



Bank of Baroda Hackathon 2024





Credit Card Fraud Detection

- **Team Name:** Amicoders
- **Team Members:** Mohammad Arshaan
Nishtha Rawat
Dhruv Singh Rawat
Mahendra Singh
- **Date:** 30th June 2024

Problem Statement?

- What is the problem?
- Credit card fraud is a significant issue causing billions in losses annually. It involves unauthorized transactions by malicious actors, affecting both cardholders and financial institutions.
- Why is it important to solve this problem?
- Preventing fraud protects consumers and financial institutions from financial loss, improves trust in electronic payments, and enhances overall economic security



Pre-Requisite

- **Existing Solutions and Limitations**
 - Current fraud detection systems use rule-based and machine learning methods but often fail to detect new or evolving fraud techniques quickly.
 - High false positive rates cause inconvenience to legitimate users.



Tools or resources



Technologies Used Machine Learning
Algorithms: Random Forest, XGBoost,
Neural Networks.



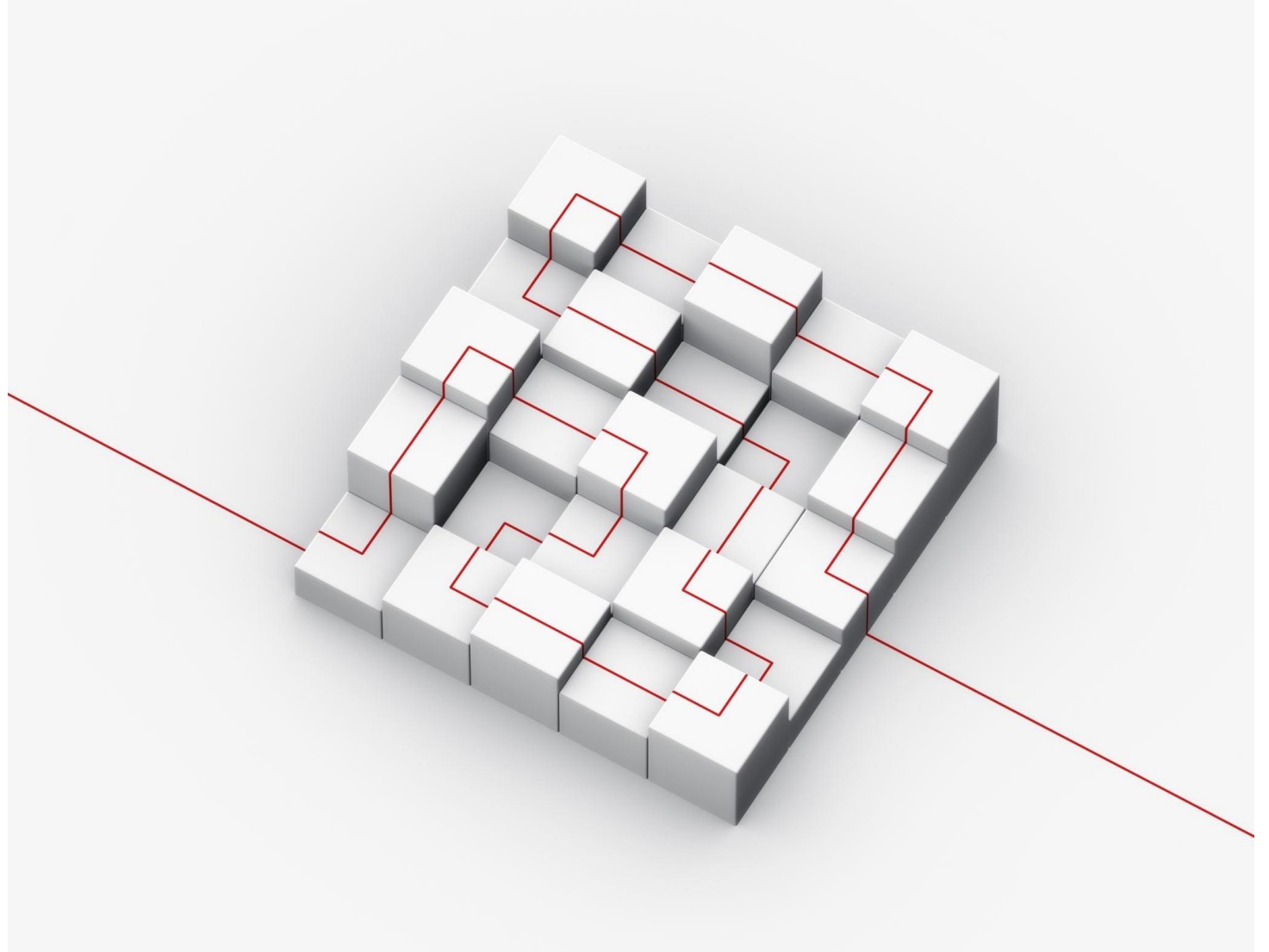
Data Sources: Transaction datasets,
user behavior data.



Platforms: AWS, Azure for cloud
computing and data storage.

Supporting Functional Documents

- Methodology
Data Collection: Gathering transaction data from various sources.
Data Preprocessing: Cleaning and transforming data for analysis.
Model Training: Using supervised learning to train models on historical fraud data.
Evaluation: Testing models for accuracy, precision, recall, and F1-score.
Architecture
Data Pipeline: Ingesting and preprocessing data.
Model Pipeline: Training and deploying machine learning models.
Monitoring: Continuous monitoring for new fraud patterns.
(Include your



Key Differentiators & Adoption Plan



Key Differentiators

- Real-time fraud detection with low latency. High accuracy and low false positive rates due to advanced machine learning techniques. Adaptive learning that evolves with new fraud patterns

Adoption Plan

- Pilot Phase: Testing with a small subset of transactions.
 - Full Deployment: Rolling out across all transactions.
 - Marketing: Partnering with banks and credit card companies
-

GitHub Repository Link

<https://github.com/DhruvSinghRawat/BOBRepository>





Business Potential and Relevance

Business Applications

- Financial Institutions: Reducing fraud-related losses.
- E-commerce: Protecting online transactions.
- Insurance: Preventing fraudulent claims.

