

# A Novel Method Of Deducting Fraudulent and Minimizing False Alert

K. Jamuna., MSc(CS)

Stdyng II-MSC (CS)

PG & Research Department of Computer Sciences and Application.

Vivekanandha College of Arts and Sciences For Women (Autonomous)

Dr. P. Sumitra., M.Sc.,M.Phil.,Ph.D.,MCA.,

Asst. Professor of PG & Research Department of Computer Sciences and Application.

Vivekanandha College of Arts and Sciences For Women (Autonomous)

**Abstract:-** The paper discussed about the "A novel method of deducting fraudulent and minimizing false alert "fraudulent card during transactions and alerts the customer regarding the fraud. This project also aims in minimizing the number of false alerts. The concept of genetic algorithm is a novel one in this application domain. The algorithm begins with multi- population of randomly generated chromosomes. These chromosomes undergo the operations of selection, crossover and mutation. There are two parent chromosomes are formed when crossover combines the information. These parent chromosomes are user to produce new individuals, exploiting the best of current generation. While changing some of the parameter (in mutation or randomly) allows explorations into other regions of the solution spaces. Natural selection via a problem specific cost function assures that only the best fit chromosomes remain in the population to mate and produce the next generation. Upon iteration, the genetic algorithm converges to a global solution.

## I .INTRODUCTION

About the paper in recent years, the prevailing data mining concerns people with credit card fraud detection model based on data mining. Since our problem is approached as a classification problem, classical data mining algorithms are not directly applicable. So an alternative approach is made by using general purpose meta heuristic approaches like genetic algorithms.

This paper is to propose a credit card fraud detection system using genetic algorithm. Genetic algorithms are evolutionary algorithms which aim at obtaining better solutions as time progresses. When a card is copied or stolen or lost and captured by fraudsters it is usually used until its available limit is depleted. Thus, rather than the number of correctly classified transactions, a solution which minimizes the

## II. LITERATURE SURVEY

Fraud detection has been usually seen as a data mining problem where the objective is to correctly classify the transactions as legitimate or fraudulent. For classification problems many performance measures are defined most of which are related with correct number of cases classified correctly.[1]

A more appropriate measure is needed due to the inherent structure of credit card transactions. When a card is copied or stolen or lost and captured by fraudsters it is usually used until its available limit is depleted.[2]

The fraud detection problem has mostly been defined as a classification problem, in addition to some statistical approaches many data mining algorithms have been proposed to solve it. Among these, decision trees and artificial neural networks are the most popular ones. The study of Bolton and Hand provides a good summary of literature on fraud detection problems.[3]

The problem is approached as a classification problem with variable misclassification costs as discussed above, the classical data mining algorithms are not directly applicable; either some modifications should be made on them or new algorithms developed specifically for this purpose are needed.[4]

## III.GENETIC ALGORITHM

Genetic algorithms are evolutionary algorithms which aim at obtaining better solutions as time progresses. Since their first introduction by Holland, they have been successfully applied to many problem domains from astronomy to sports, from optimization to computer science, etc. They have also been used in data mining mainly for variable selection and are mostly coupled with other data mining algorithms. In this study, we try to solve our classification problem by using only a genetic algorithm solution.

### *Pseudo code of genetic algorithm*

Initialize the population

Evaluate initial population

Repeat

Perform competitive selection

Apply genetic operators to generate new solutions

Evaluate solutions in the population

### *A. Selection process*

Selection is used for choosing the best individuals, that is, for selecting those chromosomes with higher fitness values. The selection operation takes the current population and produces a „mating pool“ which contains the individuals which are going to reproduce. There are several selection methods, like biased selection, random selection, roulette wheel selection, tournament selection. In this work the following selection mechanisms are used.

### *B. Tournament Selection*

Tournament selection has been used in this as it selects optimal individuals from diverse groups. It selects  $t$  individuals from the current population uniformly at random,

forms a tournament and the best individual of a group wins the tournament and is put into the mating pool for recombination. This process is repeated the number of times necessary to achieve the desired size of intermediate population. The tournament size controls the selection strength. The larger the tournament size, the stronger is the selection process.

