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"THE ELECTRONIC DATA MANAGEMENT USINGDATAMININGTECHNIQUESINBANKING

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ABSTRACT"

Studying banks' use of data mining, which is the capacity to connect organized and unstructured information with changing rules of application, is the goal of this research. An information technology solution is not a technology in and of itself. At the moment, a number of businesses are using Data Mining tools for customers such as banking, finance, retail and insurance. To better serve their customers, banks are increasingly turning to Data Mining techniques such as segmentation, scoring, and approval to identify high-risk borrowers, anticipate payment defaults, conduct marketing campaigns, and discover illicit activity. The banking industry is discovering that data mining may be used to obtain a competitive edge. Using data mining in organized banking is shown to be useful in this essay. Analyze numerous data mining applications in various industries as well as common activities related with data mining

Introduction

"DEFINITIONOF DATAMININGANDITSTASK

Knowledge discovery in databases (KDD) relies heavily on data mining, which creates helpful patterns. KDD and data mining are two distinct fields. KDD is a term used to describe the whole process of obtaining usable information from data." The term "data mining" refers to the process of sifting through vast amounts of information to uncover new patterns and glean usable information[1]. Iterative sequence approaches are used in the KDD process, as follows:

1. *Selection*: locating and obtaining from the database the information needed to complete the analysis
2. *Preprocessing*:Data cleansing and aggregation; removing noise and inconsistencies.
3. *Transformation*:Data mining is the process of transforming raw data into useful information.
4. *Data mining*: the process of determining which data mining technique is best for a certain pattern in the data
5. *Interpretation/Evaluation*:Identifying and eliminating patterns that are redundant or unnecessary to the overall picture; Encouraging others to think in words that are comprehensible to them

There are two major goals in data mining: The purpose of forecasting and describing data is Other key factors (such as classification, regression, and anomaly detection) may be predicted from data sets by employing particular variables.

To summarize, the six primary purposes of data mining are as follows:

1. Classification is the process of identifying models that examine and categorize a data point into a number of specified categories.
2. Regression is the process of translating a data point to a real-valued prediction variable.
3. Using clustering, you may organize your data into smaller, more manageable groups.
4. Determining a model that accurately reflects the relationships between variables is known as Dependency Modeling (Association Rule Learning).
5. Deviation Detection (Anomaly Detection) is the process of detecting the most important changes in the data.
6. Finding a concise explanation for a subset of data is the goal of summarizing it all down.

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"EFFECTIVENESSOF DATAMININGTECHNIQUE"

It is known as "data mining" to look at and summarize data from a variety of angles. The current DM techniques were developed over a lengthy period of time.

A data mining process consists of extracting, converting, and loading transactional data into the data warehouse system, as well as giving business analysts with access to the data in a format that they can utilize to analyze the information. Application software may be used to analyze and then show the data, such as in a graph or table. Predictive and descriptive DM strategies are the most common options to choose from. Predictive DM analyzes previous data to make inferences about what will happen next. To anticipate the future, predictive mining activities employ data to develop a model that predicts future occurrences. A primary goal of descriptive data mining is to uncover patterns in the data that otherwise go unnoticed since the data itself obscures any underlying relationships. Descriptive mining tasks need an understanding of data's broad features. [5].

"One or more databases, data warehouses, or other information repositories might all be used as data sources in a data mining system. The data mining engine is at the core of any data mining system." Data mining methods and rules may still be used in the system. Pattern evaluation module relies on the database to keep and supply the data it need to evaluate the data mining results[6].

2. "APPLICATIONOFDATAMININGINBANKING"

Information contained in data bases may be mined to assist solve business issues by uncovering patterns, relationships, and correlations that are buried in the data. There is a significant reward for the banks who have embraced data mining[7]. According to the Reserve Bank of India Act 1934, banks are expected to submit statutory returns in electronic format to determine CRR and SLR duties, as well as Off-site Monitoring Surveillance reports, on a regular basis in electronic format. It was reported that Dr. A. Vasudevan and his team at RBI submitted their data mining results on July 17th, 1999, according to the committee. There are a variety of data mining approaches that may be used to obtain different ALM reports including the Statement of Structural Liquidity and the Statement of Interest Rate Se, according to the committee. As a result of a data warehouse, there are no conflicting analytical outputs or disagreements over the quality of data utilized for analysis, enabling trend analysis and forecasting to be performed. As a result, a data warehouse makes it feasible to handle data in a reliable and efficient manner. For financial institutions as well as for businesses, data warehousing and mining are critical[10]. The following are the ramifications of using this technology at a bank:

