MES COLLEGE OF ENGINEERING, KUTTIPPURAM
DEPARTMENT OF COMPUTER APPLICATIONS
20MCA246 – MAIN PROJECT

PRO FORMA FOR THE APPROVAL OF THE FOURTH SEMESTER MAIN PROJECT

(Note: All entries of the pro forma for approval should be filled up with appropriate and complete information. Incomplete Pro forma of approval in any respect will be rejected.)

Main Project Proposal No : _____ *(Filled by the Department)*	Academic Year : 2021- 22 Year of Admission : 2020

1. Title of the Project : Performance Evaluation of Machine Learning Algorithms for Credit card Fraud Detection
2. Name of the Guide :Muhammed Jabir C
3. Student Details (in BLOCK LETTERS)

Name	Register Number	Signature
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Date: 16-04-2022

Approval Status : Approved / Not Approved

Signature of Committee Members

Comments of the Guide Dated Signature

Initial Submission :

First Review :

Second Review :

Comments of the Project Coordinator Dated Signature

Initial Submission:

First Review

Second Review

Final Comments :

Dated Signature of HOD

1. Performance Evaluation of Machine Learning Algorithms for Credit card Fraud Detection

Muhammad Shuhair Vk

INTRODUCTION & OBJECTIVE

Due to ease of use and money borrowing option, Credit cards are being used as a payment instrument by both online and offline buyers in a big way and it is also extensively used in real estate businesses now a days. However, this convenience has come with its own share of troubles too. Credit card-based transactions have become a major vulnerable target for criminals, hackers and perpetrators. Online use of credit card requires only the card information to be entered and not present the card physically. In some cases, an extra authentication factor of sending a One Time Password (OTP) is considered. In all others, where this is not required, specifically for international transactions, it can be used for unauthorized purchases. Such usage is called Card-Not Present as instead of physical card only details of card are required. With methods like card stealing, shoulder surfing, buying credit card information and web traffic sniffing becoming possible, it is very easy to steal the card information. Card holder, issuing bank as well as merchant all three become victims of a credit card fraud, as it is one of them who has to bear the burden of fraud. Generally, it is the duty of card older to detect the fraud and report fraudulent transactions to the issuing bank. The bank then investigates the issue and if evidence of fraud is found then the process for reversing the credit for the transaction is initiated. This process is non-real time and has no guarantee of successfully resolving the issue Primary stakeholder is the credit card issuing company as with increase in frauds done on its cards the company's reputation suffers a lot. Thus, it is up to the issuer to implement a fraud prevention and detection mechanism. Thus, it is up to the issuer to implement a fraud prevention and detection mechanism. For preventing frauds, companies issue periodic advisories to its customers on dos and don'ts of safe card usage. In some cases, extra factors of authentication like OTP and security question are employed to deter fraudulent usage. However, fraud cases are inevitable despite these prevention mechanisms. Thus, when a fraud occurs and is reported the bank must put in resources for post mortem analysis and try to recover and punish the perpetrator the turnaround time for this detection has been several days which doesn't prove useful to deter the frauds.

The key objective of any credit card fraud detection system is to identify suspicious events and report them to an analyst while letting normal transactions be automatically processed. For years, financial institutions have been entrusting this task to rule-based systems that employ rule sets written by experts. But now they increasingly turn to a machine learning approach, as it can bring significant improvements to the process. This is because ML technologies can consider many more data points, including the tiniest details of behavior patterns associated with a particular account.

HARDWARE AND SOFTWARE REQUIREMENTS:

This specifies the hardware and the support software required to carry out the development.

HARDWARE REQUIREMENTS:

The selection of hardware is very important in the existence and proper working of any software. Then selection hardware, the size and capacity requirements are also important.

- Processor - Intel x86
- Speed - 1.1 GHz
- RAM - 700 MB (min)
- Hard Disk - 150 MB
- Key Board - Standard Windows Keyboard
- Mouse - Two or Three Button Mouse
- Monitor - SVG

SOFTWARE REQUIREMENTS:

One of the most difficult tasks is selecting software for the system, once the system requirements is found out then we have to determine whether a particular software package fits for those system requirements. The application requirement:

- Operating System - Windows 7 or Above, Android
- Technology - Python, Java
- Backend - MySQL
- Platform used - JetBrains, PyCharm, Android Studio

- Web Browser - Google Chrome, Fire fox, Microsoft Edge
- Front End - HTML, CSS, JAVASCRIPT
- Frame work - Flask

PROBLEM DEFINITION AND INITIAL REQUIREMENTS

SOFTWARE PERSPECTIVE:

EXISTING SYSTEM:

Credit card fraud is increasing considerably with the development of modern technology and the global superhighways of communication. Credit card fraud costs consumers and the financial company billions of dollars annually, and fraudsters continuously try to find new rules and tactics to commit illegal actions. Thus, fraud detection systems have become essential for banks and financial institution, to minimize their losses. There are many frauds detection technique is used to detect credit card fraud, but this existing system has some draw backs. It is expensive for both in terms of memory and computation time.

PROPOSED SYSTEM:

Nowadays most of the transactions take place online, meaning that credit cards and other online payment systems are involved. Credits cards are broadly used in real-estate business too. This method is convenient both for the Brokers and for the consumer. Consumers save time because they don't have to go to either the dealer or the broker to make their deals and brokers doesn't want to build up an office which needs to pay expensive rents in order to make the deals. Since we use credit cards for our deals there might be chances that we can be deceived. So, we propose a credit card fraud detecting system.

The proposed system uses machine learning for avoiding credit card fraud. The Fraud Detection System (FDS) is designed to detect all types of frauds by differentiating the behavior of fraudster from actual user. It works on the principle of learning user specific card usage behavior and fraudsters spending patterns. We use Local outlier factor to detect credit card fraud

BASIC FUNCTIONALITIES

Functional Module:

Local Outlier Factor

The Local Outlier Factor (LOF) algorithm to find the anomalous data points by measuring the local deviation of a given data point with respect to its neighbors. Outliers based on the local density are detected using this algorithm. Locality is given by nearest neighbors and density is calculated by their distance. By comparing the local density of an object to the local densities of its neighbors, one can identify regions of similar density, and points that have a substantially lower density than their neighbors. The data point is considered as an outlier if it has very small density as compared to its neighbors.

process based module

When the customer tries to purchase any product using their credit card, After receiving the card details system append the transaction details to the previous legitimate transaction. System calculate Local Outlier Factor**(**Lof) value of all data points. if the value is greater than 0.5 then the system consider the transaction as a legitimate transaction, else the system consider it as a fraudulent transaction and prompts the customer with the security question that they have set during registration.

USER MODULE:

Users of the system

There are three user-based modules. Admin, Broker and User

1)Admin (Bank)

- View User reviews
- Credit card issue
- Monitor credit card transactions
- Accept / Reject Broker
- Block / Unblock Broker
- Send reply to complaints
- View Suggestions
- View Rating

2) Broker

- Registration
- Add plot details
- View Booking
- Enquiries
- Chat with User
- Add Complaints

3)User

- Book Plot
- View Plot
- Chat with Broker
- Send Complaint
- Send Suggestions
- Add Rating
- View card details
- View Transaction