Finding out Fast Moving and Slow Moving Items using Fuzzy Logic

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Abstract *- The discovery of fast moving items and slow moving items which have been restricted by the increasing costs as well as expansive number of item sets, to mine a small number of fast moving items with fewer costs and finding a vast length of the fast moving items which can be identified in a very big data sets and which are very useful in various application domains. In this illustrated paper, it is precisely about the key discovery of unique patterns by traditionally using fuzzy logic and accurately assessing their potentiality and the considerable power of one's attention of naturally attracting as per the practical knowledge of the potential user. The goal is to find out patterns of very crucial and useful associations, have a certainty and concern to the user which in turn helps in lessening the costs, time and space constraints by extracting the persistent items displayed statistically and as well as a pictorial representation through a graph or chart.*

Keywords**:** *Associations, fast moving items, patterns, slow moving items*

I. INTRODUCTION

The main objective or the purpose is to perceive fast moving items with in a group of arrangement. The items having been discovered are called interrelations. The proposal of uncovering such rules is procured from Market Basket Analysis where the target is to refer to a thing or the things belonging to or associated with the sample forms, which narrate or outline the customers procuring conduct. Now a day, mining this type of regulations is a very significant unearthing method in the KDD approach.

In this paper the issue of locating the fast moving item sets has been defined to produce automatically using fuzzy logic by dividing into types and sub types. The types of items are (FMI) Fast Moving Items and (SMI) Slow Moving Items and the type of customers are classified into subtypes as Top 10 and Regular. The FMI are the item sets which are frequent item sets and SMI are the item sets which are not frequent. The outcome is it automatically produces patterns of association rules displaying the customers procuring behavior depicting through a graph which in turn helps the end user or the manager of a shopping mall to restrict the inventory or stock of item sets which are not frequent and enables to plan and design a proposal accordingly for the future procurement/requirement.

This paper has been organized into Section I contain the introduction of Market Basket Analysis, Section II contains the related work of Market Basket Analysis, Section III contains the architecture and the methodology followed in obtaining the (FMI) Fast Moving Items and (SMI) Slow Moving Items., Section IV describes results and discussion, and Section V conclusion with future scope.

II. RELATED WORK

In 1993 Agrawal, Imielinski, Swami has proposed an algorithm AIS which has two phases and in the primary stage it constitutes the provocation of the frequent item sets. and in the next stage confident and frequent association rules are produced.

In 1996 Rakesh agrawal and Ramakrishnan Srikant, "Fast algorithm for mining association rules," recommended a hybrid algorithm, known as Apriori Hybrid which suggests that as the average size increases, the execution time will also increase.

In 2014, Mohammed Al-Maloegi, Bassam Arkok proposed an improved Apriori algorithm where the gap between improved Apriori and the original Apriori increases from view of time consumed, and whenever the value of minimum support increases, the gap between improved Apriori and the original Apriori decreases from view of time consumed.

V.Vijayalakshmi, Dr.A.Pethalakshmi proposed an Efficient Count Based Transaction Reduction Approach for Mining Frequent Patterns where the whole database is scanned only once and the data is compressed in the form of a Bit Array Matrix.

III. METHODOLOGY

Identifying the Fast Moving Items with a maximum length by generating types and subtypes.

Produce fuzzy association rules, and the importance of every rule [1] [5] is resolved by its support which is the quantity of documents in the database where A and B prevail/appear together and are called as robust association rules when they connect or overreach a minimum confidence. Measuring by means of number of times more repeatedly appear together than anticipated if they were according to or by means of statistics of an independent which is called as lift. It is not a downward closed and does not suffer from the scarce item problem.

In this there are two significant steps. The first one is fuzzy partition creation based on the crisp dataset given, using these partitions to create a version which is of fuzzy and which can be used by any Association Rule Mining algorithm modified for the fuzzy context either using expert-driven or data driven approach. For data-driven FCM algorithm, a fuzzy extension of the K Means algorithm helps in fuzzy partitions.

The second one is using fuzzy partitions preserve information encapsulated in the numerical attribute as well as able to convert it to a categorical attribute albeit a fuzzy one. Therefore, many fuzzy sets [2] [5] [6] can be defined on the domain of each quantitative attribute, and the original dataset is transformed into an extended one with values of the attribute having fuzzy membership in the interval [0, 1].

The third one is the fuzzy apriori algorithm where the fuzzy dataset has been generated which is required for fuzzy apriori as input using our preprocessing methodology. The user defines sets to which the items in the original database are mapped and transformed after comparing with minimum support and items with less support value are deleted. The fast moving items will be generated from the candidate item sets. From old ones new candidate items are created in a subsequent step. The following pruning step removes all item sets if any of its subsets which do not appear in candidate item sets-1. Finally, the association rules are generated from the discovered fast moving items providing the following functionality.

(1) Finding out the fuzzy item sets from the quantitative data.

