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Origination System to Scrutinize Loan Applications

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***Abstract*— Classification of a loan application as to approved or disapproved is a critical task for any financial institution. Among the different phases in the life cycle of a loan from application processing to fund disbursal, the classification of an application belongs to a phase knows as Origination. Financial institutions usually collect all information manually which is essential for scrutinization of the application, which leads to complex management and decision making issues. This paper proposes methods with which one can automate different tasks in the origination phase leading to a satisfactory classification.**

***Keywords*— Origination;Classification;Financial institution**

I. INTRODUCTION

With the advent of technology in pretty much every field that exists now days, it was certain to see its presence in the banking sectors and NBFC's (Non-Banking Financial Company's). The technology has increased the pace at which the things get done and it has its influence over financial sectors as well. FinTech is the fancy word being used for the presence of technology in financial domain. Fintech has been used to automate insurance, trading and risk management. It is an industry made of society that uses new applied science and innovation with available resources in order to compete in the marketplace of traditional financial firms and intermediaries in the delivery of financial services. Financial technology is handled by both startups and well established financial technology firms trying to enhance the usage of technology in financial domain.

In today's ever-evolving lending landscape where loan quality and risk management challenge profitability and the customer experience, technology may be the key to thriving – both now and in the future. Winning financial services institutions will be the ones that transform their business models to place loan quality and risk management at the center of their operations. To facilitate continuous life-of-loan management, inclusive of the requisite data transparency and audit trails that support loan quality and loss mitigation, these institutions will implement and automate a loan completion process. Such a process will manage data quality and access to loan data and documents throughout origination, servicing and sale on the secondary market. By making the loan completion process a core strategic competency, lenders will reduce processing costs and ensure the quality of each loan throughout its life cycle.

There are different phases in the life cycle of a loan such as, Regulatory compliance, Loan origination, Loan servicing

A. Regulatory Compliance

In the wake of recent regulatory reform, lenders and loan servicers are being tasked to perform additional self-examinations. Reporting, documentation and quicker responses to audit or complaint issues have become paramount in each of the areas of mortgage operations.

B. Loan Origination

The loan origination process often drives the consumer experience and, more specifically, the overall feeling of satisfaction toward the lender. The ability to process efficiently, route data quickly and track loan progress is critical to making the process successful for both lenders and consumers. Specific drivers affecting the loan origination experience include cost, time-to-close, collaboration among multiple participants throughout the process, transparency, error discovery and correction, and overall data accuracy. These same drivers also affect the lender's ability to make "clean" sales to the secondary mortgage markets and other conduits.

C. Loan Servicing

Loan servicers that must rely on systems beyond their servicing system of record are struggling with integration and support challenges. Loan servicers that rely on add-on systems to manage loss mitigation and secondary marketing have many processes that are not currently supported by their servicing systems of record. In the current economic and regulatory environment, it is critical to have transparency into acquisition/sale review, early default review, pre-foreclosure review, payoff review and loan modification document routing. The use of multiple systems makes documentation more of a challenge because it is nearly impossible to track workflows and loan-level events across disparate systems.

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II. LITERATURE SURVEY

The blockchain is a honest computerized record of monetary exchanges that can be modified to record not simply money related exchanges but rather practically everything of esteem, endeavors to orchestrate and break down accessible data with an attention on the part of blockchain, a budgetary device that can possibly assume an imperative part in the reasonable improvement of the worldwide economy [1].

The impact of loan price differentials on the behavior of potential borrowing banks is analyzed in the consumer lending market. The concept of a decision support system for loans is proposed based on the use of the continuous loan price function to classify the borrower's creditworthiness [2]. According to Harris credit scoring is a method of measuring a risk of untimely repayment by a borrower based on the analysis of his/her private information to determine the probability of default on debt. Most of credit scoring methods only differentiate borrowers on a two value scale: 'good' or 'bad creditworthiness' [3].

The most advanced analysis of e-business tools for credit risk management emphasizes the value proposition of its credit risk management. The analysis is based on the assumption that traditional lending can be translated into active credit risk management only through innovative e-business solutions. Therefore, the study proposed three types of tools, namely, valuation platform, rating tools and trading platform [4].

In [5] an effective approach has been determined that relies on Inductive Search techniques to verify equations. The equivalence test has been formalized as a research problem on the AND / OR graphs. Furthermore, an effective equivalence test was proposed, which sets out an indicative function that suggests an expansion of the States that offer the most promising way of finding that the two systems are unequal. In this article, we evaluated the way in which the real-world banking business process was initiated during the loan initiation process.

In [6] developed a material-based approach to combating national explosions. The focus is double; first shows how to apply the model check in the context of business modeling and analysis, and then evaluate and test the real-world banking business process of the loan initiation process as a case study. The survey shows that the business community, particularly in the banking sector, can benefit from this effective approach developed by formal methods because it can find errors that are missing from traditional validation techniques and are cost effective and can be used as a standard quality assurance process.

