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The Financial Fraud Detection System using the Fraud Triangle Theory (FTT)

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Abstract: ***Monetary extortion is generally spoken to by the utilization of illicit practices where they can intercede from ranking directors until finance representatives, turning into a wrong doing deserving of law. There are numerous systems created to dissect, distinguish and forestall this conduct, being the most significant the misrepresentation triangle hypothesis related with the exemplary monetary review model. So as to play out this examination, a study of the related works in the current writing was completed, to build up our own structure. Right now, paper presents Fraud Find, an applied structure that permits to distinguish and diagram a gathering of individuals inside a financial association who submit extortion, upheld by the misrepresentation triangle hypothesis. Misrepresentation Find works in the methodology of nonstop review that will be accountable for gathering data of specialists introduced in client's hardware. It depends on semantic strategies applied through the assortment of expressions composed by the clients under investigation for later being moved to a vault for later examination. This proposal encourages contributing with the field of cyber security, in the reduction of cases of financial fraud.***
Keywords: Fraud Detection, pressure, Opportunity, Rationalize, cyber security, Data mining

I. INTRODUCTION

Data security means protecting digital data such as those in a database, from destructive forces and from the unwanted actions of unauthorized users such as a cyber-attack or a data breach. Data security is used while amount transaction. [1] [Ahmed UnnisaBegum, et.al, 2009] Data mining is the process of discovering patterns in large data sets involving methods at the intersection of machine learning, statistics, and database systems. Bank extortion is the utilization of possibly illicit intends to get cash from investors by deceitfully acting like a bank or other money related organization. It influences open and private organization. It is considered by the legislature to be one of the most genuine offenses than bank burglary. Misrepresentation against an organization can be submitted either inside by workers, directors, officials, or proprietors of the organization, or remotely by clients, merchants, and different gatherings. In numerous cases, an organization's representatives are the greatest extortion dangers to the business main concern. Employees may have a few key inspirations that lead to extortion. The dominating helpers are monetary weights, addictions, way of life requests or other individual issues. They lead workers to look for extra assets to straightforwardness such weights. To the impediment of the business, representatives may accept open doors to misuse shortcomings in their boss' frameworks and controls to their very own benefit. Regardless of whether it is the confided in clerk, with access to pre-marked checks or corporate financial balances, or the sales rep with swelled cost reports, the profile of a fraudster is a normal individual, regularly a fantastic and confided in worker. Fraud detection in banking is a critical activity that can span a series of fraud schemes and fraudulent activity from bank employees and customers alike. This paper presents fraud find, a conceptual framework that allows detecting and identifying potential criminals who works in the banking field in real time, based on the theory of the fraud triangle. The three basic elements of fraud triangle include perceived pressure, perceived opportunity, and the ability to rationalize. It is used to detect the fraud that the employee has done in the banking transactions. [2] [Rabi'u Abdullahi, et.al, 2009] Main conclusion was that the FTT is an extended or improved version of the FDT with an addition of "capability" added to the three basic elements of fraud in the FTT. Therefore, this paper aims to explain further the convergent and solutions in the FTT during transaction period.

II. SYSTEM ANALYSIS

Systems analysis is a way to examine a System or its parts so as to distinguish its destinations. It is a critical thinking method that improves the System and guarantees that all the segments of the System work proficiently to achieve their motivation. An analysis determines what the framework ought to do. Before the development of any system can begin, a project proposal is prepared by the users of the potential system and /or by systems analysis and submitted to an appropriate managerial structure within the organization.

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A. Existing System

The financial division in the course of the most recent couple of decades has experienced exceptional changes with regards to the manner in which they work and give effective administrations. Expanding the populace overall overburden the existing financial framework. This will, thus, builds the number of clients, online exchanges and furthermore make an enormous measure of information when managing a huge section of clients. Banks in the United State what's more, different nations are currently utilizing Big Data Analytics (BDA) to handle this circumstance consistently. It finds different examples inside their databases and for picking up the benefits for their associations. It is very amazing, yet evident that the greater part of the banks in India has really not used the data they have put away in their own databases due to a few issues like availability, bringing time, and so on. Information specialists anticipate a huge increment in the volume of information, before 2020, i.e., the size of the information is in Petabytes and Exabytes. This will be the genuine sum in which the information is being put away in our banks in the previous decade.

