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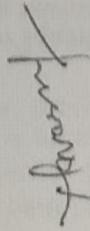
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CREDIT CARD FRAUD DETECTION USING MACHINE LEARNING

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ABSTRACT

With rapid advancement in the E-commerce field, fraud is spreading all over the world, causing major financial losses. In current scenario, Major cause of financial losses is credit card fraud. Credit card frauds are easy and friendly targets. E-commerce and many other online sites have increased the online payment modes, increasing the risk for online frauds. In recent years, For banks has become very   difficult for detecting the fraud in credit card system. Machine Learning(ML) plays a important key role for detecting the credit card fraud in the transactions. The main address of the research is to design and develop a fraud detection method for Streaming Transaction Data, with an objective, to analyse the past transaction details of the customers and extract the behavioural patterns. the proposed system is implemented with   Support vector machine (SVM) classification to detect the frauds. The conclusion of our study explains the best classifier by training and testing using supervised techniques that provides better solution.

Keywords: Credit Card, Machine Learning, Supervised Technique, Support Vector Machine.

I.   INTRODUCTION

In today's world the credit card fraud is the biggest issue and now there is need to fight against the credit card fraud. "credit card fraud is the process of cleaning dirty money, there by making the source of funds no longer identifiable." The purpose may be to obtain goodies without paying, or to obtain unauthorized funds from an account or to avail some kind of services. Credit card fraud is also an add on to identity theft. On daily basis, the financial transactions are made on huge amount in global market and hence detecting credit card fraud activity is challenging task. The promising way to detect the fraud is to analyze the spending behavior of the cardholder. Every day, new and new researches are performed by the researchers in the different fields. Many researchers of finance field considered this problem as a challenging and important problem. The use of machine learning is proposed by the researchers to deal with this problem. Detecting the fraud means identifying the suspicious one, If any abnormality arises in the spending behavior then it is considered as suspicious. This research is to propose a credit card fraud detection system using supervised learning algorithm. supervised algorithms are evolutionary algorithms which aim at obtaining better solutions as time progresses. To Overcomes issues of we propose Machine learning method using 'Structural Similarity', to identify common attributes and behavior with other bank account transaction. Detection of credit card fraud transaction from large volume dataset is difficult, so we propose case reduction methods to reduces the input dataset and then find pair of transaction with other bank account with common attributes and behavior. To elude computational complexity & to provide better accuracy in fraud detection in proposed work. Support vector machine(SVM) is a method used in pattern recognition & classification. It is a classifier to predict or to classify patterns into two categories which may be fraudulent or non fraudulent.

II.   METHODOLOGY

Support Vector Machine:-

Support Vector Machine (SVM) is a supervised machine- learning algorithm, which can be, used for both classification and regression challenges However, it is mostly used in classification problems. In this algorithm SVM is a binary classification, hence the transactions are labelled either as fraudulent, or legitimate. This helps us to identify abnormal behaviour of user i.e. Fraud User. It uses following technique.

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Foresees The Next Step of Equity Market

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Abstract- *Predicting stock market movements is a well-known problem with interest. The social media of today is well-represented by the public's feelings and opinions about current events. In particular, Twitter has attracted a lot of attention from researchers by studying public sentiments. Stock market predictions on the basis of public sentiment expressed on Twitter have been the subject of interesting research. The way to analyze emotions is to see that changes in stock prices i.e. how the ups and downs are related to the public opinion expressed by them on Twitter.*

Keywords- Twitter, ARIMA, Stock Market, Sentimental Analyze, Short-term prediction.

I. INTRODUCTION

In this web application we can predict our next move of equity market whether to buy the stock or sell through sentimental analysis and technical analysis or ARIMA algorithm. Sentimental analysis helps in analyzing the general public sentiments on Twitter, this approach is our approach through exploitation create of sentimental analysis. Another approach within the same topic of our project is exploitation technical analysis. After a successful login we have to enter dates from the range of week, month, year predict stock market feature will give you the performance of the stock, current price and in the predict sentiment feature you will get know to know the thoughts of market expertise in positive trend or in negative trend from their latest tweets. We model the stock worth movement as a operate of those input options and solve it as a regression drawback in an exceedingly multiple kernel learning regression framework. We conjointly evaluated the model for taking buy-sell call at the tip of day that is additionally called intraday commercialism.

