

International Journal of Advance Research in Computer Science and Management Studies

Research Article / Survey Paper / Case Study

Available online at: www.ijarcsms.com

Conceptual Model of ERP with Web Server and Android Application Using K-means Clustering Based on Data Mining

Pranoti P. Jagtap¹

BE Information Technology
Dr. D. Y. Patil College of Engineering
Ambi, Talegaon-Dabhade – India

Jyoti J. Danawale²

BE Information Technology
Dr. D. Y. Patil College of Engineering
Ambi, Talegaon-Dabhade – India

Nidhi A. Chitambare³

BE Information Technology
Dr. D. Y. Patil College of Engineering
Ambi, Talegaon-Dabhade – India

Sangita M. Jaiswal⁴

BE Information Technology
Dr. D. Y. Patil College of Engineering
Ambi, Talegaon-Dabhade – India

Abstract: Most of commercial ERP packages are designed for a large-scale company so that it is difficult to accept a commercial ERP package in terms of small and medium-size companies. Therefore, it is necessary for small and medium-size companies to search for an approach for the ERP solutions. In this Paper, we are further extending ERP system by connecting to open source web server which will provide web services to the employees and owner of companies. And also we are providing owner with the Android Application so that he can get the company updates. The system will mainly focus on Data Mining which includes algorithms like K-means clustering and Apriori. K-means clustering organizes all the patterns in a k-d tree structure such that one can find all the patterns which are closest to a given prototype efficiently and this will make our system reliable.

Keywords: ERP-Enterprise Resource Planning, Data Mining, K-means Clustering, Apriori algorithm, Android Application.

I. INTRODUCTION

Numerous small scale and large scale companies are facing a critical and challenging task to analyze, manage the large data efficiently. To overcome this type of problems Standalone application is developed with Data Mining and Clustering proved the right solution with improved technologies. This system handles the data with Data mining and using the Clustering algorithms like K-means and Apriori Algorithms. Provides with the functions to simplify the transactional, managerial, marketing and resourcing aspects of the enterprise by constructing an ERP system to oversee these modules which will aid in increasing the productivity, efficiency and marketability of the store allowing the enterprise to be competitive. Clustering is the process of partitioning or grouping a given set of patterns into clusters. This helps in grouping of data in database and makes the search easy in system. Further the system is extended by using Web Server which provides the web services to the employees in companies and also the owner. Using Web server it makes employees to manage the data online and increases the efficiency of the system. Owner is provided with the Android Application so that he can access the information and get the updates of companies everywhere.

Following models have been designed for efficient ERP system with different algorithms and techniques:-

1. Standalone model:

To save the daily transactional data in database from the company this model is first used. It is used by the staff to store, retrieve, and update and also to manage the data by using the algorithms like K-means algorithm for clustering and Apriori algorithm for aggregation of data. Standalone model is not satisfactory model for efficient ERP system, so another model to provide strong database is used.

2. Web Server model:

Open source Web Server has been used to provide with the web services to the employees in companies. Also use of this makes the standalone model to improve its effectiveness. It makes the database stronger to handle the daily transactional process easily without any problems. Web server handles all the SQL queries without any error and provides well-organized data. Web Services helps employees to retrieve effective data from database.

3. Android Application:

Android Application provides with the graphs and charts of profit and loss of the company's market to the Owner. He can also handle the suppliers, bills and products etc or sending order, payments etc through Android Application. Every time his presence is not needed in company so he can handle it anywhere through this application. This makes the project more reliable, effective from other systems or ERPs.

II. ARCHITECTURAL FLOW

The following diagram shows the flow of data in project.

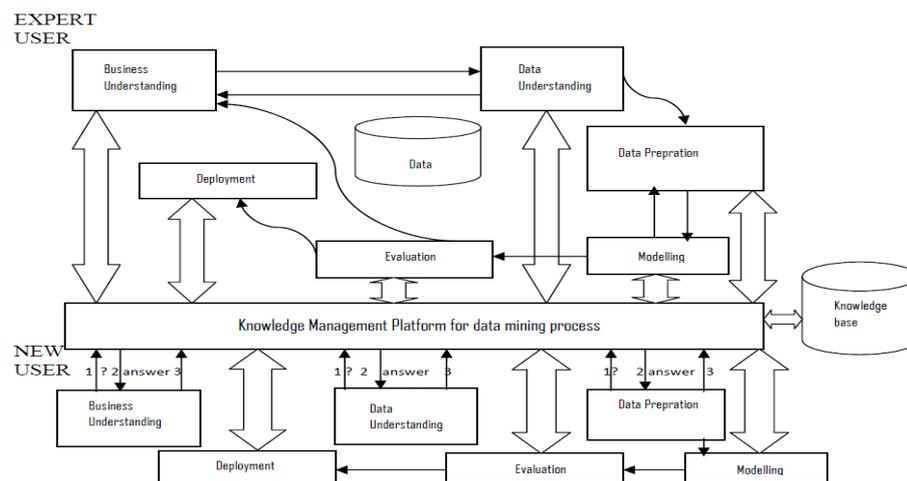


Fig.1 DFD for Data Mining Process

III. K-MEANS CLUSTERING ALGORITHM

This is K-means algorithms which clusters the data into the similar cluster and disjoint clusters.

1. First place the K points into the space represented by the objects that are being clustered. These points represent initial group centroids.
2. Assign each object to the group that has the closest centroid.
3. When all objects have been assigned, recalculate the positions of the K centroids.
4. Repeat steps 2 and 3 until the centroids no longer move. This produces a separation of the objects into groups from which the metric to be minimized can be calculated.
5. Thus, algorithm helps to improve the efficiency of the project.

IV. CONCLUSION

In this project, we used K-means Algorithm and Apriori Algorithm for clustering and aggregation of the data which improves the effectiveness of the system. Reducing clustering time enables the use of larger sampling percentages to improve clustering accuracy and gives the researcher greater flexibility when interactively exploring data archives. To solve the problem of data storage and efficiency the best solution is web server which our system provides with the web services to the employees and the owner.

References

1. Optimization of Horizontal Aggregation in SQL by Using K-Means Clustering- Nisha.S B.Lakshmi pathi , Volume 2, Issue 5, May 2012.
2. R. C. Dubes and A. K. Jain Algorithms for Clustering Data Prentice Hall.
3. T. H. Cormen, C. E. Leiserson, and R. L. Rivest. Introduction to Algorithms. McGraw-Hill Book Company.
4. L. Kaufman and P. J. Rousseeuw. Finding Groups in Data: an Introduction to Cluster Analysis. John Wiley & Sons, 1990.
5. U. Fayyad, D. Haussler, and P. Stolorz, "Mining Scientific Data,"Comm. ACM, vol. 39, pp. 51–57, Nov.