[3][S.N. John, et.al, 2009] The banking sector is a very important sector in our present-day generation where almost every human has to deal with the bank either physically or online. In dealing with the banks the customers and the banks face the chances of been trapped by fraudsters. financial fraud is an issue with far-reaching consequences in the finance industry, government, corporate sectors and for ordinary consumers. there are various methods that are used to prevent and detect fraud across the different business sectors. examples of such techniques include anomaly detection, artificial neural networks, data mining, and user profiling [4][Dhiya Al-Jumeily, et.al,2009]

Limitations of existing system

1) Traditional methods involving manual detection which is not only time consuming, but also expensive and inaccurate
2) Does not cover the anticipated detection of fraud since they perform an analysis after the incident occurred
3) Data are huge and crimes are increasing.

B. Proposed system

Fraud detection in banking is a critical activity that can span a series of fraud schemes and fraudulent activity from bank employees and customer alike. Although this project is have many facilities and methods to prevent and detect fraud, still they are not that much adequate or effectual trusted persons become trust violators when they conceive of themselves as having a financial problem which is non-shareable, are aware this problem can be secretly resolved by violation of the position of financial trust, and are able to apply to their own conduct in that situation verbalization which enable them to adjust their conceptions of themselves as trusted persons with their conceptions of themselves users of the entrusted funds or property.

In this proposed work, THE FINANCIAL FRAUD DETECTION SYSTEM USING THE FRAUD TRIANGLE THEORY (FTT) there are many techniques developed to analyse, detect and prevent the fraud behaviour, being the most important is the FTT associated with the classic financial audit model. the first necessary condition in the fraud triangle is the idea of perceived pressure related to the motivation and impulse behind the fraudulent actions of an individual. This motivation often occurs frequently in people under some kind of financial stress.

Big data analytics is the often-complex process of examining large and varied data sets, or big data, to uncover information -- such as hidden patterns, unknown correlations, market trends, and customer preferences that can help organizations make informed business decisions.

Data mining is the process of discovering patterns in large data sets involving methods at the intersection of machine learning, statistics, and database systems. This condo element is he perceived opportunity; it is the action behind the crime and the ability to commit fraud. Finally, the third component relates to the idea that the individual can rationalize his dishonest actions, making his illegal choices seem justices and acceptable. The risk of committing fraud increases exponentially, when there is an increase in the connection between pressure, opportunity, and rationalization. Even though the committing fraud is in a higher side, the FTT contributes with the field of cyber security, in the reduction of cases of financial fraud effectively.

1) Advantages of Proposed System

a) The system not only finds the fraud but also shows the circumstance that made him or her to commit the fraud
b) Use of algorithm to identifies the actual fraud
c) Decrease the illegal activities or fraud attempt to continuous monitoring
d) Use this to e-tax, e-governs, e-commerce, block chaining, bitcoin etc…

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2) Features of Proposed System

a) Effecting a change in online transaction structure, staffing, or style of an organization.
b) In this project to designing a new version to find the fraud in the banking sector.
c) Developing or acquiring a new or modified information system and also running any e-commerce system.
d) This project Implementing a new secure business procedure or process.

Fig.1 Software tool for Fraud Detection

III.FEASIBILITY STUDY

A feasibility study is conducted to select the best system that meets performance requirements. this entails an identification description, an evaluation of candidate system and the selection of best system that matches with needs. A statement of constraints the identification of the specific system objectives, and a description of outputs define a system required performance. the analyst is then ready to evaluate the feasibility of candidate systems to produce these outputs. Three key considerations are in feasibility analysis.

