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Pseudo Code to Eliminate Unwanted Data Sets for Fuzzy Mining Association Rule

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Abstract— We all know that data mining association rule is very easy for small or medium data sets. If we apply fuzzy association rule then it will be a complex task for large data sets. we reduce the computational time or large data sets in to smaller data sets by applying the proposed algorithm. For large data set then we require more computational task on data sets to find the candidate item sets and large item sets again and again. It is necessary to reduced large data sets into smaller data sets before applying mining association rule. On this paper we proposed the algorithm to easy way to calculate data mining association rule.

Keywords—Fuzzy Logic, Data Mining, Row Count

I. INTRODUCTION

Now a day's fuzzy logic and data mining are the two most important techniques on the field of research area. Fuzzy logic uses linguistic variable to provide the answer that human being are not able to give. Whereas data mining is used to find out the essential things from large data sets ,then apply some association data mining algorithm to find the relationships among the item sets. This research paper find out the range of linguistic variable by using standard deviation and mean in place of assuming its values. This algorithm may be implemented in SCILAB of MATLAB tools.

II. LITERATURE REVIEW

Mohammed Al-Maoleg1[1] et al chooses those item sets that are frequently present in particular transaction id. Its algorithm works on low support .3 and reduces the time complexity of the program very easily. Zhiyong ma [4] et al converts all the item sets into Boolean matrix by using CP tree method and reduces the time for the task.Arpnashrivastava [5] et al , in this paper the authors have used the codes for all the items and remove the duplication by using data cleansing technique. This is also most efficient as compared to simple Apriori algorithm. K. Sathesh Kumar and M. Hemalatha [3] , this paper reduces the operational time carried out by Apriori algorithm by using artificial Bee colony optimization method (FABCO).Mehmet Kaya et al [38] , in this paper the author find the efficient algorithm by carried out mining fuzzy clustering algorithm (CURE). They found out the centroid by CURE for triangular membership function.so that they can range the fuzzy membership method correctly and also reduces the computational time. As we know we need some kind of association rule to perform data mining algorithm. Getting this Agrawal and his co-worker carried out some mining algorithm based on the large data sets, which is difficult to find association mining rule [9-18]. These break the mining steps into two phases. In the first phase candidate of item sets are obtained and counted by scanning the transactions. The number of item set must support the minimum pre-defined threshold value called minimum support. Then later we make the pair of item sets and apply the association rule for getting the required output. Srikant and Agrawal also proposed partitioned based mining association algorithm. The fuzzy set was first carried out by Zadah in 1965 [37]. Fuzzy set are used to provide the answer, when human being are unable to provide the answer of some complicated questions. Hong et al, proposed a fuzzy mining algorithm to mine fuzzy rules from quantitative data [31]. They required each quantitative data into a fuzzy set and fuzzy steps to find fuzzy rule.Cai at al proposed weighted mining rule of data sets [22]. Yue et al, extended the fuzzy concept based on vectors [36].Most of them are find out the range of triangular fuzzy membership function directly , means they assumed the range of linguistic variable. But on Our paper we have find out the range of linguistic variable by using mean and standard deviation.

Relevant attribute and membership function is carried out by Hong [29]. He also combines Fuzzy Logic and Data Mining techniques to improve the operational time. The aim of his research is to remove unwanted data sets from very large data items. Chang [24] et al Fuzzy decision tree is carried out by using the cluster technique. Mining association rule was also performed by Hang [32]. The aim of his research is digging out the essential or useful item from very large data set. He also wants to improve the data mining algorithm in terms of time complexity. I used [9],[15] for comparison with Our algorithm. They have done on fuzzy mining association rule to reduce the computational time. The pseudo code are as follows

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III. PSEUDO CODE (ALGORITHM)

STEP:1 Analysis the data sets whether it is homogeneous or heterogeneous. Homogeneous means the given data set carries same values. i.e all variables contains similar values. There is no rating for variables values.

STEP:2 If the given data sets is heterogeneous. The attributes are variable values contains rating .i.e separate the data sets according to rating. Find out standard deviation and mean separately of different rating.

STEP:3 Create or build triangular membership function and define or assume the range of linguistic variable with the help of standard deviation and mean of given data sets i.e low middle and high for different rating data sets.

STEP:4 Find out the fuzzy values of data sets

Separately .In this, we have used triangular membership function because of its easiness and computational efficiency. We can also use Gaussian membership function.

We can categories it's as Low, Middle and high.

STEP:5 Combine the fuzzy values of different data sets in to a single table.