- All branch-level transactions would be collected and centralized in one place. The Data Warehouse of the concerned bank might be the name of this central site. An essential precondition for this to occur is the establishment of communication between the branch locations and the Data Warehouse platform itself.
- To integrate transaction data for banks with a high number of branches, it may not be desired. A decentralized approach is an option.
- This information may be retrieved and combined from numerous computer systems via the use of data mining methods.

3. "GLOBALBANKINGINDUSTRYTRENDS"

The current global financial crisis will have a long-term effect on the global banking sector and the global economy because of its unprecedented proportions. Growth possibilities for banks are sought2, but their success is heavily reliant on their capacity to establish a critical mass and successfully operate in current economic conditions[11].

Companies are under increased pressure to raise capital as a result of tighter regulations, such as minimum capital requirements, being implemented by governments across numerous countries.

There has been an increasing emphasis on operational savings because of this financial strain, and investments in automated credit underwriting platforms, scorecards, models, fraud analysis, and risk analyses are being made as a result. Predictive models for risk and consumer analytics are being used by several banks, moving from qualitative or analytical models to predictive models[12].

It has become imperative for banks to focus on capital adequacy and capital usage in the face of growing regulatory demands. RAROC has also become an important focus for banks. The relevance of loss forecasting and stress testing has grown in the present economic climate and has now become the standard. The global banking sector is also seeing a number of significant changes.

- Predictive and behavioral modeling technologies are becoming important in business intelligence, which is being combined with CRM techniques. "Cross-selling, client lifetime value management, risk management, and recovery management all rely on this combination.
- Social media analytics and content monitoring are

becoming more important to banks, who are integrating their CRM systems with Twitter and Facebook."

- Increasing numbers of criminals and hackers are posing a serious danger to the security of all businesses, but banks are particularly vulnerable. New encryption projects and attempts to provide compatibility to point-to-point transaction encryption are two of the biggest drivers of payments security. 3
- The rise of mobile banking has forced banks to rethink their business model and work more closely with companies in the card, payment, and telecommunications industries than ever before.
- It is expected that banks would increase their personal finance management (PFM) services in order to assist consumers in achieving their financial objectives and to minimize the threat of disintermediation.

4. "EFFECTIVEDATAMININGCOMPONENTAND CAPABILITIES"

A wide range of capabilities are included in an all-inclusive EDM application. Some prerequisites must be met before these capabilities may be activated. A list of prerequisites and critical competencies may be found in the following section.

PRE-REQUISITECOMPONENTS

■ **"DATA MANAGEMENT VISION"**– In order to be effective, an EDM program's objectives must be linked to the company's strategic goals, objectives, and priorities. They must also be adopted and disseminated to important stakeholders.

■ **"DATA MANAGEMENT GOALS"**– An EDM program's objectives must be tied to the company's long-term strategic objectives and priorities. In addition, they must be embraced and disseminated to important stakeholders.

■ **GOVERNANCE MODEL** – It is essential that an EDM program adopts an enterprise-wide structure to manage, finance, and administer the program.

■ **ISSUES MANAGEMENT AND RESOLUTION** – All data and integration issues that happen during routine business operations or ongoing data management initiatives may be discovered, triaged, and monitored by the enterprise.

■ **MONITORING AND CONTROL**– As a component of the BAU environment, the data management program's quality and efficacy may be collectively measured and reported.

"DATAMININGCAPABILITIES

■ **CRITICALDATAINVENTORY"**–Those data items (and their business meanings) that an organization considers critical for decision-making and compliance are referred to as "critical data." Businesses should be involved in the creation of this inventory. An EDM program's scope may be constrained or prioritized using the Critical Data Inventory.

■ **DATAINTEGRATION**–All aspects of data collecting, compilation, and enrichment into a single unified storage or display are addressed here. "The most common way for integrating data is to employ an enterprise data warehouse, which feeds data directly into analytical engines or into data marts that feed analytical engines. The control measures used to assure data integrity as it goes from producers to consumers are also part of data integration."

