Idea Details:

Organization Name: Bureau of Police Research & Development

Problem Statement: With our aim to fight against bribery, we seek Digital Solution to Combat Bribery & Justice Restoration System for better policing and improved public delivery system. Solution should (1) Provide efficient ways of public delivery system for combating bribery (2) Reporting bribery incidences to authorities. You may add value addition features to your solution.

Team Name: BanderSnatch

Team Leader Name: Nipunika

College Code:

We aim to employ **data visualization** to help make information more open as to facilitate upward transparency. The reporting mechanism guarantees anonymity if the user opts for it, to ensure that **reliable *anonymous reports*** we have a report similarity checking mechanism. Furthermore, based on the reports we will generate an ***early warning system*** that predicts the chances of corruption happening in a department of a particular location. To automate the process we have deployed a flask based API that **mines for the essential parameters** for the Early Warning System based on the the report's location.

Deployed Prototypes:

- NodeJS Web App
- Flask API
- Android APK

To know more about the code base: https://github.com/Nipunnyka/CurbCorruption

Idea Description

- After reading research papers[1][2], we ascertained that any solution that could be successfully deployed in developing nations had to be **end to end, cost effective and implementable in the local context of the culture**. We developed a self-sustaining crowdsourcing platform that has been deployed on a website as well as mobile application.

- Crowdsourcing Platform: having proven effective in other developing countries[1][2], our citizens submit (optionally anonymous) reports of incidents when they confronted bribery and petty corruption. We make certain aspects of this report public **promoting upward transparency, increasing visibility of corruption and generating data for research trends**.

- We aggregate the data and **visualize it for ease of use so** that authorized personnel such as Police Commissioners, Government Officials can easily access this data and take necessary actions for targeted policy making and optimized resource utilization.

- Currently, since there is no follow-up mechanism on petty corruption, there is no accountability but with our application relevant data on such incidents will be made public **making officials accountable**. These **reports also serve as the training data sets for our ML models making it self sustaining.**

- Early Warning System (ORIGINAL IDEA): We contend that corruption must be detected as soon as possible so that corrective and preventive measures may be taken. Upon reading research papers[3], we found that the level of **corruption depends on certain factors:** taxation of real estate, economic growth, the increase in real estate prices, the growing number of deposit institutions and nonfinancial firms, and the same political party remaining in power for long periods. Our model provides different profiles of corruption risk depending on the economic conditions of a region conditional on the timing of the prediction.

- Using SMS delivery system and automated calls to report incidents in low-network areas

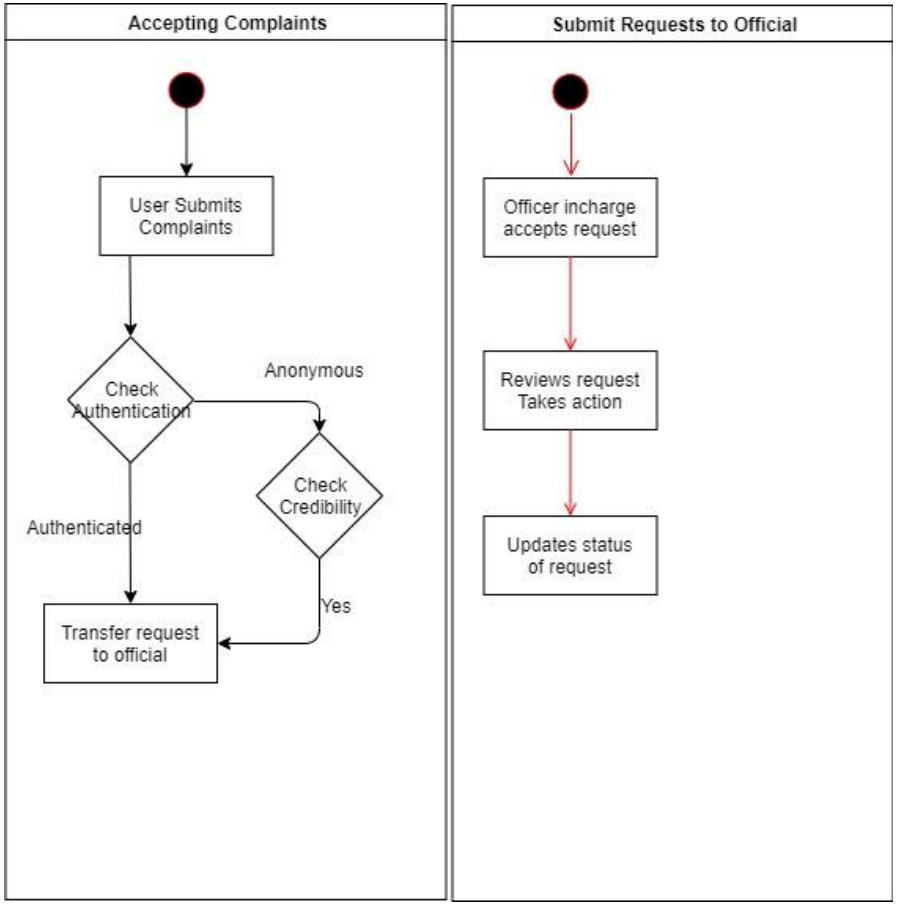
Use Case Diagram

For average citizen:

- Submit report of bribery
- Access data about bribery reports classified by department and location all over india
- Gather general information about accessing public services corruption free

For government officials:

- Keep check on their jurisdiction
- Use Early Warning System to curb corruption preemptively ensuring free access to public services
- Be informed about the “under the table” activities of their departments
- Optimized resource allocation for Anti Corruption Bureau to curb corruption



Tech Stack

- ➔ Flutter: for cross-platform app development(android & ios)
- ➔ Bootstrap: as the frontend framework
- ➔ Anime.js: for the animations
- ➔ Node.js: for web application backend
- ➔ Express.js: as the web application framework
- ➔ Edge.js: as the templating engine
- ➔ MongoDB: as the Database Management System
- ➔ Mongoose: as the Object Data Model for MongoDB
- ➔ Heroku: as the deployment platform (aim to deploy on OpenStack in future)

- ➔ Keras/Tensorflow : Predictive neural network and loss functions defined using keras
- ➔ For report similarity / fake report detection we use low level tensorflow API to define Manhattan Siamese loss function and LSTM network implemented in keras
- ➔ Flask: for API for ML models

Dependencies

- Data Sets for literacy rate, GDP, population and poverty index.
- Certain number of Non-Anonymous Reports to generate reliable data

For more info: click here

Team BanderSnatch