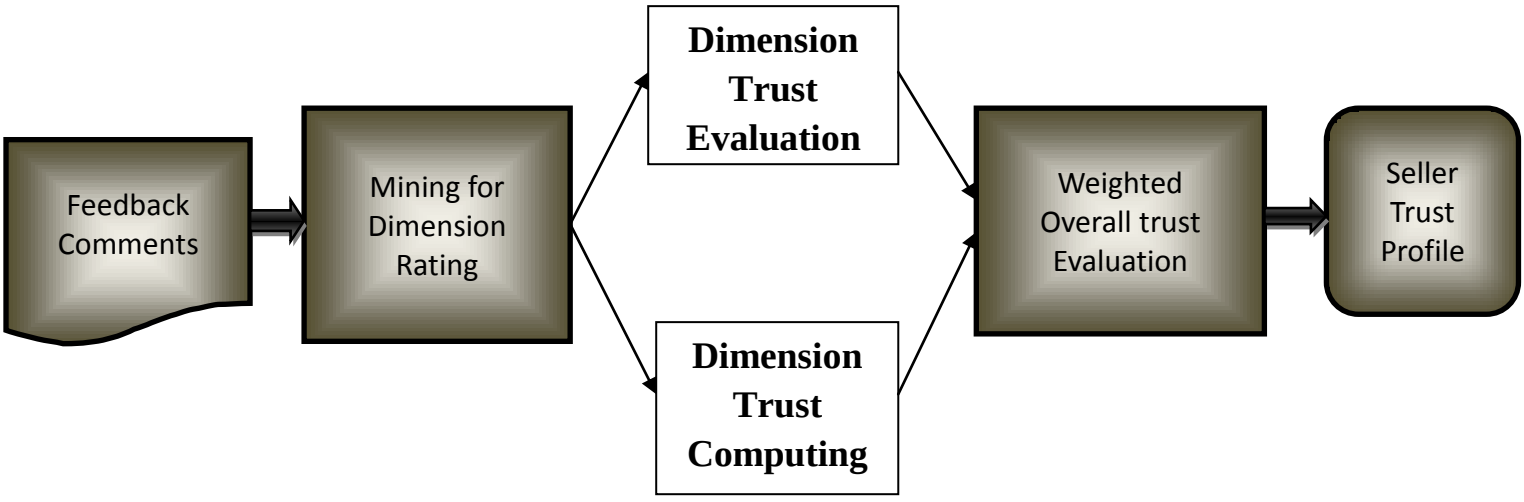


Fig.1: System Architecture.

Our proposed work architecture diagram is shown above. In this architecture firstly feedback comments are first collected for each seller. Based on this feedback comments we have

implemented a CommTrust algorithm in order to evaluate the multidimensional trust score of each seller. The CommTrust algorithm is given below.

CommTrust Algorithm:

Input**:** User comments

Step1: Divided the user comments into the sentences based on user identifiers such as but, and etc.

Step 2: Store each sentences into the array.

Step 3: Repeat step 1 and step 2 until all comment convert in to the sentences.

Step 4: This sentence will be tokenized into individual words to analyze them.

Step 5: The tokenized words are now compared with words in the database to decide the dimension whether it is shipping, quality.

Step 6: Again the tokenized words are then compared with words in another database to decide upon the dimension (positive, negative).

Step 7: These two databases are used to know the direction of dimension whether it is Positive (ex: “good delivery”) or negative (ex: “slow shipping”).

Step 8: Once the direction of dimension and dimension weights are computed, rating will be given accordingly which is stored in another database. This process continues until all the sentences are given rating.