1) Economic Feasibility
2) Technical Feasibility
3) Financial Feasibility

A. Economic Feasibility

The purpose of an economic feasibility study (EFS) is to demonstrate the net benefit of a proposed project for accepting or disbursing software/hardware funds/benefits, taking into consideration the benefits and costs to the agency, other state agencies, and the general public as a whole.

Economic feasibility refers to the feasibility of the considered project to produce economic benefits. A benefit-cost analysis is needed. Furthermore, the economic feasibility of a project can also be evaluated by a breakeven analysis. In order to facilitate the consistent basis for the evaluation, the tangible and intangible facet of a project must be translated into the economic terms. Economic feasibility is critical even when the project is non –profit in nature.

This project checks whether the new system runs successfully. In this context, the system is analyzed whether the new technologies proposed could be successfully implemented. From the basis of these following facts and to the best of our knowledge, the financial fraud detection system is feasible in economically.

B. Technical Feasibility

Technical feasibility is the assessment of the technical requirements of project or product to find out what technical resources a project requires. Technical feasibility is not complete until the same technical assessment is done on the company to establish that it has the technical capabilities to carry out the implementation of the project to completion within the require time. It is focused on the available hardware and software to be used for a project.

The technical feasibility of this project compares the level of technology available in the software development firm and the level of technology required for the development of the product. Here the level of technology consists of the programming language, the hardware resources, other software tools etc. The financial fraud detection system is a computer application for identifying the person who commits fraud, from a database or dataset source is used as technical feasibility of this project.

This project checks whether the new system runs successfully. In this context, the system is analyzed whether the new technologies proposed could be successfully implemented. From the basis of these following facts and to the best of our knowledge, the financial fraud detection system is feasible in economically and technically.

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C. Financial Feasibility

The ability of the project management to raise sufficient funds required to implement the proposed project is included in the financial feasibility. Other aspects of financial feasibility should also be viewed, if appropriate, like credit worthiness, loan availability, and equity and loan schedule. The implication of land purchase, lease and other estates in land are also reviewed in the financial feasibility analysis.

This project checks whether the new system runs successfully. In this context, the system is analyzed whether the new technologies proposed could be successfully implemented. From the basis of these following facts and to the best of our knowledge, the financial fraud detection system is feasible in economically, technically and financially.

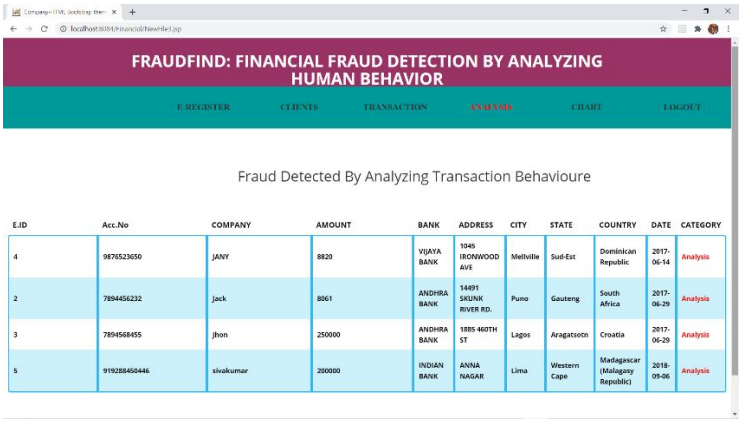

Fig. 2 Fraud Detection by Analysing Transaction Behaviour

D. Detecting Fraud

This progression is the most pertinent and significant part where we can investigate misrepresentation recognition by exchange conduct. Typically, when the extortion is found, the cash is unrecoverable or the opportunity to recuperate everything of the misfortune is exceptionally thin. Besides, it is exorbitant and tedious to explore cheats particularly including enormous scope worldwide tasks. Be that as it may, if the emphasis is on misrepresentation counteraction all the fiscal misfortunes, time, and exertion to reproduce deceitful exchanges, tracks down the culprit, and recover missing assets can be spared. The examination page is connected to the Fraud Triangle Theory (FTT). The page which is the hypothesis we are accustomed to breaking down the extortion successfully the FTT is a structure intended to clarify the thinking behind a laborer's choice to submit working environment misrepresentation. The three stages, categorized by the effect on the individual can be summarized as Pressure, Opportunity and Rationalize.

