Crime Data Analysis

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Under the guidance of Dr. Ankur Jain

Abstract

Crime Atrocity worked hard to find trends in frauds and other crimes happening across India. We made a few visualizations and discovered the safest places in India, as well as those places which need some awareness while one navigates through.

Inspiration:

- There was once an incident where a female tourist complained about security issues in Mumbai.
- Being a citizen of this country, we decided to verify the authenticity of this statement by analyzing all the past atrocious activities occurring in various states of India.
- These include heinous activities such as thefts, frauds, murder, kidnapping etc., actions that tend to disrupt the lives of ordinary citizens.

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I. Introduction

Now-a-days, there has been a fringe rise in crimes in India. Fierce crimes like Property crimes, scams, assaults, kidnapping, trafficking, dacoity, robbery etc leads to degeneracy of lifestyle for common folks today. As the occurrence of crimes is unpredictable, it is hard to gain control over them by local police officers. It is difficult to analyze the victims of crime but the place where crime has occurred or happened can be analyzed. So, there is a need for an effective analyzing tool which can analyze crime data efficiently and quickly to give some useful crime patterns or predict future crimes. This can prove helpful to the intelligence agencies or local law enforcement agencies.

II. Problem Formulation

The questions to ask before looking at our data and visualizations are as follows:

- Which kind of atrocious activities are most common in which parts of India?
- How crime rates are evolving over time?
- Which parts of India are prone to frauds?

Objectives

- To gather instances about past occurrences of crimes.
- To determine which crimes are more prevalent with respect to every district in India.
- Answer the foundational questions as stated in the previous section.

III. Methodology

Design

Since our aim was to visualize data that will be categorized into Geographical categories, we preferred Maps wherever possible to visualize data into a more intuitive design.

The results contain 3 Maps, 1 sheet of pie charts, and 1 sheet of data over time.

Implementation

- The dataset was taken from the trusted repository, maintained by the government of India, from https://data.gov.in.
- The CSV files then collected were modified to have one more column

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of “Country” besides other columns, which remained untouched.

- Out of the four datasets, 2 of them were imported into Tableau for this phase, and extracts were created.
- Then step by step each visualization was built in Tableau. This phase included creating a calculated field to group the columns by their general meaning and perception,creating a parameter to interactively control the output of the calculated field, linking sheets into tooltips, fixing labels, assigning colors, etc.

IV. Results

The result derived from analyzing the above datasets:

District wise visualization:
https://public.tableau.com/views/CrimeVizIndia/Districtwisecrimedata?:language=en-US&:display_count=n&:origin=viz_share_link

State wise visualization:
https://public.tableau.com/views/CrimeVizIndia/Statewisecrimedata_1?:language=en-US&:display_count=n&:origin=viz_share_link

Crime distribution in each state:
https://public.tableau.com/views/CrimeVizIndia/Statecrimedistribution_1?:language=en-US&:display_count=n&:origin=viz_share_link

Crime trend over time in districts:
https://public.tableau.com/views/CrimeVizIndia/Districtcrimesovertime_1?:language=en-US&:display_count=n&:origin=viz_share_link

Frauds in Indian states:
https://public.tableau.com/views/CrimeVizIndia/SeriousFrauds?:language=en-US&:display_count=n&:origin=viz_share_link

Complete workbook:
https://github.com/yvs2701/The-path-of-Coder/tree/main/Data%20Viz/Crime%20Viz%20India

V. Conclusion

In this paper, we have used tableau to get the graphical representation for better analysis of data which can yield better results and can help police department, law enforcement officers to improve their work. It will increase the efficiency in solving the crimes faster.

VI. References

Dataset link:
https://github.com/yvs2701/The-path-of-Coder/tree/main/Data%20Viz/Crime%20Viz%20India/Crime%20Dataset

Tableau help:
https://help.tableau.com/current/pro/desktop/en-us/gettingstarted_overview.htm

Other materials:
http://ijrar.com/upload_issue/ijrar_issue_20543329.pdf

https://arxiv.org/ftp/arxiv/papers/1902/1902.05684.pdf