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## A REVIEW ON THE ROLE OF DATA MINING IN BANK

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## ABSTRACT

Data mining is the process of automatically searching large volumes of data for patterns. It is the term used to describe the process of extracting knowledge from a large amount of data. Data mining is also known as Knowledge-Discovery in Databases (KDD). Data mining techniques plays important role in banks. The huge amount of data generated by bank transactions. This large amount of data processed and analyzed by traditional methods and these methods becomes too complex. Data mining techniques provides technology to transform large amount of data into information for decision making. This paper reviews data mining techniques and its applications in banks. The main purpose of this paper is to study various data mining models and techniques used in banks for decision making.

## KEYWORDS

customer relationship management (CRM), data mining algorithms, data mining tools, fraud detection and prevention.

## 1. INTRODUCTION

The bank contains data related to the customer information, transactions details, loan details etc. To get better financial performance and customer relationship banks started other applications such as net banking which reduces cost and time. Use of internet and automated software's completely changes basic concept of banking, this will result into increase in data. The data generated by bank is very huge amount and too complex to be analyzed by traditional methods. This data need to be converted into information. Without data mining it is difficult to process and realized the large data collected within banks. So, there is need to generate powerful tool for analyze data and extract information from huge complex data. In the present era, the technology becomes advanced and it facilitates to generate, capture and store data in increased extremely. Today, data mining become important part for many business organizations including banks because there is need of capable technology for detecting unknown and valuable information in banks. Most of banks uses data mining technologies which can be help them to compete in the market. The results generated by the data mining technologies provides benefits to banks like customer segmentation, profitability, customer relationship management, fraud detection and prevention in transactions etc.

## 2. RELATED WORK

1. Research of the Bank's CRM Based on Data Mining Technology, Yong Wang, Dong Sheng Wu<sup>[1]</sup>, Researchers work focuses on data mining analysis methods that are classification analysis, association rule analysis, cluster analysis and sequential pattern analysis. According to the quality of bank's customers this paper introduces the CRM and data mining tools combined. By using classification technique the researcher explain classification of bank's customers and build decision tree by applying ID3 algorithm. They inspect that use of data mining technology in banks improves high quality CRM target.
2. Data Mining Techniques and its Applications in Banking Sector -Dr. K. Chitra<sup>1</sup>, B. Subashini<sup>[2]</sup>, researcher inspect, customer holding is most important factor in banking sector. The major problem in banking sector is fraud. Detecting and avoiding fraud is major issue because imposter uses new patterns all the time. In this paper the researcher analyze the data mining techniques- supervised and unsupervised data mining algorithms for fraud detection and prevention. In the supervised data mining algorithm they prefer Decision Tree, Generalized linear models (GLM), minimum description length (MDL), Naive Bays (NB) and Support vector Machine (SVM). For the unsupervised data mining algorithm they suggest Apriori, k-Means, Non-Negative Factorization and One class support Vector Machine. They also focus on data mining applications in banking sector.
3. 'Use of Data Mining in Banking'-Kazi Imran Moin, Dr. QaziBaseer Ahmed<sup>[3]</sup>, this paper describe the overview of data mining techniques and highlights the applications of data mining. Huge amount of customer's data can be stored in data warehouses that data can be mined and then the data can be analyzed. According to researcher, data mining is very helpful for the banks for getting new customers, fraud detection and credit scoring.
4. A REVIEW ON DATA MINING IN BANKING SECTOR-Vikas Jayasree and Rethnamoney Vijayalakshmi Siva Balan<sup>[4]</sup>, in this paper researchers highlights the importance and advantages of data mining techniques in banking sectors. This paper provides the information about data mining tools is used in various departments in bank. Department implements data mining technologies in various areas such as customer segmentation and profitability, detection of fake transactions, credit risk that can be changes in the value of credit products, money market business etc. As per the researcher's opinion, marketing departments of financial organizations uses data mining algorithms to analyze customer's interest in the product and another product related with existing one. According to the researcher, in strategic planning clustering is used and web services provided by banks uses pattern mining algorithm.
5. DATA MINING APPROACH TO PREDICT PROSPECTIVE BUSINESS SECTORS FOR LENDING IN RETAIL BANKING USING DECISION TREE Md. Rafiqul Islam<sup>1</sup> and Md. Ahsan Habib<sup>2</sup><sup>[5]</sup>, researchers analyze issues in retail commercial bank. To predict the future of business sectors in retail bank the researcher design a model using decision tree classification technique in data mining and then tested its efficiency with the Weka software. According to the researcher the output of proposed model is almost same as the Weka software.
6. Data mining: Techniques for Enhancing CustomerRelationship Management in Banking and Retail Industries - P Salman Raju, Dr V Rama Bai, G Krishna Chaitanya<sup>[6]</sup>, mainly discuss data mining techniques and its applications with major areas like customer relationship management, fraud detection and prevention, credit card approval.
7. A Review: Application of Data Mining Tools in CRM for Selected Banks. Dileep B. Desai ,Dr. R.V.Kulkarni<sup>[7]</sup>,This paper reviews Data Mining tools and applications for Customer Relationship Management in Banks. They highlights data mining algorithms are used to predict bank profitability and payment from customers, detecting fraud transactions, marketing and for customer segmentation.
8. Loan Credibility Prediction System Based on Decision Tree Algorithm- Sivasree M S Rekha Sunny T<sup>[8]</sup>, researcher proposed effective model for credit risk assessment. In this work decision tree induction data mining algorithm is used to generate the related attributes and also make the decisions in the model i.e. to approve or reject loan request of the customers. In this work the Weka data mining tool is used.
9. A Comprehensive usage of Enhanced K-Medoid Clustering Algorithm in Banking Sector-B. Kalaiselvi<sup>[9]</sup>, researcher uses clustering technique and K-Medoid algorithm in data mining for loan approval of customers. According to the researcher, bankers can easily sanction loan for customers by using K-Medoid algorithm. Also researcher focuses on limitations of K-Medoid algorithm.
10. Bank Direct Marketing Based on Neural Network -Hany. A. Elsalamony, Alaa. M. Elsayad<sup>[10]</sup>, Researcher compares two different data mining techniques models Multilayer perceptron neural network(MLPNN) and Ross Quinlan new decision tree model (C5.0) for bank deposit subscription. As per researchers opinion C5.0 has slightly better performance than MLPNN. Performance of these two models measured by using three statistical measures: classification accuracy, sensitivity and specificity.



### 3. CONCLUSION

Most of the researcher uses integrated data mining techniques like neural network, classification and clustering, decision tree algorithms for getting better performance. Some researchers focus on issues in customer transaction. They suggested data mining techniques for fraud detection and prevention. Many researchers provide work for credit risk assessment which helps bankers to approve or reject loan of customer. According to the researchers, decision tree algorithm and clustering technique is more useful in credit risk assessment. They also focused on data mining techniques and its applications. It is observed from the above review of literature that majority of researchers have used and would like to conduct study on data mining techniques in banks with reference to customer relationship management, portfolio management.

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With sincere regards

Thanking you profoundly

**Academically yours**

Sd/-

**Co-ordinator**

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