1) The pressure is the financial /emotional force pushing towards fraud.
2) Opportunity means the personal justification of dishonest actions.
3) Rationalize comprises the ability to execute plan without being caught.

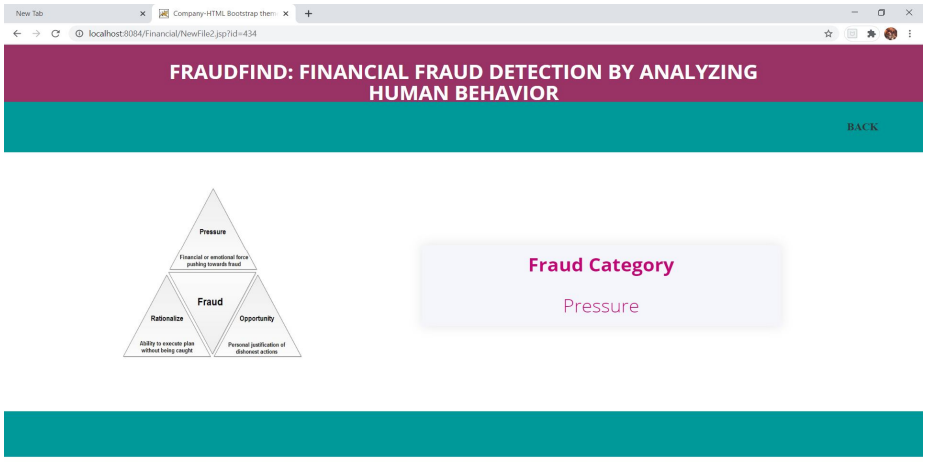

Fig. 3 Finding which type of fraud

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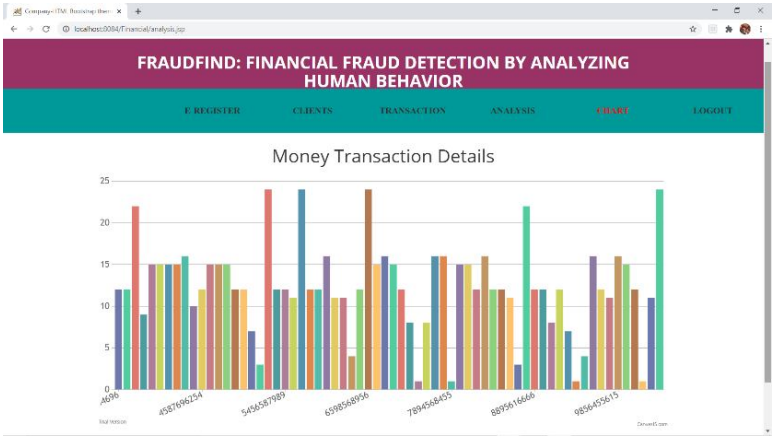

Fig. 4 Bar Chart for Money Transaction Details

IV. CONCLUSIONS

In the data security and data mining strategy all the significant data from such a colossal measure of information and changes all the elevated level dynamic in the banks and retail segments. From various databases, they blend the changed information and store the blended information utilizing information put away in a worthy organization that data-digging should be possible for it. Examination of information is finished further and, in this way, the caught data is utilized in the banking area or in any association to help dynamic. In the financial area, information mining procedures are enormous assistance to them for focusing on and abuse new customers, generally valuable in extortion impedance, giving stage based for the most part stock, extortion location continuously, hazard the executives, examination of the clients. Information Mining is the most significant instrument for distinguishing the extortion exercises occurring in the banks related data and keeps the fakes from occurring in our everyday life because of the fraudsters. Data security works to give the security to the database and data mining to improve and the decision-making power, taking the correct choices at the privilege time, and choosing the right alternatives. It gets the significant example from the huge database which encourages us in improving the nature of the database. Consequently, this examination the paper incorporates loads of issues related with the banking data security and approaches to beat the issues of the financial framework cheats or frauds effectively through the procedures given by data security and data mining.

