SEMINAR TOPIC ABSTRACT

Secure UPI - Advanced Fraud Detection System Using XGBoost

Secure UPI is an advanced fraud detection system designed to enhance the security of **Unified Payments Interface (UPI)** transactions by leveraging the powerful **XGBoost machine learning algorithm**. XGBoost is an ideal choice for improving the precision of fraud detection models due to its efficiency in handling complex datasets and its proven success across multiple industries.

The system preprocesses UPI transaction data to extract pertinent information, such as **transaction amount**, **frequency**, and **location**. A labeled dataset is used to train the XGBoost model, taking advantage of its robust predictive capabilities and ability to handle imbalanced datasets effectively. **Feature importance analysis** is employed to identify key indicators of potential fraud, making the system easier to understand and use.

Once trained, the model is integrated into a **real-time UPI transaction monitoring system**, where it continuously analyzes incoming transactions for suspicious patterns. The system achieves an impressive **98.2% accuracy** in detecting fraudulent activities, enabling it to send instant notifications and take preventive measures to mitigate the impact of fraud.

By demonstrating the effectiveness of machine learning in fraud detection, **Secure UPI** contributes to improving the security of UPI transactions and advancing financial technology. This project highlights the potential of **XGBoost** and **real-time monitoring** in creating secure and reliable digital payment systems.

Key Features:

1. **XGBoost Algorithm**: Utilizes the powerful XGBoost model for high-accuracy fraud detection.
2. **Real-Time Monitoring**: Continuously analyzes UPI transactions for suspicious patterns.
3. **Feature Importance Analysis**: Identifies critical indicators of fraud for better interpretability.
4. **High Accuracy**: Achieves **98.2% accuracy** in detecting fraudulent transactions.
5. **Instant Notifications**: Sends real-time alerts to users and takes preventive actions to mitigate fraud.

Technology Stack:

- **Machine Learning**: XGBoost for fraud detection.
- **Data Preprocessing**: Extraction of transaction details (amount, frequency, location).

- **Real-Time Integration**: Deployment of the model in a real-time UPI transaction monitoring system.
- **Accuracy**: 98.2% accuracy in fraud detection.
- **Feature Analysis**: Identification of key fraud indicators for improved system transparency.

Conclusion:

The **Secure UPI** project demonstrates the effectiveness of **machine learning** in enhancing the security of digital payment systems. By leveraging the **XGBoost algorithm** and real-time monitoring, the system provides a robust solution for detecting and preventing fraudulent UPI transactions. This approach not only improves transaction security but also advances the field of financial technology, paving the way for safer and more reliable digital payment systems.

Student Name : Abhiram A K

Register No : MLM23MCA -2001