STEP:6 Count its row values and column values of fuzzy values data sets. i.e

Row Values: it is a valid value present in the row accept zero.

Column Values: it is a valid value present in the row accept zero.

STEP:7 Select the row which has maximum number of row values or contains at least 60% of count value. Count Value: Row values/ Total no of items

STEP:8 Select only those values that satisfy the step 5. This data set is important or essential data sets used for building fuzzy mining association rules. Discard the remaining data sets because they are not important for mining association rule.

STEP:9 Select the column which has more than 60% of count value. This column values plays an important role in making data mining association rules.

STEP:10 Apply data mining fuzzy association rule on the above important or useful data sets and Construct the association rules for all the large item set .there are three possible association rules.

IV. CONCLUSION

This algorithm or pseudo code plays an important role in the field of eliminate unwanted data sets and reduced computation data sets . We also can predict the result from large data sets very easily.

V. FUTURE SCOPE

For future work, we can predict the result of association rule without applying the Data Mining association algorithm based on the fuzzy classification technique. There will be possibility to improve or upgrade this algorithm.

VI. APPENDIX

Appendixes, if needed, appear before the acknowledgment.

VII. ACKNOWLEDGMENT

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REFERENCES

- [1] MOHAMMED AL-MAOLEGI ,BASSAMARKOK "AN IMPROVED APRIORIALGORITHM FOR ASSOCIATION RULES" INTERNATIONAL JOURNAL ON NATURAL LANGUAGE COMPUTING VOLUME 3 , NO-1 , FEBRUARY 2014.
- [2] N S Nithya and K Duraiswami "Gain ratio based fuzzy weighted association rule mining classifier for medical diagnostic interface" vol 39 part 1 ,february 2014 , pp 39-52 .
- [3] K Sathesh Kumar and M Hemlatha "An innovative potential on rule optimization using fuzzy artificial bee colony" Research journal of applied science , engineering and Technology.. volume 2627-2633 , ISSN:2040-7459, E-issn:2040-7467, April 05 2014.
- [4]zhijiong MA , QingyingQiu and PeieenFeng "CPM algorithm for mining associaotion rules from databases of engineering design+n instances." Journal of information science and engineering vol30 , 463-481 (2014)
- [5]Arpnashrivastava , R . C Jain and A K shrivatava "Generating 3rd level association rule using fast aprioriimplementation."British journal of mathematics and computer science. Volume 4 (2):241-251, 2014
- [6] Neelukhare ,neeruadlakha, K R pardasani "An algorithm for mining multidentional fuzzy association rule" international journal of computer science and information security vol 5, no-1 ,2009
- [7]Thomas sudkomp "Refinement of temporal constraints in fuzzy association " volume 48(2008) 14 June 2007
- [8] Tiberiu Ban , Fuzzy computing for complexity level of evaluation tests. StudiaUniv, Babes-Bolai, Informatics, Volume LVIII number 1, 2013
- [9]Tzung-Pei Honga,Chan-Sheng Kuob,Shyue-Liang Wangc "A fuzzy AprioriTid mining algorithm with reduced computational time" Volume 5, Issue 1, December 2004, Pages 1-1
- [10] Tzung-pei-Hang, Guo-Cheng lan, Yi-Hsinlin and Shing-tai pan. An effective gradual data reduction strategy for fuzzy item set mining international journal of fuzzy systems , vol 15 no2 June 2013.
- [11]Usha Rani, R VijayaPrakkash, Dr A. Gavardhan,Mining Multi-level association Rules using fuzzy, International journal of emerging technology and advanced engineering. Volume 3, issue 8, August 2013.
- [12] RuchiBhargava ,Shrikant lade , Effective positive negative association rule mining using improved frequent pattern tree. International journal of advanced research in computer science and software engineering. Volume3 , issue 4 April 2013 .
- [13] DharmendraKumar , Deepak Bhardwaj rise of data mining: Current and Future application areas. IJCSI international journal of computer science issue vol 8 issue 5 No1 September 2011.
- [14] KanuPatel ,Vatsalshah , jitendrapatel , jayna donga comparison of various association rule mining algorithm on frequent item sets. International journal of advanced research in computer Science and software engineering Vol-3 issue II Nov 2013 .