II. RESEARCH AND IDENTIFY ABOUT PROJECT CONCEPT

1. ARIMA MODEL

Auto Regressive Integrated Moving Average (ARIMA) is a model that describes the time series provided based on the visual value that can be used to predict future values. Using ARIMA models in Anytime series shows patterns that do not have random white noise and are not seasonal. Model introduced by Box and Jenkins in 1970. In order to generate short-term forecasts, ARIMA models have demonstrated the effective power of complex structural models. The future value of the variance in the ARIMA model is a combination of line to past values and errors, expressed as follows:

$$Yt = \phi 0 + \phi 1 Yt - 1 + \phi 2 Yt - 2 + \ldots + \phi p Yt - p + \varepsilon t - \theta 1 \varepsilon t - 2 - \ldots - \theta q \varepsilon t - q \ (1)$$

There,

Yt is a real value and Et is a random error in t, futhii and coefficient, and are whole numbers often called autoregressive and move average, respectively. j p q

2. MARKET TREND

Time series data may have a trend for them whether it is an upward, vertical trend or a downward trend. This defines the average of what is done in this series of time in a large period of time what the average does whether it goes up horizontally or vertically or downwards.

III. FINDINGS AND METHODOLOGIES

A. Methodologies

Predicting the long term stock with the ARIMA model will be by evaluating ARIMA car prices in the same way as customizing ARIMA models (p, D, q) to attract a higher speculative model. The ARIMA model is used for real Netflix stock information publicly available on Yahoo! Finance. The database contains Netflix daily stock information for 5 years, from 7 Apr 2015 to 7 Apr 2020. The forecast method adjusted only the closing closing times, as it represents the significant daily closing amount in the same way as this price is estimated. for more accurate reading. The model used the R-language of torture in R Studio. verify the accuracy of the model and comparisons between multiple tests within the model may be based on calculating Autocorrelation Functions (ACFs), Perfect Partial Autocorrelation performance (PACF) as well as Mean Absolute proportion Error (MAPE)

B. Non-seasonal ARIMA

Heart Disease Prediction Using Machine Learning

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Department Computer Engineering, Genba Sopanrao Moze College of Engineering, Pune, India

ABSTRACT: In today's modern world cardiovascular disease is the most lethal one. This disease attacks a person so instantly that it hardly gets any time to get treated with. So diagnosing patients correctly on timely basis is the most challenging task for the medical fraternity. A wrong diagnosis by the hospital leads to earn a bad name and loosing reputation. At the same time treatment of the said disease is quite high and not affordable by most of the patients particularly in India. The purpose of this paper is to develop a cost effective treatment using data mining technologies for facilitating data base decision support system. Almost all the hospitals use some hospital management system to manage healthcare in patients. Unfortunately most of the systems rarely use the huge clinical data where vital information is hidden. As these systems create huge amount of data in varied forms but this data is seldom visited and remain untapped. So, in this direction lots of efforts are required to make intelligent decisions. The diagnosis of this disease using different features or symptoms is a complex activity. In this paper using varied data mining technologies an attempt is made to assist in the diagnosis of the disease in question.

KEYWORDS: cardiovascular disease, data mining, intelligent decisions, symptoms

I. INTRODUCTION

Today, many hospitals manage healthcare data using healthcare information system; as the system contains huge amount of data, used to extract hidden information for making intelligent medical diagnosis. The value of machine learning in healthcare is its ability to process huge datasets beyond the scope of human capability, and then reliably convert analysis of that data into clinical insights that aid physicians in planning and providing care, ultimately leading to better outcomes, lower costs of care, The main objective of this research is to build Intelligent Heart Disease Prediction System that gives diagnosis of heart disease using historical heart database. To develop this system, medical terms such as sex, blood pressure, and cholesterol like 13 input attributes are used. To get more appropriate results, two more attributes i.e. obesity and smoking are used, as these attributes are considered as important attributes for heart disease. The data mining classification techniques viz. Neural Networks, Decision Trees', and Naive Bayes are used.

The healthcare industry collects huge amounts of healthcare data which, unfortunately, are not "mined" to discover hidden information for effective decision making. Discovery of hidden patterns and relationships often goes unexploited. Advanced data mining techniques can help remedy this situation. This research has developed a prototype Intelligent Heart Disease Prediction System (IHDPS) using data mining techniques, namely, Decision Trees, Naïve Bayes and Neural Network. Results show that each technique has its unique strength in realizing the objectives of the defined mining goals. IHDPS can answer complex "what if" queries which traditional decision support systems cannot. Using medical profiles such as age, sex, blood pressure and blood sugar it can predict the likelihood of patients getting a heart disease. It enables significant knowledge, e.g. patterns, relationships between medical factors related to heart disease, to be established. IHDPS is -based, user-friendly, scalable, reliable and expandable. It is implemented on the Java-Python platform by using MLP Algo.

