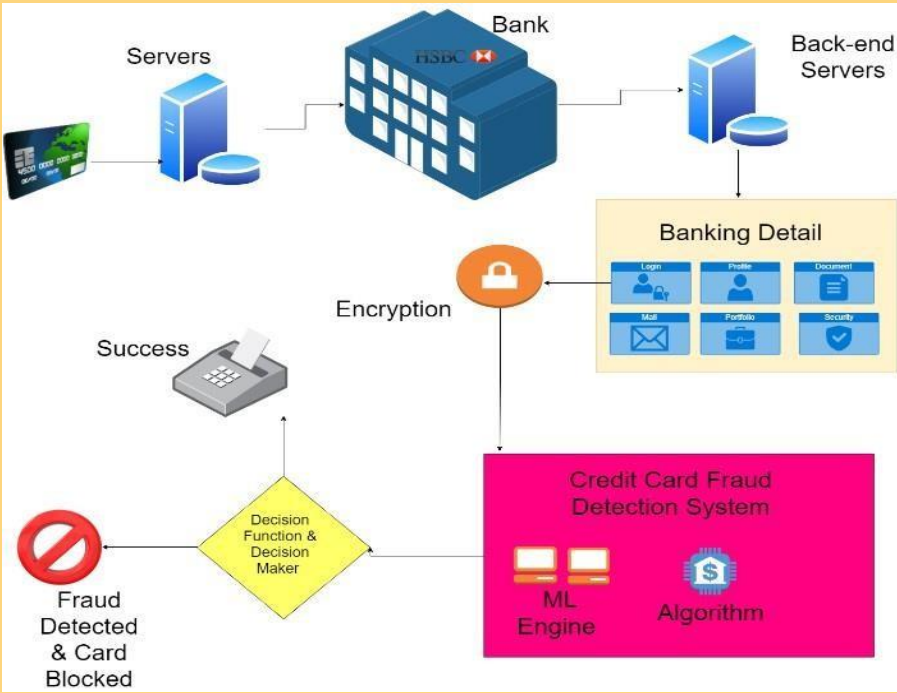


# Credit Card Fraud Detection: A Comparative Study of Gradient Boosting Machines and Recurrent Neural Networks

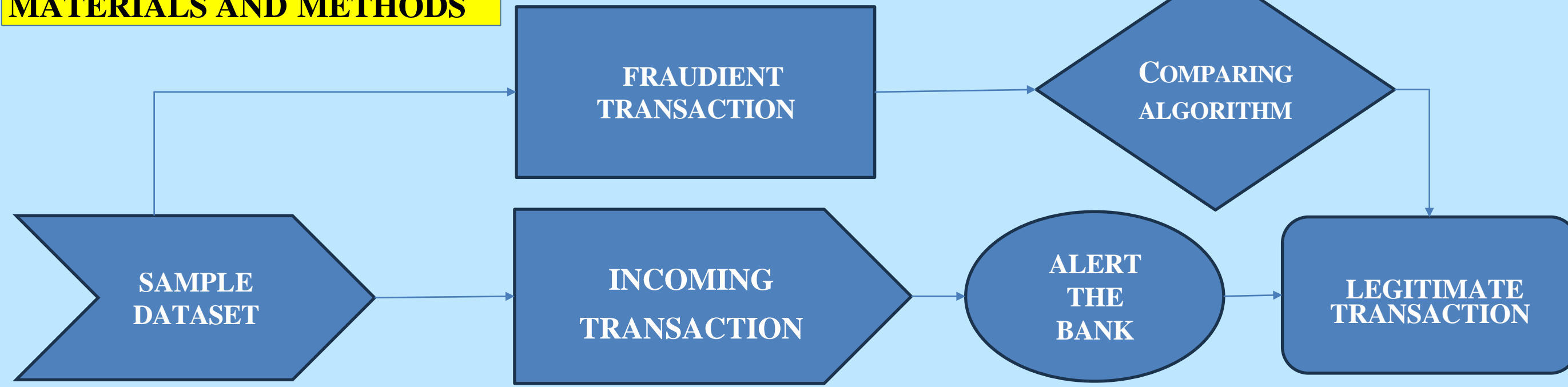
## INTRODUCTION

- Credit card fraud is a global, persisting and costly problem for both financial institutions, businesses and consumers all over the world.
- Such phenomena undoubtedly cause serious financial damage, erodes consumer confidence in electronic handlingsystem, and there are even problem cases of social conflicts due to financial damage
- Thus, the imperative to perfect fraud detection methods is urgent to secure the financial system and to safeguard the interests of customers.



