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Feedbuzz : A feedback system with Automated solutions

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Abstract

The currently present system take feedback from customers for their respective products in unorganized manner i.e. negative and positive feedbacks aren't sorted. This makes it difficult for the administration to have a clear picture of a specific product. Also admin has to manually provide solutions to the customers in case of any inconsistencies. The main motivation of our project is to overcome the above mentioned problem. This system will segregate the positive and negative feedbacks given by the customers. Simultaneously it will automatically generate solutions to the negative feedbacks. Categorization of the negative and positive feedbacks will help the administrator to have a clear picture of the complete performance of the product.

Our system is mainly based on Apriori and MOPNAR (Multi Objective Positive Negative Association Rules) algorithms. Using Apriori set of rules, association rules are generated and using MOPNAR (Multi Objective Positive Negative Association Rule) algorithm, solutions are provided to negative reviews.

Keywords: feedback; mopnar; sentimental analysis; apriori; segregation; association rules; data mining

1. INTRODUCTION

Feedbuzz: A feedback system with automated solutions mainly deals with the feedback system. The present feedback systems do not sort the positive and the negative feedbacks. Similarly, the administrator has to manually type and give solutions to the consumers. Feedbuzz: A feedback system with automated solutions separates the positive and negative solutions and automatically produces solutions to the negative feedbacks given by the consumers.

Key features which makes our system enhanced:

- All the reviews are sorted as positive and negative reviews unlike the existing system.
- Also, the system give emphasis to the negative reviews while existing systems do not give.
- The most important feature of this system is that it delivers solutions to the negative reviews automatically.

2. DESIGN AND IMPLEMENTATION

A. System Architecture

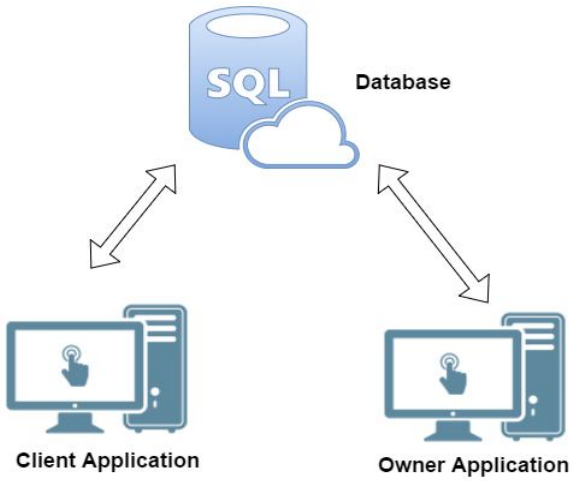

Fig.: System Architectural Diagram

The set of the components narrates the complete design of the system. It also provides indirect functioning of the system. Admin system here, implements Apriori algorithm to find out the critical problems whereas User system implements Sentimental Analysis algorithm (Logic) for segregation of reviews and MOPNAR algorithm for providing solutions to the negative reviews. Therefore, System provide services to admin and begin analyzing the problems regarding the products. It also provide services to user applications in order to analyze a product and receive solutions for negative reviews.

B. Implementation of the system

The system has developed using multiple edge cutting technologies like Net Beans, Java swing and Java web technology.

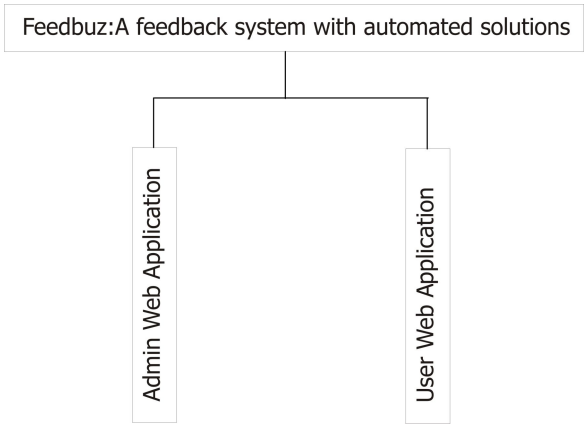

Figure 2: Deployment Modules of the system

NetBeans used for developing web applications which forwarded multiple requests to database and database provides data to the user.

