IIT Bhilai Innovation and Technology Foundation

IIT Bhilai, Transit Campus - Govt. Engineering College, Old Dhamatari Rd, Sejbahar, Chhattisgarh (492015)

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Approved Problem Statements for the Conduction of GCC

Problem Statements Submitted by the National Payments Corporation of India (NPCI)

Problem statement - 1

Imagine searching every possible website and app for the cheapest airline ticket for your upcoming trip and finally, you landed on one floating heavy discount with zero convenience fee on UPI payment, and then on the payment screen flashes that your payment has been declined. At this moment, you probably aren't thinking about the data science that determined your fate.

Embarrassed, and certain you have the funds to cover everything needed for this upcoming trip, you try your UPI payment again. Same result. After 10 minutes, you receive a text message from your bank. "Press 1 if you tried to spend 25000 on your flight ticket booking to XXX."

While perhaps cumbersome (and often embarrassing) at the moment, this fraud prevention system is saving consumers millions of dollars per month. Now NPCI Data scientists want to improve this figure, and further curb down person to merchant (P2M) frauds, while also improving the customer experience. With higher accuracy fraud detection, you can get on with your chips without the hassle.

NPCI works across a variety of AI and machine learning areas, including deep neural networks, fuzzy systems, and swarm intelligence. Seeking the best solutions for the fraud prevention industry, and now you are invited to join the challenge.

In this competition, you'll benchmark machine learning models on a challenging large-scale dataset. The data comes from NPCI real-world UPI P2M transactions and contains a wide range of features from device type to product features. You also have the opportunity to create new features to improve your results.

If successful, you'll improve the efficacy of fraudulent transaction alerts for millions of people around the world, helping hundreds of thousands of businesses reduce their

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fraud loss and increase their revenue. And of course, you will save people just like you the hassle of false positives.

Problem statement

Detection of fraudulent transactions among transactions between persons and merchants (P2M) by machine learning models that are robust to inconsistencies and imbalance. The Metric for evaluation is a high recall value with minimum possible false positives.

Expectations

Discover and develop novel machine learning approaches, that are robust to inconsistencies and imbalance that can capture fraudulent transactions in the continuously changing landscape of UPI transactions, that not just have the best possible recall but also, have significantly low false positives, that'll help hundreds of thousands of businesses reduce their fraud loss and increase their revenue and of course, you will save party people just like you the hassle of false positives.

Problem statement - 2

QR-based payments are the preferred mode of making digital payments as these are easy to generate, deploy, share and use(scanning). As QRs are extremely low-cost solutions and asset lite, their proliferation is also very high. However, QR-based payments are also a potential source of risk in the payments systems as these are easy to be replaced, copied, or tampered with.

There is a need to make enhancements in the QR-based payments to make these more secure while retaining its core strengths of being easy to generate, share, deploy, use, and keeping the cost low.

Expectations

- Make the QRs generation and sharing complete secure.
- Ability to identify the tampering of QR.
- The prescribed solution should not make the QR heavy so that it does not impact the transaction flow.

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- The suggested solution should be created using the open-sourced tools & software. No part of the solution should contain anything proprietary.

Problem statement - 3

In the case of financial transactions, getting the transaction confirmation is essential. This becomes very important in the case of merchant payments wherein the payer sends money; however, the merchant does not receive the confirmation or is not able to track the specific transaction, and then refuses to provide goods/services. This leads to customer disputes and grievances. Currently, standard methods such as SMS, email, payment confirmation screenshot, or in case of face-to-face payments, the payer shows their payment screen. However, these solutions are sometimes unreliable, expensive to implement, and require multiple system-level integrations. These solutions also have limitations such as the confirmation can be received by only one person (in the case of merchant transactions typically the one getting the payment confirmation and the one delivering goods are different), and the onus is on the recipient to manually check the payment confirmation leading to inefficiencies. Most importantly it leads to reconciliation issues. There are few solutions in the markets, however, they are proprietary.

There is a need to create a solution that:
- Provides instant payment confirmation to both sender and receiver.
- Provides a mechanism for the receiver (especially merchants) to reconcile previous payments.
- Are interface and channel-agnostic
- Caters to the need of all sections of users.

Expectations
- Create a solution that provides a payment confirmation and reconciliation mechanism for all types of digital payments.
- The solution should be interface (e.g., mobile) or channel (e.g., SMS) agnostic and should support all existing and future modes of communication.
- The solution should cater to the needs of all cross-sections of users.
- The suggested solution should be created using the open-sourced tools & software. No part of the solution should contain anything proprietary.

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Problem Statements Submitted by the National Informatics Centre, Chhattisgarh State Centre

Problem statement - 4

The government of India as well as the state Government launches many flagship projects from time to time for the welfare of the various sections of people residing in rural and urban areas of the state like MGNREGA, PM Awas Yojana, National Rural livelihood mission, various pensions like old-age pension, disability pension, widow pension, etc. All these schemes involve payment to the beneficiaries residing in the far-flung areas of the state. Many of these areas in rural have many challenges related to reaching the banking institutions, huge distances from the urban/semi-urban areas, road and transport facilities, and network connectivity. Due to these challenges the allotted benefits fail to reach the beneficiary within time, depriving him/her of the facilities extended by the government for the upliftment of their income/basic facilities.

Since the launch of the flagship schemes of the Government like NREGA in 2006 through which government provides minimum wages to the poor beneficiaries, many initiatives have been taken to ensure that the wages reach the beneficiary in cash within the stipulated time. Owing to the limited reach of banks/ post offices a BCM (business correspondent model) model was launched by many banks through which a designated sum was issued to a village entrepreneur, who in turn moves around his/her designated area and distributes the eligible amount in cash to the beneficiary through the micro atm attached with a biometric device or through a kiosk. Under the National Rural livelihood Mission (NRLM) scheme the Government has also enrolled women self-help groups (SHG) called 'BC Sakhi' to provide a livelihood to the women entrepreneurs, as well as to extend the reach of rural payments to the beneficiaries. Despite various efforts, various studies and reports show delayed payments to the beneficiaries and a concrete solution to the wage/pension payment to the rural beneficiaries remains a challenge to the Government agencies.

Problem Statement
Design and development of a suitable IT-based solution for the timely wage/pension payment to the rural beneficiaries, under various Government schemes.