### C. Elitist Selection

In order to make sure that the best individuals of the solution are passed to further generations, and should not be lost in random selection, this selection operator is used. So we used a few best chromosomes from each generation, based on the higher fitness value and are passed to the next generation of population.

### D. Reproduction

To generate a second generation population of solutions from those selected through genetic operators: crossover (also called recombination), and/or mutation. For each new solution to be produced, a pair of "parent" solutions is selected for breeding from the pool selected previously. By producing a "child" solution using the above methods of crossover and mutation, a new solution is created which typically shares many of the characteristics of its "parents". New parents are selected for each new child, and the process continues until a new population of solutions of appropriate size is generated. Although reproduction methods that are based on the use of two parents are more "biology inspired", some research suggests more than two "parents" are better to be used to reproduce a good quality chromosome.

These processes ultimately result in the next generation population of chromosomes that is different from the initial generation. Generally the average fitness will have increased by this procedure for the population, since only the best organisms from the first generation are selected for breeding, along with a small proportion of less fit solutions, for reasons already mentioned above.

Although Crossover and Mutation are known as the main genetic operators, it is possible to use other operators such as regrouping, colonization-extinction, or migration in genetic algorithms.

### E. Termination

This generational process is repeated until a termination condition has been reached. Common terminating conditions are:

- A solution is found that satisfies minimum criteria
- Fixed number of generations reached
- Allocated budget (computation time/money) reached
- The highest ranking solution's fitness is reaching or has reached a plateau such that successive
- Manual inspection
- Combinations of the above

## IV. EXISTING SYSTEM

The Traditional detection method mainly depends on database system and the education of customers, which usually are delayed, inaccurate and not in-time. After that methods based on discriminate analysis and regression analysis are widely used which can detect fraud by credit rate for cardholders and credit card transaction. For a large amount of data it is not efficient.

### DISADVANTAGE

The high amount of losses due to fraud and the awareness of the relation between loss and the available limit have to be reduced.

The fraud has to be deducted in real time and the number of false alert has to be minimized.

## V. PROPOSED SYSTEM

The proposed system overcomes the above mentioned issue in an efficient way. Using genetic algorithm, the fraud is detected and the false alert is minimized and it produces an optimized result. The fraud is detected based on the customers behavior. A new classification problem which has a variable misclassification cost is introduced. Here the genetic algorithm is made where a set of interval valued parameters are optimized

### ADVANTAGE

The proposals made in this paper are likely to have beneficial attributes in terms of cost savings and time efficiency. The significance of the application of the techniques reviewed here is in the minimization of credit card fraud.

## VI. ARCHITECTURAL DESIGN

Describing the overall features of the software is concerned with defining the requirements and establishing the high level of the system. During architectural design, the various web pages and their interconnections are identified and designed. The major software components are identified and decomposed into processing modules and conceptual data structures and the interconnections among the modules are identified. The following modules are identified in the proposed system.

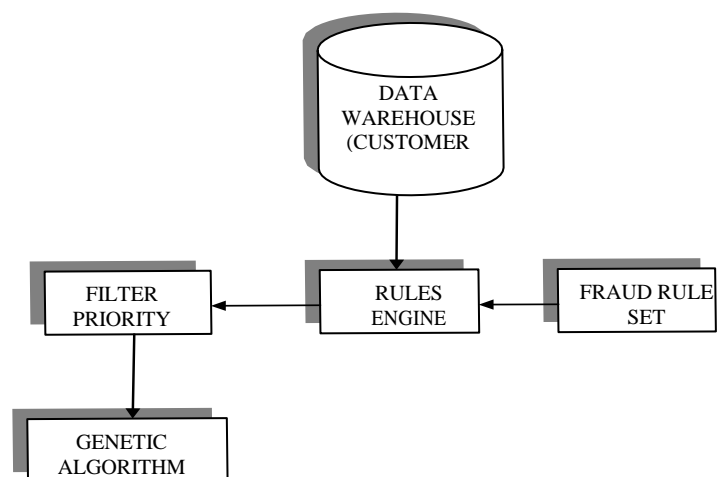


Figure .1: OVERALL SYSTEM DESIGN

The above architecture describes the work structure of the The filter and priority module sets the priority for the data and then sends it to the genetic algorithm which performs its functions and generates the output.