Uniqueness of Approach and Solution

Unique Aspects

Combining multiple machine learning models for higher accuracy.

Use of real-time data for immediate fraud detection.

Continual improvement with adaptive learning.



User Experience



Enhancing User
ExperienceMinimizing
false positives to reduce
inconvenience.



Providing clear
notifications and easy
reporting for suspicious
activities.

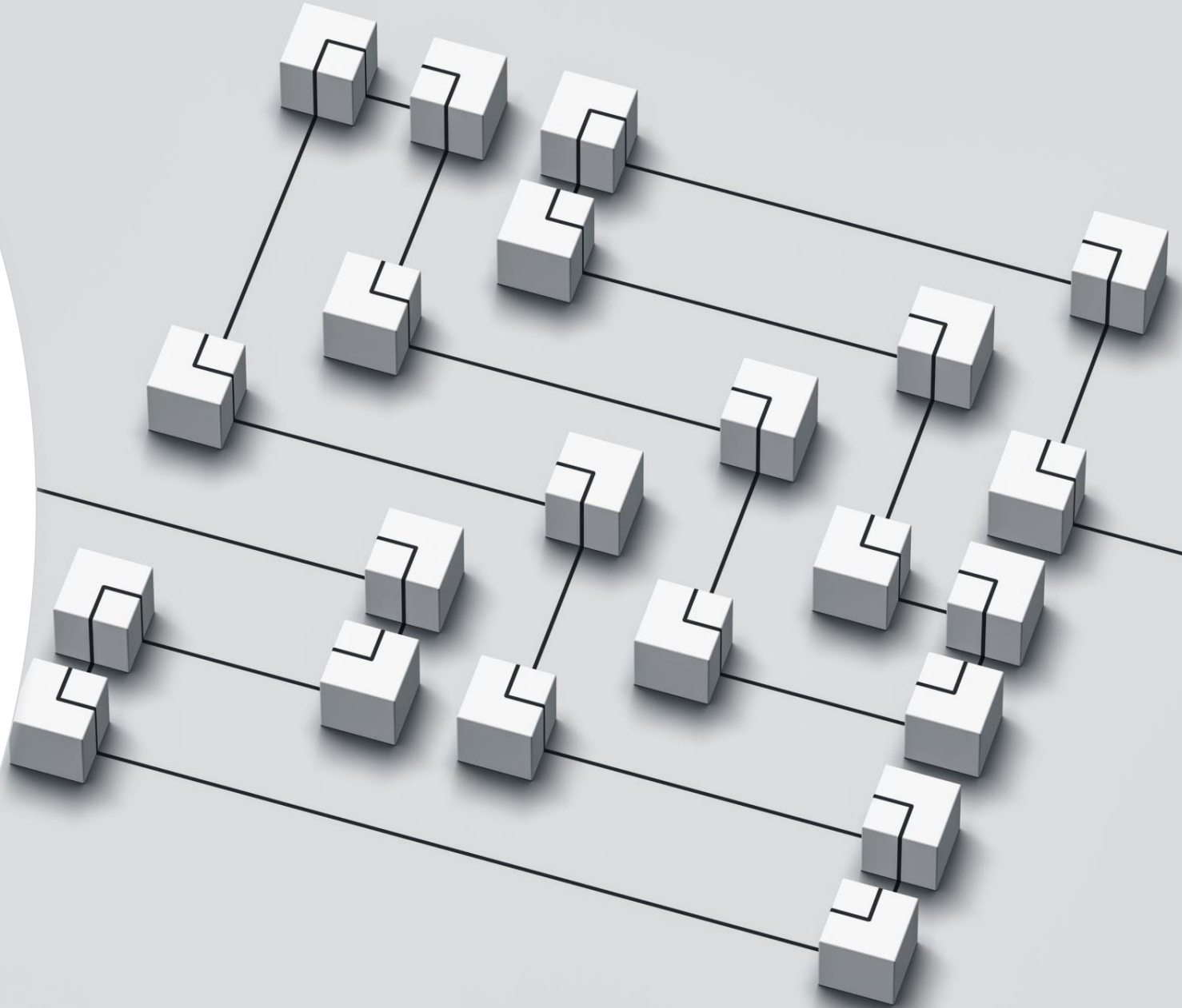


Ensuring data privacy
and security for user
trust.



Scalability

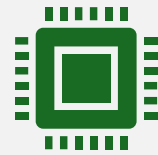
- Scaling the Solution Utilizing cloud services for scalable infrastructure.
- Modular architecture to handle increasing transaction volumes.
- Automated retraining of models to incorporate new data



Ease of Deployment and Maintenance



Deployment using containerization (e.g., Docker, Kubernetes).



Automated CI/CD pipelines for smooth updates.



Comprehensive documentation and support for maintenance.



Security Considerations

- Data Encryption: Protecting data at rest and in transit.
- Regular Security Audits: Ensuring compliance with industry standards.
- Multi-Factor Authentication: Enhancing user account security.



Thank You

- Team Members
- Mohammad Arshaan
- Nishtha Rawat
- Dhruv Singh Rawat
- Mahendra Singh

Contact Information

mohammadarshaan644@gmail.com

nishtharawat2022@gmail.com

singhrawatdhruv14@gmail.com

mahendrasingh17122003@gmail.com