Analysis of the problem of housing mortgage loans; according to the difference between developers and lenders to establish a credit risk assessment index system. According to artificial neural network, the credit risk assessment and forecasting model of housing mortgage loan is established, which lays the foundation for the effective change of credit risk assessment model and loan decision [7].

III. PROPOSED WORK

To asses an application, underwriter needs to accurately analyze and scrutinize it. If classification goes wrong then the lender has to suffer the loss of the loan. To assist underwriter, one can pull the information from third party data sources which will help him in accurate classification of an application. There are many trustable third party data companies which will provide Credit Scoring of a certain applier; also we can retrieve the bank related information instead of collecting statements from the borrower himself. Credit scoring facility makes it easier for the underwriter to make a quick decision. The Identity verification can be carried out to determine the accuracy of contact information given by the applier. Collateral value can also be measured by these third party companies. Once decision is made, Application is converted to Contract if loan is funded.

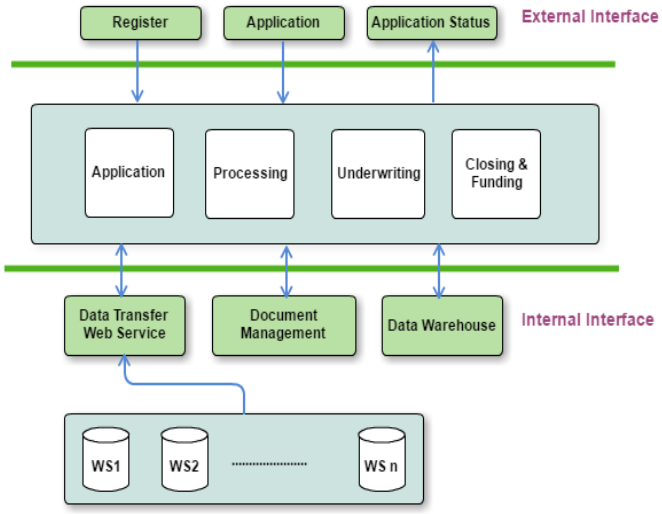

Fig 1: System Architecture

A. *Credit Scoring Models*

There are various Credit scoring models, important ones are discussed here.

1. *FICO(Fair Isaac Corporation)*
   The credit rating of FICO is one of the popular credit rating systems. FICO score ranges from 300-850. Higher is the score more is the chance of loan getting approved. The score is made up of the following factors.

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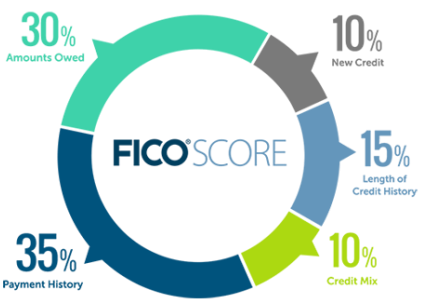
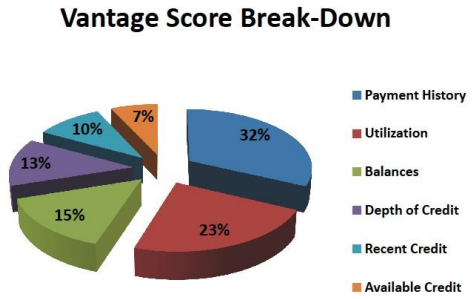


- Payment History – One of the factors in defining FICO score is the payment history. Delayed payments might remain on one's report for 7 years.
- Debts – One's total amount due. Lesser is the debt, the more is the probability of having a high credit score.
- Age of Credit History – The longer is the credit history, the more is the probability of having a high credit score.
- New Credit – Number of accounts opened and number of hard inquiries one have.
- Mix of Accounts, Type of Credit – The more varied your accounts, the more favorable your score.

2. *Vantage Score*

Vantage scoring system was introduced by three well known credit bureaus – Experian, TransUnion, and Equifax. Vantage can credit score of 30 million people higher than that of any other system. The score is made up from the following factors.



- Type of Credit and Age – Credit history length.
- Credit Utilization – By dividing one's balances by their available credit utilization percentage can be calculated.
- Payment History – Payment history is considered as the major predictor of prospect.
- Total Balances – It's the total amount due, both delinquent and current.
- Recent Behavior – Number of accounts opened recently, behavior of such accounts and the number of hard inquiries.
- Available Credit – The amount of available credit one has to use.

IV. CONCLUSION

This paper mainly aimed at improving the accuracy of decision making in loan origination process. One of the extremely important phases in the life cycle of loan is origination and making a correct decision plays a vital role in institutions Return on Investment. The idea is to connect with third party companies and retrieves information such as bank transaction history, credit worthiness, identity verification of an applier which will assist a loan officer in understanding the borrower behavior and eventually conclude fate of an application with greater satisfaction.

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