User web application facilitates purchasing the product, view all reviews of a product. It also provide the functionalities alike segregation of feedbacks as well as inspecting the solutions for negative feedbacks. Admin web application is for administrator who is taking care of add and manage menu.

Admin web application is also provided through functionalities such as segregation of feedbacks and viewing of critical complications of products. Web applications implemented pool of algorithms to provide service to admin and multiple users. Maximum pre-dominant algorithms are "Apriori, Sentimental Analysis and MOPNAR (Multi Objective Positive Negative Association Rules) algorithm". Handler first provides feedback for a product and after that based on positive and negative word datasets the system segregates the feedback and provide solutions for negative feedbacks to customer. At the admin net application the feedbacks provided by the user provided by the user are fetched and segregated (separated), which helps in determining the actual and frequent problem of products.

3. TECHNOLOGIES USED

A. Abbreviations and Acronyms

1. MOEA : Multi Objective Evolutionary Algorithm
2. MOPNAR : Multi Objective Positive negative Association Rules

B. Technologies

- This system is mainly based on Hbase Apriori algorithm. Using Apriori algorithm, association rules are generated.
- MOPNAR (Multi Objective Positive Negative Association Rule) algorithm. Using MOPNAR algorithm solutions are provided to negative reviews.
- NLP i.e. Natural Language Processing and Machine Learning Concepts are also used.

1) Apriori

Apriori is an algorithm used for frequent item set removal and association rule learning over transactional records. It proceeds by classifying the frequent individual items in the database and extending larger item sets as long as those sets appear sufficiently often in the database. The frequent item sets determined by Apriori can be used to decide association rules which high spot general trends in database: this has applications in fields such as market basket analysis. Apriori uses bottom up approach, where frequent subsets are drawn-out one item at a time known as candidate key generation, and collections of candidates are tested against the data.
The algorithm dismisses when no additional successful extensions are found. Apriori uses breadth first search and a Hash diagram structure to count candidate item sets resourcefully. It generates candidate item sets of length k from item sets of span k-1. Then it trims the candidate which has an infrequent sub pattern. According to the downward closure lemma, the contender set comprises all frequent k length item sets. Future, it scans the transaction database to market decide frequent item sets among the candidates.

2) MOPNAR

In the last years, the digital revolution has provided relatively inexpensive and accessible means of collecting and storing data. This limitless growth of data led to a situation in which the knowledge extraction process is more difficult and in most, cases, leads to problem of scalability and /or complexity. Association discovery is one of the most mutual data mining techniques used to mine interesting knowledge from large datasets. Association rules are used to identify and signify dependencies between items in dataset. These are demonstrations of the type $X \rightarrow Y$, in which X and Y are article sets and $X \cap Y$. Therefore if the items in X exist in an example then it is highly possible that the items in Y are also in example, and X and Y should not have items in common. A high number of earlier studies on mining association rules have concentrated on datasets with discrete or binary values; but in real world applications, data generally consists of measureable values. Because of this, different studies have been presented for quantitative

association rules (QARs) from data with quantitative values. Most of these algorithms usually extract positive QARules without paying particular attention to negative QARs. Nevertheless, rules such as →¬ Y may be taking account, as they relate the presence of X to the absence of Y. Negative association rules consider the same set of items as positive association rules but, in accumulation may also include negated items within the antecedent (¬X→Y) or consequent (X→¬Y) or both of them (¬X→¬Y). In recent years, some researchers proposed methods for extracting positive and negative association rules from quantitative data. The researchers deal with two key problems in negative association rule mining how to successfully search for interesting item sets and how to effectively identify interesting negative association rules.
MOPNAR, a new MOEA (Multi Objective Evolutionary Algorithm), in order to mine with low computational cost a reduced set of positive and negative QARules (PNQARs) that are interesting, easy to understand, and with a good trade-off among the number of rules, support, and coverage of the datasets. To accomplish this, our proposal, extends the recent MOEA based on decomposition MOEA/D-DE in order to perform a condition selection and an evolutionary learning of the intermissions of the attributes for each rule, maximizing three aims: comprehensibility, interestingness and performance. Moreover, this proposal introduce a restarting process and an external population (EP) to the evolutionary model in order to promote variety in the population, store all the non-dominated rues found, and improve the coverage of the datasets