- [15] JrShianchen hung liehchou, ChingHsue Cheng, jen-ya Wang CPDA Based Fuzzy association rules for learning achievement mining, 2009 international conference on machine learning and computing IPCSIT vol3 (2011) IACSIT PRESS SINGAPUR.
- [16]E Ramaraj, K Rameshkumar, N Venkatesan"A better performed transaction Reduction algorithm for mining frequent item set from large voluminous database"Volume 5, Issue 1, December 2004, Pages 1-10
- [17] R. Agrawal, T. Imielinski and A. Swami, "Mining association rules between sets Submitted manuscript 24 of items in large database," The 1993 ACM SIGMOD Conference, Washington DC, USA, 1993.
- [18] R. Agrawal, T. Imielinski and A. Swami, "Database mining: a performance perspective," IEEE Transactions on Knowledge and Data Engineering, Vol. 5, No.6, 1993, pp. 914-925.
- [19] R. Agrawal, R. Srikant and Q. Vu, "Mining association rules with item constraints," The Third International Conference on Knowledge Discovery in Databases and Data Mining, Newport Beach, California, August 1997.
- [20] R. Agrawal and R. Srikant, "Fast algorithm for mining association rules," The International Conference on Very Large Data Bases, 1994, pp. 487-499.
- [21] A. F. Blishun, "Fuzzy learning models in expert systems," Fuzzy Sets and Systems, Vol. 22, 1987, pp 57-70.
- [22] C. H. Cai, W. C. Fu, C. H. Cheng and W. W. Kwong, "Mining association rules with weighted items," The International Database Engineering and Applications Symposium, 1998, pp. 68-77.
- [23] L. M. de Campos and S. Moral, "Learning rules for a fuzzy inference model," Fuzzy Sets and Systems, Vol. 59, 1993, pp.247-257.
- [24] R. L. P. Chang and T. Pavlidis, "Fuzzy decision tree algorithms," IEEE Transactions on Systems, Man and Cybernetics, Vol. 7, 1977, pp. 28-35. Submitted manuscript 25
- [25] M. Delgado and A. Gonzalez, "An inductive learning procedure to identify fuzzy systems," Fuzzy Sets and Systems, Vol. 55, 1993, pp. 121-132.
- [26] W. J. Frawley, G. Piatesky-Shapiro and C. J. Matheus, "Knowledge discovery in databases: an overview," The AAAI Workshop on Knowledge Discovery in Databases, 1991, pp. 1-27.
- [27] A.Gonzalez, "A learning methodology in uncertain and imprecise environments," International Journal of Intelligent Systems, Vol. 10, 1995, pp. 57-371.
- [28] T. P. Hong, C. H. Chen, Y. L. Wu and Y. C. Lee, "Using divide-and-conquer GA strategy in fuzzy data mining", The Ninth IEEE Symposium on Computers and Communications, 2004.
- [29] T. P. Hong and J. B. Chen, "Finding relevant attributes and membership functions," Fuzzy Sets and Systems, Vol. 103, No. 3, 1999, pp.389-404.
- [30] T. P. Hong and J. B. Chen, "Processing individual fuzzy attributes for fuzzy rule induction," Fuzzy Sets and Systems, Vol. 112, No. 1, 2000, pp. 127-140.
- [31] T. P. Hong and C. Y. Lee, "Induction of fuzzy rules and membership functions from training examples," Fuzzy Sets and Systems, Vol. 84, 1996, pp. 33-47.
- [32] T. P. Hong, C. S. Kuo, and S. C. Chi, "Mining association rules from quantitative data," Intelligent Data Analysis, Vol. 3, No. 5, 1999, pp. 363-376. A. Kandel, Fuzzy Expert Systems, CRC Press, Boca Raton, 1992, pp.8-19. Submitted manuscript 26
- [33] H. Mannila, "Methods and problems in data mining," The International Conference on Database Theory, 1997.
- [34] R. Srikant and R. Agrawal, "Mining quantitative association rules in large relational tables," The 1996 ACM SIGMOD International Conference on Management of Data, Montreal, Canada, June 1996, pp. 1-12.
- [35] C. H. Wang, J. F. Liu, T. P. Hong and S. S. Tseng, "A fuzzy inductive learning strategy for modular rules," Fuzzy Sets and Systems, Vol.103, No. 1, 1999, pp.91-105.
- [36] S. Yue, E. Tsang, D. Yeung and D. Shi, "Mining fuzzy association rules with weighted items," The IEEE International Conference on Systems, Man and Cybernetics, 2000, pp. 1906-1911.
- [37] L. A. Zadeh, "Fuzzy sets," Information and Control, Vol. 8, No. 3, 1965, pp. 338-353.
- [38]Mehmet Kaya1,*, Reda Alhajj1,*, Faruk Polat2, and Ahmet Arslan3 "Efficient Automated MiningofFuzzyAssociation Rules "DEXA 2002, LNCS 2453, pp. 133-142, 2002.

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