LOCATION BASED PRIVACY PRESERVING OUTSOURCED ASSOCIATION RULE MINING ON VERTICALLY PARTITIONED DATABASES

[1]Anju Vijayan, [2]Jasmine Jose
[1]Student, [2]Assistant Professor
[1]Computer Science,
[1] St. Joseph's College Thrissur, India

Abstract : Mining the frequent itemsets or association rules on a vertically partitioned databases in a secure manner is quite challenging. Identifying the frequent itemset and association rules plays an important role in market basket analysis.Each do not want to disclose their transaction details to other data owners. So by securing the data of each data owners helps to get their results securely without leaking the transaction details from a joint database. We propose another method for privacy preserving by identifying location of each data owner who put their datas into a joint database.It helps to get the location of each data owners who wish to learn the frequent itemsets or association rules and also adding an extra feature of viewing the number frequency of each items.

IndexTerms – Association rule mining ,Frequent itemset mining ,Frequency checking ,Location Identifying ,Privacy preserving Data mining.

I. INTRODUCTION

Association rules and frequent itemset mining [1][2] is an interesting branch in data mining .Frequent itemset mining is a method of identifying the frequently occurring items or common sets of items.it is a step of association rule mining .After identifying the frequent itemsets by using algorithm Apriori on data.,it will generate the association rules.Association rules are mainly used for predicting the customer behavior.It is Association rules are like if –then rules.it has two parts an antecedent(if) and a consequent(then).An antecedent is an item that is found in data .A consequent is an item that is found in data.it consists of two criteria support and confidence helps to get the interesting relationships between the itemsets. Support is an indication of how frequently the items appear in the database .Confidence indicates that the number of times an antecedent and a consequent statements have been found to be true.These both mining techniques are applied in market basket analysis [6],product clustering etc.To compute it in a secure way without disclosure of results like transaction details is very essential.So in the case of a joint database privacy plays an important role where each data owner encrypt and sent their private database consisting of transaction details to the server for storing and and getting the mined association rules .The main contributions to these paper are:
Identifying the locations of each data owner who wish to join their datas into a joint database to get the mined result consisting of association rules or frequent item sets.
Viewing the number of frequency of each item sets of each data owner from the joint database.

II. EXISTING SYSTEM

In our existing system data owners will encrypt their datas using secure homomorphic encryption scheme [1] and also adding fictitious transactions in to it then sent it into the joint database .The server will perform the combined mining using Apriori algorithm.

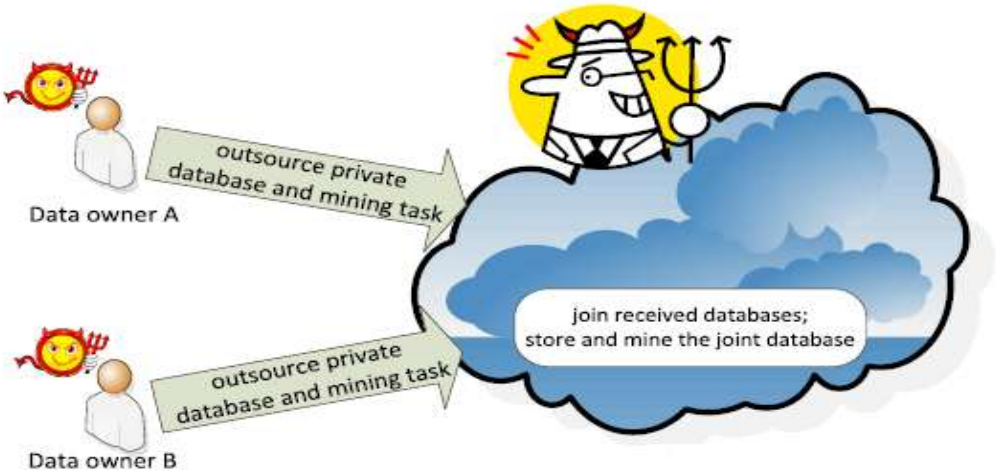

figure .1

In figure.1 multiple data owners will sent their private database to the server and the server will join received database to store and mine.

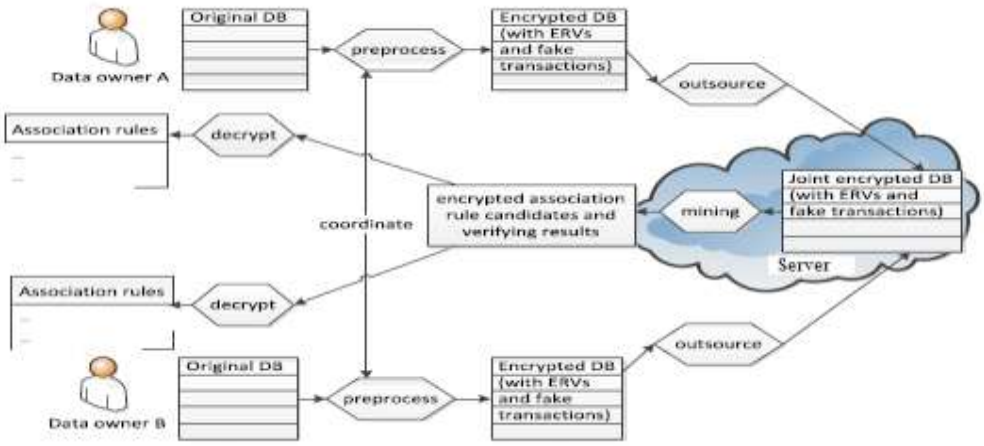

figure.2

In figure.2 multiple data owners will encrypt their database and adds fictitious transactions to it and send to the server for mining.The server will mine the association rules and send to the data owners in a secure way by using homomorphic encryption scheme.