## MATERIALS AND METHODS

Flowchart



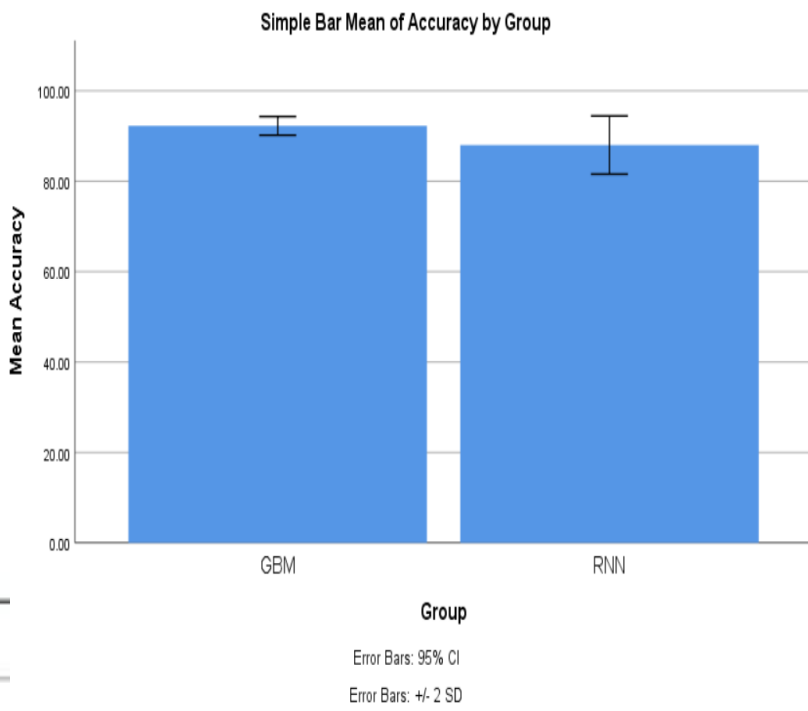
## RESULTS

Table 1: Comparison of accuracy values of Gradient Boosting Machines (GBM) algorithm and RECURRENT NEURAL NETWORK(RNN) with various iterations

Iterations	Gradient boosting machines	Recurrent neural network
1	94.2	89.8
2	92.1	80.5
3	93.54	87.8
4	91.21	84.1
5	92.44	89.1
6	92.11	89.1
7	90.99	89.5

Group Statistics

	Group	N	Mean	Std. Deviation	Std. Error Mean
Accuracy	GBM	10	92.2490	1.03739	.32805
	RNN	10	88.0000	3.21248	1.01587



GBM and KNN

## DISCUSSION AND CONCLUSION

- The conversation would begin with the presentation of GBMs and RNNs in identifying fraudulent money transfers that discriminate them. It also would embrace a comparison of metrics like the prediction accuracy, precision, recall, F1-score, and the area under a curve representing the ROC
- Overall , the accuracy of the Grsdient boosting machines 92.24% and it is better than the other algorithms.

Gradient boosting machine (GBM) - 92.24%

Recurrent neural networks (RNN) - 88.00%
- Proably the results showed that both convolutional neural networks (GBMs) and recurrent neural networks (RNNs) demonstrated the capacity to effectively detect fraud cases

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- "Comparison of Gradient Boosting Machine and Recurrent Neural Networks for Financial Time Series Prediction" by Rui Duan, Qianqian Tang, and Xiangyu Kong