## VII.FLOW OF GENETIC ALGORITHM

The above diagram states the process of genetic algorithm:

- Initially the initial population is selected randomly from the sample space which has many populations.

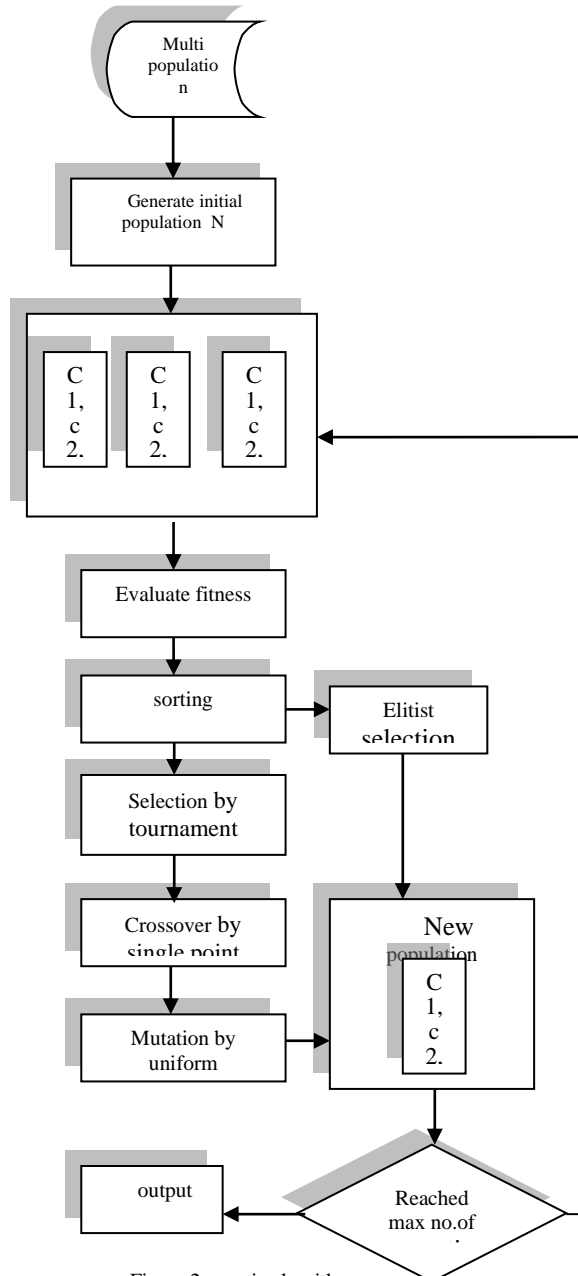


Figure 2.genetic algorithm

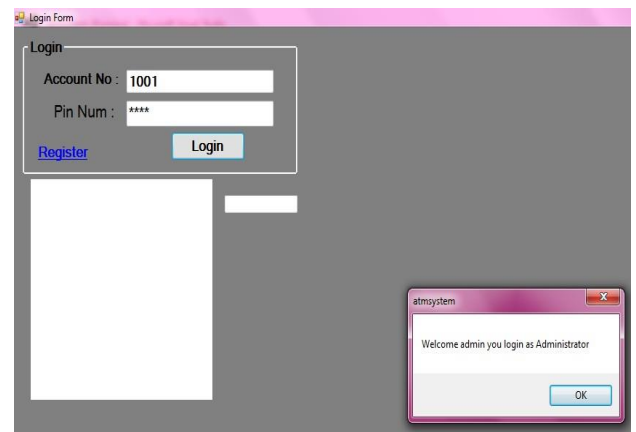
*The fitness value is calculated for each chromosome in each population and is sorted out.*

In selection process two parent chromosomes are selected through tournament method. The Crossover forms new offspring (children) from the parent chromosomes using single point probability.