III. PROPOSED SYSTEM

In our proposed system location of each data owner is identified and checks the frequency of each itemsets .It will give the number of times where the items will occur because association rule mining is performed in a joint database.From combined mining it is difficult to identify the frequency of items of each data owner seperately ,our proposed system will overcome this problem and sent to corresponding data owners.

IV. METHODOLOGY

This paper proposes a location based privacy preserving outsourced association rule mining on vertically partitioned databases[3].Identifying location of each data owner plays an important role in this paper.Mining the frequent item sets that is uploaded by the data owner.Here the data owner plays the role of a shop owner who wish to get the frequent itemsets that has purchased by the customers from his shop and also shop owner needs to store the transaction details of customer like customer name,phone number,mail id,shop name in the server.So security is required because the server is performing combined mining.

4.1 Location Identification

The location of each data owner who wish to learn the association rule will be identified.So in the case of joint database multiple data owners will upload their file consisting of transaction details before that location will be identified.

4.2 File Uploading

In this section each data owner will enter into the system to upload the file including the details of customer details each transaction details of each customer and send to the server.Server consists of join database.For security each data owner will encrypt their data using efficient Homomorphic encryption scheme and send it.

4.3 Association Rule Mining

It is the process of identifying interesting relationships between the items**.** The server will store the details and mine the frequent item sets from the joint database.The server will receive it in an encrypted format and after getting frequent item sets, automatically association rules will be generated.This process is done by using Apriori algorithm[5].After that server will sent the results to corresponding data owners and also each data owner can able to see the frequency of each item.

V. IMPLEMENTATION

figure.3 Home Page

figure.4 Identifying data owner location

figure.5 Data owner 1 uploads the encrypted file

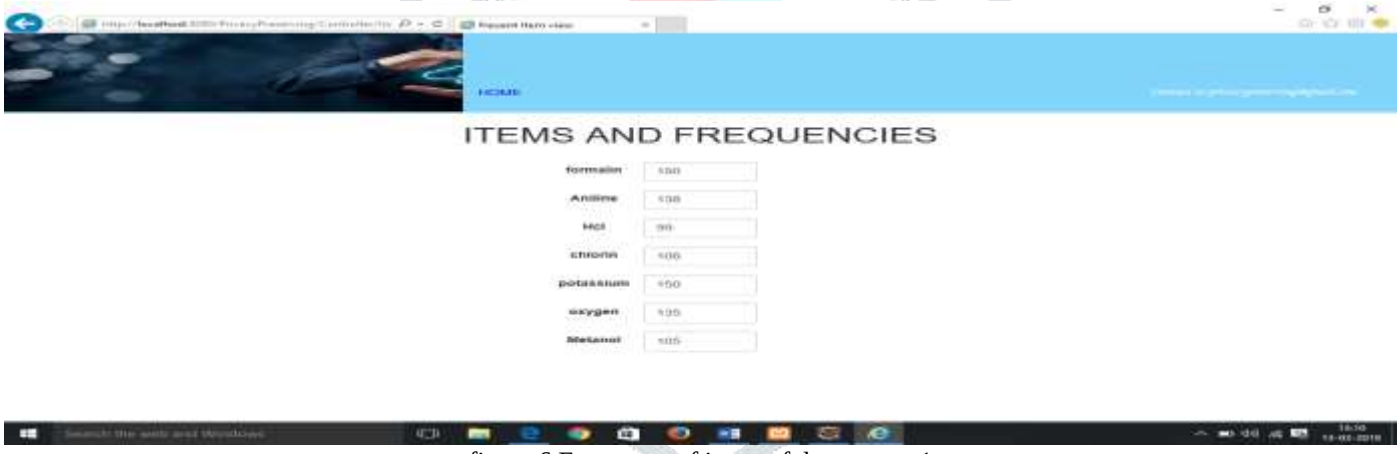

figure.6 Frequency of items of data owner 1

figure.7 Data owner 2 uploads the encrypted file

figure.8 Frequency of items of data owner 2

figure.9 Combining two datas of two data owners

figure.10 Result of data owner 1

figure.11 Result of data owner 2

VI. CONCLUSION

In this work ,location based privacy preserving outsourced association rule mining on vertically partitioned databases.Here locations of each data owner who wishes to learn their association rules generated by the server will be identified.The frequency of each items will be viewed to their corresponding user in a secure manner.It helps to understand the different data owners location because privacy of each data owner plays an important role.By getting the number of frequency of each itemsets give an overall view of the frequent item sets.In future we can use another algorithms to give more security than homomorphic encryption scheme.

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