■ **DATAPROFILING**–Analysis of data to gather statistics and characteristics about the structure of accessible data is known as "data profiling". Critical data evaluation, categorization, integration, and impact analysis are some of the tasks it is used to aid with.

■ **DATA QUALITY** – According to the quality of the data, a 'fitness for purpose' determination may be made. According to the intended use of the data, each of these properties receives a distinct weight in terms of accuracy, completeness, compliance, continuity, duplication, and integrity. At any given point, and over time, end-to-end data quality may be used to compare the quality of data along the whole data flow (trends).

■ **METADATAMANAGEMENT**–A piece of metadata is a description of the data it describes. As a means of keeping track of data qualities and connections (semantics), metadata is a valuable tool for data tracing and lineage. A company's data may be recognized consistently because of the same processes and tools used to define, gather, and manage metadata.

■ **MASTER DATA MANAGEMENT** – Master data or master file refers to data that is critical to a company's operations. Customers, products, employees, and other non-transactional data types are often included in this kind of database. With master data management, a single, consistent version of all of an organization's key data may be maintained.

■ **REFERENCE DATA MANAGEMENT** – In order to classify or categorize data, reference data must be employed. Products and their properties may be found in the product master, for instance. The administration of reference data, like that of metadata and master data, is crucial to the accuracy and consistency of the data it contains.

■ **DATA PRIVACY (ANONYMIZATION)** – To guarantee that every information object (data set) complies with all applicable privacy and security rules and regulations, this includes methods, algorithms and technological platforms.

5. "DATAMININGSTRATEGY"

A top-down strategy for EDM integrates corporate goals with particular EDM components and capabilities. There should also be a comparison of each capability's present condition to its planned future state.

As a beginning point for developing an EDM strategy and plan, conducting a data management maturity assessment is highly recommended. People, policies, technology, and adoption preparedness are all assessed in a data management maturity model, which measures how ready a company is to implement data management practices. This enables the company to identify gaps and prioritize actions along a well-designed road-map to attain the future state.

"BENEFITSOFDMPROGRAM INBANKING"

Analysis of anDM program advantages for banks is best done via the prisms of business capabilities it supports and facilitates. Because every department in a company may have somewhat different data requirements, the advantages they get from using that data may differ as well. Examples of the advantages are shown below.

■ **FOR OPERATIONS**, Data that is accurate, timely, and consistent across systems will be easier to come by with a centralized reference database management system in place. Since there would be fewer operations to reconcile, diverse teams' performance will improve, which reduces costs.

■ **FOR RISK MANAGEMENT**, EDM's ability to accurately detect counterparty risk is only one of its many advantages. To accurately monitor and manage business wide risks, an effective EDM is essential. Without this data it is very difficult to do so.

■ **BENEFITSTOFINANCEANDACCOUNTING**ED M's benefits to outside partners (administrative and market) and internal buyers are obvious when considering the exhibition evaluation and executive reports they provide (board, senior administration and chiefs). Using EDM for these reports may provide a higher degree of assurance.

■ **DATA INTEGRITY AND CONSISTENCY**, which enhance the trustworthiness of management reports and decisions, as well as their audit, legal, and regulatory compliance implications, are crucial.

■ **SALESANDMARKETINGOPERATIONS**The ability to have a single perspective of the consumer allows successful cross-selling and up-selling, which is greatly facilitated by an EDM.

6. "CONCLUSION

Effective data mining is now more critical than ever before." A bank or financial institutionlaunching or reviving its electronic data management (EDM) program must bear in mind the following critical considerations:

- Each firm has its own unique set of business requirements, and an effective data mining program should be tailored to meet these requirements.
- You need both business and technical actors involved in creating a program.
- It is important to see technology as a means to an end rather than a goal in and of itself.
- A complete framework comprising governance and control aspects is required for the development, maintenance, and maturation of an Effective Data Mining program.
- Keeping the right mix of long-term strategic goals and short-term tactical successes is critical.
- The foundations of a successful Effective Data Mining program must be solid, but they must also be able to develop and change with the organization.

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