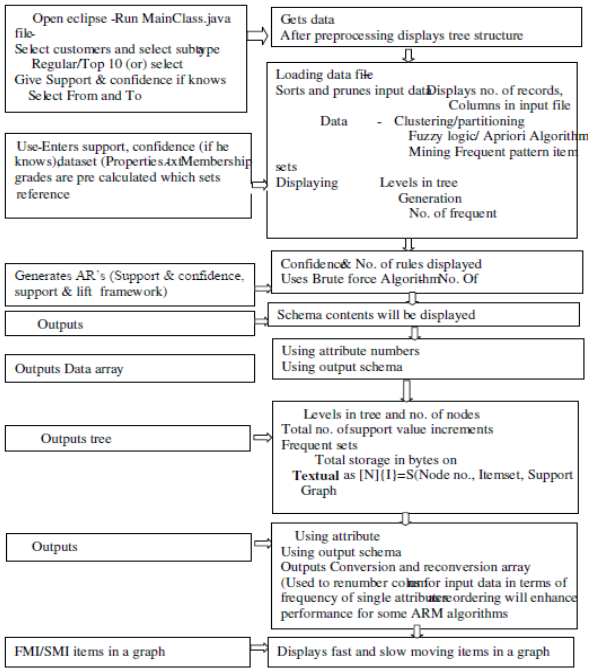
(2) The requisite fuzzy set theoretic operations have been performed.

(3) From fuzzy data create fast moving items.

(4) Out of the fast moving items, the association rules have been generated.

(5) Now examine the found rules or presumed rules with fuzzy support and fuzzy confidence values.

Fig .1.Research Methodology -System Design



Here, implementing the modified apriori algorithm for finding the result using filtered approach which uses the concept to invert the instances and to remove the infrequent items and also compare the time of execution, storage, etc.

The FMI graph shows the fast moving items i.e. frequent item sets, this enables a user to plan for procurement of the requirement of FMI as and when required.

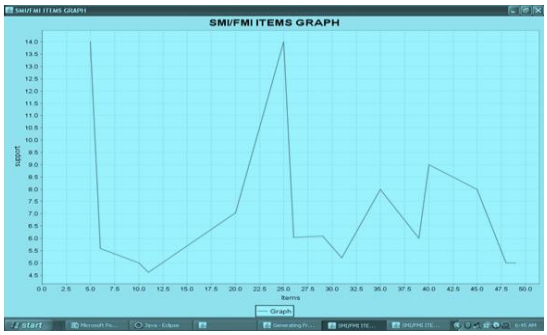


Fig.2. FMI Items Graph

The SMI graph shows the slow-moving items i.e. infrequent item sets, i.e. items which are not frequent item sets and this enables a user to limit purchases to the minimal requirement in a fixed period.

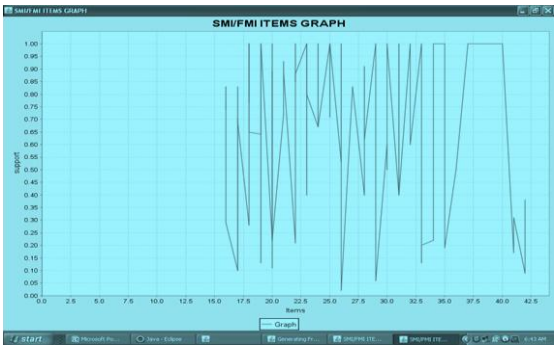


Fig.3. SMI Items Graph

IV. RESULTS AND DISCUSSION

In this paper, the method of generating frequent item-sets are noted while not multiple scans of the information by classifying into sorts and subtypes through a graph. Optimization of your time and area has been improved during this algorithmic program. Here, the output isn't foreseen specifically, however finding structures that are unknown and are there within the existing dataset. This system orders the instances of a dataset into teams with attributes and values similar and to search out a finite range of unknown classes during a dataset by making sorts and subtypes that permits a user to search out what normal purchases are and analyze the fast-paced things and slow moving things sporadically diagrammatical through a graph/chart and consequently makes the user style an idea for his or her future procure. This system needs terribly bit of involvement even for terribly vast datasets. So, it occupies low memory area.

V. CONCLUSION AND FUTURE SCOPE

The objective is to get a customary means of information displaying for each fuzzy dataset, so that; it's useful for the particular fuzzy association rule mining process by any fuzzy ARM algorithmic program. In future development cloud mining, massive information then on may be thought of as a replacement approach to use data processing because it may be a lot of accessible and simple because of value effective machine resources for mining and analyzing large amounts of knowledge because the data is being shifted from one server to a different server during a peer to see transactions. Several parameters have an effect on the performance of algorithms like time taken to form fast-paced things, inter-site communication value, range of scans through an information, etc. So, if we tend to mix data processing with cloud computing we will save a substantial quantity of area that may profit to a good extent, however correct care ought to be thought of therefore on making sure the security of information beneath cloud computing.

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