Cybersecurity Hackathon 2025 in collaboration with Maulana Azad National Institute of Technology, Bhopal

Overview of the Problem Statement and Its Relevance to Banking/FinTech

The Unified Payments Interface (UPI) has revolutionized digital payments in India, processing over 18 billion transactions worth ₹25 trillion in May 2025 alone. However, this rapid growth has been paralleled by an 85% surge in UPI fraud cases in FY 2023-24 compared to the previous year. Fraudsters employ sophisticated techniques, including impersonation, phishing/vishing calls, and device-based attacks, which traditional security measures like OTPs or static checks struggle to counter. The problem statement for the hackathon, assigned by the Central Bank of India, was to develop an "**AI-Powered Fraud Detection and Prevention System for Digital/UPI Transactions"**. This challenge is highly relevant to the banking and FinTech sectors, as it addresses the critical need for real-time fraud detection that balances robust security with a seamless user experience. The solution must comply with regulatory requirements from the Reserve Bank of India (RBI) and the Department of Financial Services (DFS) while being practical for integration into existing banking systems.

Ideation/Inauguration Event during Mar'25

Description of the Solution Developed by the Finalist Teams

- The Winning team VNITx (VNIT Nagpur) developed "**FraudLens"**, an AI-powered fraud detection platform designed to enhance the security of UPI and digital transactions. Team developed a Mobile App, Machine Learning Backend and Admin Dashboard. FraudLens is modular, enabling seamless integration into existing banking applications without requiring significant infrastructure changes. Its multilingual support and explainable AI features ensure compliance with regulatory standards and enhance user trust, making it a practical and scalable solution.
- The first runner up team, team Codewizards (MANIT Bhopal) presented a solution **"SafePay QR"**, a smart AI-driven mobile security solution designed to protect UPI users from QR-based frauds — including phishing, fake UPI redirection, and steganography-based attacks. It classifies QR codes in real-time as Safe, Suspicious, or Malicious based on transfer learning, steganography detection, and behavioral anomaly detection. The solution also offered to use a crowd-sourced threat intelligence system (similar to Truecaller), enabling users to report fake QR codes and improve fraud detection across the network.
- Second Runner up team, team Phish'n Chips (NIT Rourkela) presented a real-time scam detection system for voice calls with name **"VishKill"**. It is a comprehensive system for real-time detection of scam phone calls using AI voice analysis, emotion detection, speaker diarization, and LLM-powered analysis. The solution offers an app that records 10-second audio chunks from phone calls and processes it on its own server that runs Whisper transcription, deepfake voice (AI generated voice that emulates some known person) detection, background audio classification, speaker diarization, emotion recognition. It continuously updates a scam risk score as the call progresses.

Highlights of the Team's Journey Through the Hackathon Process

The journey of Cybersecurity Hackathon -2025 by Central Bank of India with MANIT Bhopal was marked by innovation, collaboration, and perseverance:

- **Ideation (March–April 2025)**: Total 35 teams from different NITs participated and they conducted extensive research into fraud scenarios, identifying key attack vectors such as phishing, vishing, and account takeovers. They conceptualized solution to address multiple fraud types, ensuring broad applicability.
- **Presentation Round (June 2025)**: During the presentation round 17 team were shortlisted. These teams presented their designs to a jury of Central Bank of

India officials, MANIT faculty, and industry experts. Their vision and practical approach earned approval for prototype development.

- **Prototype Development (June–July 2025)**: Shortlisted teams during presentation round given time of 2 months for prototype development. The teams built datasets, trained machine learning models, and some teams developed functional apps also. They incorporated features like SMS alerts in English and Hindi, biometric login, and real-time fraud monitoring, etc.
- **Finale (July 25, 2025)**: In Cybersecurity hackathon finale, 10 Teams were shortlisted. After a series of presentation and demonstrations by finalist teams, Team VNITx emerged as winner. The solution's completeness, practicality and alignment with bank need earned first prize.

Winning Team Collecting Prize

Role of the Central Bank of India in Mentoring and Supporting the Team

As the first Swadeshi Bank with a 114-year legacy, Central Bank of India played a pivotal role in supporting the hackathon, aligning with the Department of Financial Services' call to foster innovation in cybersecurity and AI-driven digital payments. The bank sponsored the MANIT Cybersecurity Hackathon 2025 in collaboration with MANIT Bhopal and provided the problem statement. Officers from the bank's Digital Banking and Information Security departments offered hands-on guidance, sharing insights on:

- Real-world UPI and digital channel fraud patterns.
- Regulatory requirements from RBI and DFS for fraud detection systems.
- Practical considerations for integrating solutions with banking infrastructure.

This mentorship ensured that the participant teams get proper guidance and support develop their model/solution and it was closely aligned with real banking requirements, enhancing its applicability and effectiveness. The bank's commitment to nurturing young talent underscored its pioneering role in advancing cybersecurity innovation.

Notable Outcomes, Learnings, and Future Plans

- **Outcomes**: Winning teams delivered a fully functional prototype with a mobile app, machine learning backend & dashboards etc. Solutions effectively detects fraud attempts such as vishing, account takeovers, and fake SMS, while supporting multiple Indian languages and providing explainable AI outputs. The solutions modular design makes it adaptable for integration into existing banking systems.
- **Learnings**: The teams gained insights into the importance of domain-specific features, the need for sub-second response times in Digital transactions, and the balance between security and user convenience. They also learned to navigate the complexities of real-time fraud detection while adhering to regulatory standards.
- **Future Plans:** The success of Cybersecurity Hackathon-2025 underscores Central Bank of India's commitment to fostering innovation and cybersecurity, paving the way for safer and more efficient digital transactions in the FinTech ecosystem. Bank is committed to conduct such events in future also.

Other Notable Points

- **Team Synergy:** Under the mentorship of Central Bank of India & MANIT Bhopal, teams demonstrated exceptional collaboration, combining expertise in AI, cybersecurity, and app development to create a robust solution.
- **Recognition:** Winning teams in Cybersecurity Hackathon 2025 highlights the team's innovative approach and the solution's potential to contribute to the future of secure digital payments in India.

Media Coverage of the final event