II. LITERATURE SURVEY

Very few systems use the available clinical data for prediction purposes and even if they do, they are restricted by the large number of association rules that apply. Diagnosis of the condition solely depends upon the Doctors' intuition and patient's records. Detection is not possible at an earlier stage.

In the existing system, practical use of various collected data is time consuming. There are only few decision support systems available in medical industry whose functionalities are very limited. As mentioned earlier, medical decisions are made with doctor's intuition and not from the rich data from the medical database. Wrong treatment due to misdiagnosis causes serious threat in medical field. In order to solve these issues data mining solution was with help of medical databases was introduced.

Home Security System using Arduino Uno

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Abstract: This Project is based on implemented of an IOT based home security system, to be able to secure homes from anywhere in the world. The Major aim of this Project is it should be cost efficient and at the same time it should be secure, and this was achieved with the use of internet of things and some other electronics component. With the help of a mobile app and a keypad a working automatic door system was achieved.. IoT refers to the infrastructure of connected physical devices which is growing at a rapid rate as a huge number of devices and object are getting associated with the internet. Home Security has become a very important and useful application of IoT and we are using it to build an economical security system for homes as well as industrial use

Keywords: Arduino, ESP32 CAM

I. INTRODUCTION

The MQ-2 sensor which is also known as the gas sensor which is used to detect if there is a gas leak will be placed inside the home mostly in the kitchen area so if there is a gas leak or a fire it will sense it send a signal to the arduino and the buzzer will go off alerting people about it.

The LDR will be cleverly placed behind the door. A laser light will be used to put light on the LDR. As long as the light from the laser is focused on the LDR it will be neutral and will make no changes or sound no alarm but, as soon as the light from the laser towards the LDR is cut by a person or blocked even by an object the LDR will send signal to the Arduino and the buzzer will go off. And the people around will be alerted that there is an intrusion or an unauthorized access to the premises.

The Esp32 cam will be placed in front of the door.

And this will work with the help of the LDR. When there is an intrusion detected the LDR will send signal to the buzzer as well as the camera. The camera after the signal is received will turn on and capture a video of 30 seconds of the front door. This will help in capturing the intruder's face, which can be used later on if a case needs to be filed in case of robbery.

II. ARDUINO

Arduino Uno is a microcontroller board based on the ATmega328P. There are 14 digital input/output pins from which 6 of those can be used as PWM outputs, a 16 MHz quartz crystal, 6 analog inputs, an ICSP header and a reset button, a USB connection and a power jack, It has everything that is needed to support the microcontroller; you can simply connect it to a computer with a USB cable or power it with a AC-to-DC adapter or even use a battery to get started.. You can interfere with your UNO without worrying too much about doing something wrong, worst case scenario you can replace the chip for very less price and start all over again.
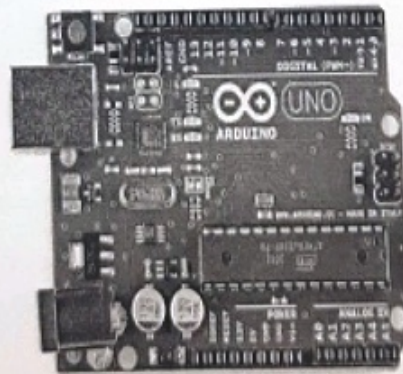

Figure 1: Arduino UNO

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Predicting the Probability of Bank Deposit Subscription

Prof. Pallavi Patil[1], Sanket More[2], Askaan Shaikh[3], Hitesh Patil[4], Rohit Patil[5]

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Abstract

As the number of marketing campaigns to which consumers are subjected continues to explode, for-profit businesses, non-profit charitable and community organizations, and political candidates are becoming increasingly dependent upon targeted direct-to-consumer (DTC) campaigns. For these campaigns to be successful, these organizations must invest heavily in strategies that select the best possible prospects. For this study, we examined 45,211 records related to direct marketing campaigns of a Portuguese banking institution and attempted to define a reliable model for predicting consumer intent to subscribe to a term deposit.