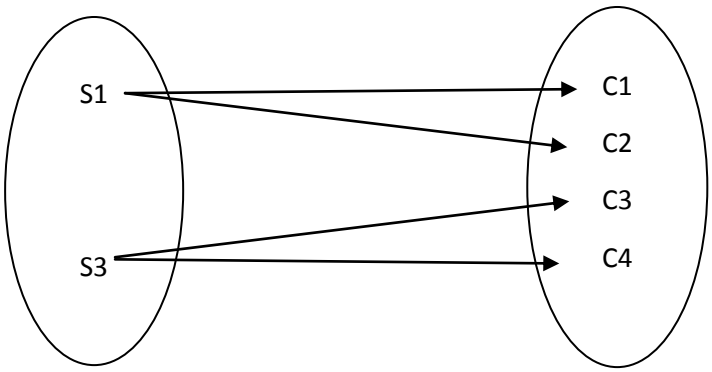
Step9: Those value will be taken and giving the final rating to all comment.

Step 10: Add all positive rating in to the positive score, negative rating to the negative score.

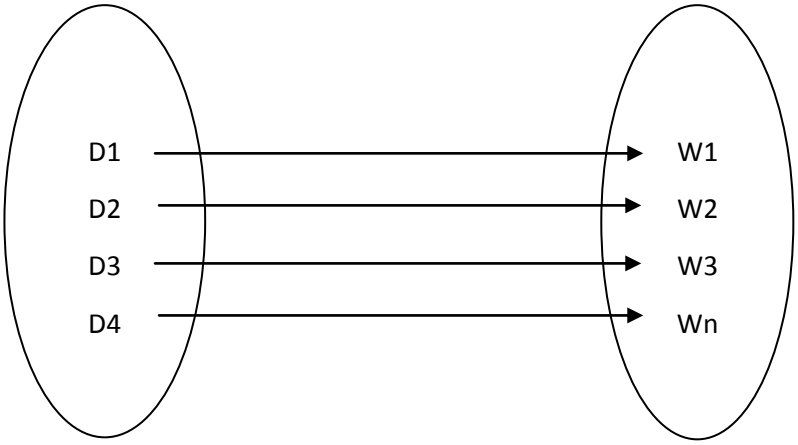
Step11:Final rating=[(Positive score + Negative score)/(Number of row in the table)].

Mathematical Model:-

- The system can be represented as S={ U, S, C, D, W, TD }
- Consider a set U as a set of users registering with our system which is represented as U= {U1,U2, U3,…..,Un}, Where U1- user of system
- Now consider another set S, a set of sellers selling their products through e-commerce application. Which can be represented as S = {S1, S2 ,S3,….,Sn}
- Here we are considering a set C as feedback comment set we are using to analyze multidimensional trust of a seller which can be represented as C = {C1,C2,C3,….,Cn}
- The relationship between set s and set c can be evaluated as follows



- Another set D={D1,D2,D3,..,Dn} which is a set of dimensions which we are using to evaluate the trust score of each seller.
- Now each dimension have a certain weight w which can be represented in set W as follows W={W1,W2,W3,….,Wn}
- The relationship between dimension set D and weight of each dimension W can be represented as



- For mining the comments we are using multidimensional comment mining algorithm presented above-
- The set TD={TD1,TD2,TD3,…,TDn} which is a set of dimension trust score for each seller.
- Now in order to find out the overall trust score of a seller we have to aggregate the dimension trust scores of each dimension

  $T = \sum(TD1+TD2+....+TDn) /(n)$
- This score T represents the overall trust score of seller, so we are here showing the multi-dimensional as well as the total overall score of a seller to the user of a system.

4. CONCLUSION

The reputation systems used in commercial and online applications are prone to vulnerabilities. Thus the reliability is being questioned. When the area of e-commerce is taken into consideration, the sellers need to be ranked accurately so that the customers could find it easy to choose between trustworthy sellers in e-commerce applications. This ranking can be done with the help of the feedback given by the buyers. There are different models to put forward the reputation of the sellers. But the methods adopted by them in reputation score calculation are different. Depending on such methods the rankings given to each seller also vary. The ranking which relate more closely to the manual ranking is the most effective and efficient method i.e. if the correlation between manual and automated rankings is strong enough, then it can be concluded that the corresponding automated ranking is much efficient and effective in ranking sellers and can be used widely as reputation systems in e-commerce applications.

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