Project Synopsis

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"Creation of predictive models using datasets to smooth the Grievance redressal mechanism"

Submitted to

Department of Administrative Reforms and Public Grievances, Ministry of Personnel, Public Grievances and Pensions

Submitted By

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Abstract:

One way to make the system smooth and effective is by analyzing the working till now predicting what may happen in future. Analysis will find what the loopholes are in the system and give insights to solve theses loopholes. Prediction will ensure that the system continues to work in an efficient manner.

We were provided with six dataset for this purpose. All the given datasets were used for various purposes. The feedback dataset which had feedback from registered user and movement dataset which showed the lifecycle of a filed grievance helped us understand the working of grievance rederssal mechanism.

The next dataset provided is month-wise collection of receipts and disposals. There are 129 departments and each department has its' own rate of disposing grievances. So analyzing all the departments separately will be a good choice.

The main idea is finding out efficiency of every department by finding out all the pending receipts the department has and the rate at which receipts are getting disposed. We have analyzed the total number of grievances filed and on an average what number of receipts is disposed.

Also predicting what number of receipts a department will receive in future can help to set a target accordingly and manage the disposal rate. Hence we have used time series forecasting to predict the future values of receipts and also what number of receipts will be disposed if routine rate is followed.

Introduction:

Under the public grievance mechanism any citizen of India can raise their problems, grievance or pleas to the central government and state government Ministries and Departments. Grievance can be submitted to all important portfolio ministers and Departments.

The grievance redressal mechanism is said to be yet not effective since most grievances are rejected, disposed or closed. The bureaucrats are said to dispose pleas and grievances without resolving or addressing the issue. Though government is taking effective measures to help people some of the bureaucrats in the system do not help in sound performance of these schemes.

Hence, one way to make the system smooth and effective is by analyzing the working till now predicting what may happen in future. Analysis will find what the loopholes are in the system and give insights to solve theses loopholes. Prediction will ensure that the system continues to work in an efficient manner.

Working Methodology:

1. Registered Users

Analysis of all registered users leads to following conclusions:

1. Maximum Number of Registered Users are Indians : 6,15,583
2. Maximum Number of Registered Users are Male : 5,47,616
3. Maximum Number of Registered Users are from Uttar Pradesh(1,01,272) followed by Maharashtra(68,331)
4. Maximum Registration were made in the year 2018 followed by 2019
5. Maximum Registration are made in month of June and July.

2. Month-wise and Department-wise Analysis and Prediction:

Prediction of number of receipts that will be generated and receipts that will be disposed is done using time-series forecasting using SARIMA model. The department wise data was periodic i.e. number of receipts generated and disposed for each department was in a monthly format.

Out of 129, 76 departments had data for 47 months i.e. from 01-01-2016 to 01-11-2019. These departments are further considered for prediction as complete data is available which will result in a better fit.

3. Nodal-officers

Analyzing this data helped finding out number of nodal officer per department. As the prediction will find the amount of receipts to be disposed and at what rate so that no backlog remains assigning more nodal officers according to the requirement might help.

Technology Stack:

Environment: Jupyter Notebook

Programming Language: Python

Libraries and Packages: Pandas, Matplotlib, Seaborn, statsmodels, Numpy

Time series model used for predicting: Seasonal Autoregressive Integrated Moving Average (SARIMA)

Version control: Git version control

References:

1. https://pgportal.gov.in/Home/RedressMechanism
2. https://pgportal.gov.in/Home/ProcessFlow
3. https://data.gov.in