Mutation mutates the new offspring using uniform probability measure. In elitism selection the best solution are passed to the further generation. The new population is generated and undergoes the same process it maximum number of generation is reached

## VIII. EXPERIMENTAL ANALYSIS.

### A. login form:



To create the login form. after register enter the account number and pin number

Figure 3: login form

### B. main form:

The account number and pin number will be correct. automatically going to next form for main form. in this have some main menus. balance menu, deposit menu, withdraw menu. each menus have individual form and output forms.

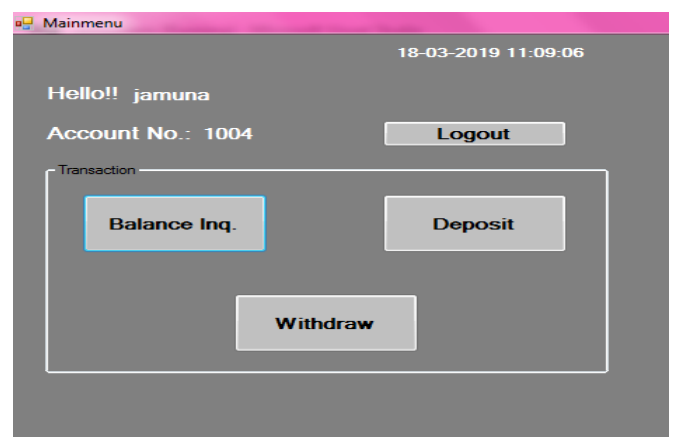


Figure 4: main form

### C. admin form:

The admin form handle for admin. the admin managed for all details and block, unblock and update process also managed for admin.

Figure 5: admin form

**D. balance inquiry form:**

The main form have balance inquiry menu.that menu using for analysis in your account balance.

Figure 6: balance inquiry form

**E. deposit form:**

The main menu sub form for deposit form .that form using for the user deposit details with receipt.

Figure 7: deposit form

**F. WITHDRAW FORM:**

This form also for sub form in main menu form

Figure8: withdraw form

**IX.CONCLUSION**

This method proves accurate in deducting fraudulent transaction and minimizing the number of false alert. Genetic algorithm is a novel one in this literature in terms of application domain. If this algorithm is applied into bank credit card fraud detection system, the probability of fraud transactions can be predicted soon after credit card transactions. And a series of anti-fraud strategies can be adopted to prevent banks from great losses and reduce risks. The objective of the study was taken differently than the typical classification problems in that we had a variable misclassification cost.

**X. FUTURE ENHANCEMENTS**

The findings obtained here may not be generalized to the global fraud detection problem. As future work, some effective algorithm which can perform well for the classification problem with variable misclassification costs could be developed.

So the easy algorithm can be used for future fraud detection. In future , it might have some error and also need of some additional features, all it is depends only on user and user requirement like add additional phone number to sent message or calls.

**XI.REFERENCES****Websites:**

- [1] [http://www.doc.ic.ac.uk/~nd/surprise\\_96/journal/vol4/tcw2/report.htm](http://www.doc.ic.ac.uk/~nd/surprise_96/journal/vol4/tcw2/report.htm)
- [2] [http://www.kxcad.net/cae\\_MATLAB/toolbox/gads/f6691.html](http://www.kxcad.net/cae_MATLAB/toolbox/gads/f6691.html)
- [3] <http://java.sun.com/developer/onlineTr>
- [4] [aining/](http://www.easywayserver.com/blog/userlogin-in-jsp/)
- [5] <http://www.faqs.org/patents/app/20100094765>

**Textbooks:**

- [1] Pressman, Roger S. Software engineering: a practitioner's approach / Roger S. Pressman.—5th ed.p. cm (McGraw-Hill series in computer science).
- [2] E.Balagurasamy, Programming with java, Tata McGraw- Hill Publication.
- [3] Ali Bahrami,Oject Oriented system Development, Tata McGraw-Hill Publication
- [4] Jiwei Han et.al., "Data Mining :Concepts and Techniques", MorganKaufmaan Series,2000