1. Introduction

1.1. Overview

As the major application right now of Machine Learning is in the field of banking and finance. So, along those lines, we choose our topic. We have a dataset using which we will predict the probability of one person subscribing to a term bank deposit. Term deposits are basically what the bank asks us to deposit a specific amount for a specific period of re-served time in the bank and the bank will provide a return on the amount. So, we decided to take this topic and study it to make a model that will tell the bank whom they can approach for a positive reply.

1.2. Motivation

The motivation is to create a machine learning algorithm that will solve a real-world problem by helping the bankers realize which customers may actually subscribe to the long-term subscription of the bank.

1.3. Problem Definition

Based on the dataset provided to us we have to use different machine learning algorithms and see which gives out the best result for predicting which people are most likely to subscribe to the term deposit plan of the bank.

1.4. Objectives

Create a Prediction Model of Bank Deposit Subscription using Machine Learning algorithms.

1.5. Project Scope

In our research, we found a handful of research papers and upon looking into them we saw that the models have low accuracy. So, we decided to take the dataset and use various algorithms on the dataset and make a model that is much better in the terms of accuracy and could increase productivity.

Water Requirement Forecasting for City System Using Machine Learning

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Abstract: Water is essential to the existence of life on Earth. The causes of dehydration are natural and anthropogenic. In the world, the amount of freshwater remains constant for a period of time, but the population has already reached it. So aim for freshwater that is stronger day by day. Proper management and prognosis is required for effective and efficient water use systems. Water demand and forecasting are the mainstays of urban water management. Machine learning is one of the most well-known methods of prediction. Machine learning is a data analysis method that gives a machine the ability to read without being completely organized. Unlike traditional methods of predicting required that were incorrectly structured and poorly structured historical data, machine learning looks or has the power to analyze that data This technique predicts the annual water demand for the succeeding year employing a statistical algorithmic program and water demand for industries, agriculture, domestic and public gardens. This multi-method prediction suggests potential for extension to advanced probabilistic prediction issues in alternative fields.

Keywords - water supply, supervised learning, linear regression, SVM algorithm, water demand

I. INTRODUCTION

Water is needed to satisfy the basic human needs such as hygiene, drinking, cooking, farming and recreation. A water supply forecast is a prediction of stream flow volume that flows past as a point on a stream during a specified reason, typically in the spring and summer. Economic viability and social development are largely dependent on the balance of water resources, as in the last few decades desalination has become an important means of water supply, opening the door to tackling conflicting water resources that have the potential to provide sustainable water supply. Desalination provides about 1% of the world's drinking water, but this number is rising year by year. The overall concept we use contains several main elements: supervised statistical learning for extracting dominant features from high-dimensional input data, a multi-method core drawing on statistical and machine learning techniques for relating the extracted features to the predict and, and evolutionary methods for automated generation of optimal model suites, that is, input data and feature selections on a per-model basis. This overall system design directly reacts the way that the water resource science and engineering community frames and structures statistical. . Water demand forecasts permit the Water Distribution Network to scale back energy consumption by three.1% and scale back energy prices by five.2%. Water demand statement is conducted for varied horizons. short statement aims at anticipating water demand over the approaching hours, days, or weeks, therefore on optimise the operation of water systems (reservoirs, chemical change plants) whereas factorization in changes in weather and shopper behaviours. In long design, several factors of amendment are vulnerable to modify each the client base and per unit water consumption. Uncertainty could be a key issue in long water demand statements. For this study secondary data has been collected. From the website of KSE the monthly stock prices for the sample firms are obtained from Jan 2010 to Dec 2014. And from the website of SBP the data for the macroeconomic variables are collected for the period of five years. The time series monthly data is collected on stock prices for sample firms and relative macroeconomic variables for the period of 5 years. The data collection period is ranging from January 2010 to Dec 2014. Monthly prices of KSE -100 Index is taken from yahoo finance.

II. LITERATURE SURVEY

[1] Models For forecasting water demand using time series analysis: a case study in southern Brazil, By Danielle C. M. Ristow Which determines monthly urban water consumption in the short term, the objective of this study involves using low computational cost procedures to evaluate modelling techniques to choose more efficient model for the analysed data set. The data used in this research study refer to the micro-metered monthly water consumption per water-consuming unit, in the urban environment of the city of Joinville, from January 2013 to December 2017. The municipal water supply company provided the data sorted into four

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