EXPERIMENT NO :- 01

Date of Performance:

Date of Submission:

Aim: One case study on AI applications published in IEEE/ACM/Springer or any prominent journal.

Theory: **Artificial Intelligence Applications in Fraud Detection for Financial Transactions.**

Publication Year : 2024

Abstract:

With the rise of digital transactions, financial fraud has become a significant challenge for banking and financial institutions. Traditional fraud detection techniques based on rule-based systems and statistical models often fail to keep up with evolving fraudulent patterns, leading to increased financial losses and false positives.

This study introduces a **hybrid AI-based fraud detection system** leveraging Deep Learning and Explainable AI (XAI) techniques to enhance fraud detection accuracy. The proposed model integrates:

- **Anomaly Detection Models**: Identifies unusual patterns in transaction data using autoencoders.
- **Graph Neural Networks (GNNs)**: Maps transaction relationships to detect fraudulent behaviors.
- **Explainable AI (XAI)**: Provides interpretability in decision-making, enhancing trust and regulatory compliance.

The model was tested on real-world financial transaction datasets, comparing its performance against traditional machine learning models such as decision trees, logistic regression, and random forests. The evaluation demonstrated that the AI-based hybrid model significantly improved fraud detection rates while minimizing false positives.

Additionally, this research highlights key challenges and future improvements in AI-driven fraud detection, including:

- **Adversarial Attacks**: Enhancing robustness against fraudsters who attempt to deceive AI models.
- **Real-Time Processing**: Improving the system's efficiency to detect fraud instantaneously.
- **Scalability**: Handling massive transactional data across global financial institutions.

Conclusion: Thus, We have Studied a case study on AI applications published in IEEE/ACM/Springer or any prominent journal.

Sign and Remark:

R1 (2 Marks)	R2 (4 Marks)	R3 (4 Marks)	Total (10 Marks)	Signature