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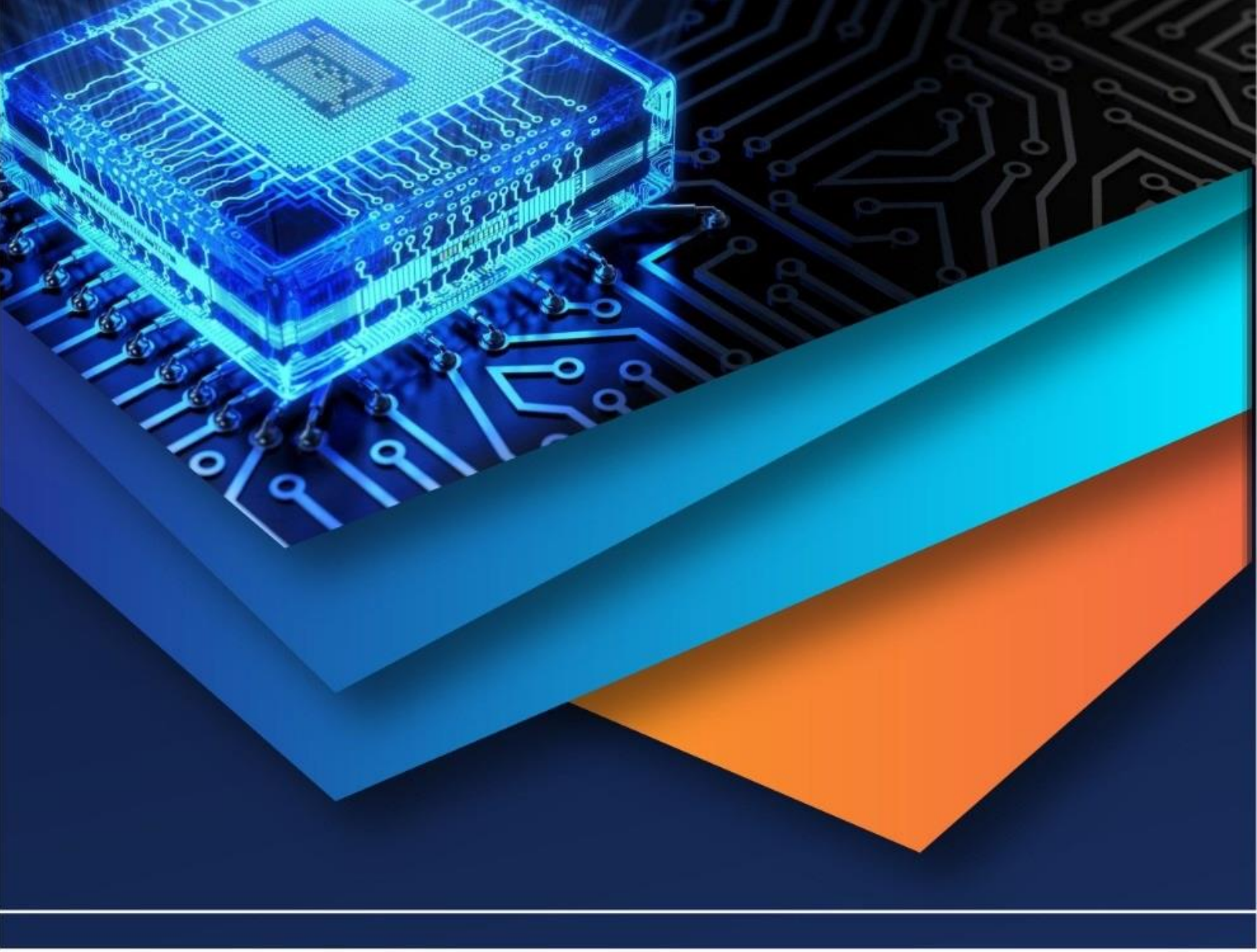

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