3) Sentimental Analysis

Sentimental analysis refers to the usage of natural language processing (NLP), text analysis and computational etymology to identify and extract subjective information in source materials. Sentiment analysis is widely used with reviews and social media for a variety of applications, ranging from marketing to consumer service. Generally speaking, sentiment analysis intentions are to determine the attitude of a speaker or a writer with respect to some topic or the overall contextual divergence of a document. The attitude may be emotional state (that is to say, the emotional state of the writer when writing), or the intended emotional communiqué (that is to say, the emotional influence the author wishes to have on the reader). The attitude may be his or her judgment or evaluation (see appraisal theory), sentimental state (that is to say, the emotional state of the association writer when writing), or the intended emotional statement.
A elementary task in sentiment analysis is sorting the polarity of a given script at the document, sentence, or aspect level — whether the uttered opinion in a document, a sentence or an entity is positive, negative, or neutral. Or Advanced, & beyond polarity; sentiment classification gazes, for example, at emotional states such as & angry & sad and happy

4. ALGORITHM USED

1. Apriori

Step 1 : An item set can only be large item set if all its subset are large item sets.
Step 2 : Frequent item sets, means sets of items that have minimum support.
Step 3 : All the subsets of a frequent item set must be frequent for e.g. {PQ} is a frequent item set {P} and {Q} must also be frequent
Step 4 : Find frequent item sets frequently with cardinality 1 to k (k-item set)
Step 5 : Generate association rules from frequent item sets

2. MOPNAR

Step 1 : Generate positive and negative association rules from frequent items set.

Step 2 : Initialize all the universal parameters involved in genetic algorithm.

Step 3 : Create the child chromosomes of the positive and negative association rules and compute the fitness value of each specific child chromosomes. Compare the individual fitness value of each child with the mediocre fitness value and generate again the positive and negative association rules.

Step 4 : Crossover and mutate the remaining child chromosomes and reinitiate the fitness value and recalculate and regenerate final positive and negative rules.

5. RESULT AND DISCUSSION

By the practice of FEEDBUZZ: A Feedback system with Automated Solutions, the performance of a particular product can be improved. This will eventually lead to enhancement of the overall system performance. Presently, this software has limited applicability. But then in the near future, it can be implemented on large scale. Data and Text Mining is a well-known area of research in Computer Science. There are a numeral algorithms used in Script Mining among which sentimental analysis, Apriori and MOPNAR (Multi Obective Positive and Negative Association Rules) have been applied in this system. Thus, it will improve the upcoming feedback systems undertaken by the huge organization

6. CONCLUSION

- Due to the nifty working of FEEDBUZZ: A Feedback System with Automated Solutions, the administrator's tedious work of physically typing solutions to each and every negative feedback is avoided.
- It also gives the customers a prearranged view of the reviews for some product, Also, the administrator can keep a check on the performance a specific product and work further for its improvement.
- It provides an optimum and efficient way of sorting a feedback system in an organized manner and automatically generating solutions which gives a way to build a smart system. It is an computerized system which informs about the status of performance of the product an focuses on user requirements and product enhancement

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References

[1] A New Multi Objective Evolutionary Algorithm for Mining a Reduced Set of Interesting Positive and Negative Quantitative Association Rules. Diana Mart'in, Alejandro Rosete, Jesus AlcalaFdez, Member, IEEE and Francisco Herrera, Member, IEEE.

[2] Study on Application of Apriori Algorithm in Data Mining. Yanxi Liu School of science, Changchun University, China 130022 liuyx.ccu@163.com.

[3] Opinion Mining and Sentiment Analysis in Social Networks: A Retweeting Structure-aware Approach. Lui Lin, Jianxin Li, Richong Zhang, Weiren Yu and Chenggen Sun State Key Laboratory of Software Development Environment School of Computer Discipline Engineering Beijing University, Beijing, China {linlu, lijx, zhangrc, yuweiren, suncg}@act.buaa.edu.com

[4] Positive and Negative Association Rule Mining using Improved MOPNAR Ms. S.G.Hiwase1, Prof. R.R.Keole2 [1]Department of Computer Science and Engineering S.G.B.A.U, Indian [2]Department of Information Technology S.G.B.A.U, India 1 hiwase.suwarna@gmail.com; 2 ranjitkeole@gmail.com

[5] A Novel Fuzzy Positive and Negative Association rules algorithm by- HU Kai, 2010.

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