

## GROUP MEMBERS:

Kishnu Srivasthava24PGAI0042 contributed to Data extraction, Data Preparation and Data Cleaning.

Praveen Kumar Singh 24PGAI0068 contributed in designing charts.

Salmoli Chandra 24PGAI0057 contributed to Dashboard design thinking and Report writing.

## **DEVELOPMENT OF A TABLEAU DASHBOARD FOR CRIME DATA ANALYSIS**

### Why have we chosen this National Crime Records Bureau data?

It's crime data. It really helps in learning about the socio-economic, cultural and many aspects of a society such as having an idea about public safety, policy making for crime prevention, researching which contributes to crime. It can also help in fostering community awareness, can also be helpful in evaluating the effectiveness of law enforcement agencies. And as we have had two members prepared for UPSC for some time, they certainly had the interest. And we, being a big fan of crime thrillers, really wanted to study this. So, in combining our interests and passions into a professional platform, tableau really helped us.

### What did you build?

We tried to build a dashboard which just takes you through the story of crimes and murders in India as you hover over each of the interactivity provided in it.

### Data Visualization:

NCRB crime data is a government data which is really surveyed and then posted on the website. We collected the data from there, and going through the visualizations we created in the Tableau dashboard really helped us know the actual picture which gave us the overview of crimes in India.

Our Dashboard 'Unveiling Indian Crime Patterns', provides the view of trends of crimes in India in a range of 2019 to 2021. We have taken mainly the three key aspects i.e., crimes against women, kidnapping, and murder. I hope the dashboard we made is interactive, simple, and crisp enough, showing all the three ranges of years and crimes in it.

HISTORIC TREND

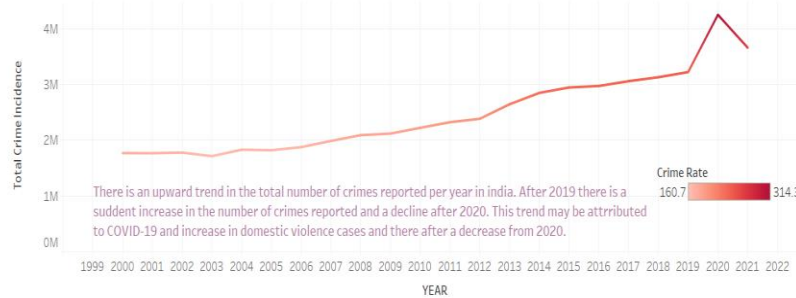
ALL INDIA CRIME

CRIME AGAINST WOMEN

MURDER CRIMES

KIDNAPPING

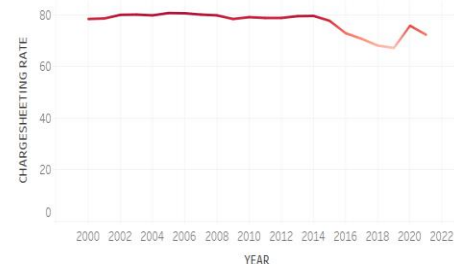
HISTORIC CRIME TREND



HISTORIC CRIME RATE

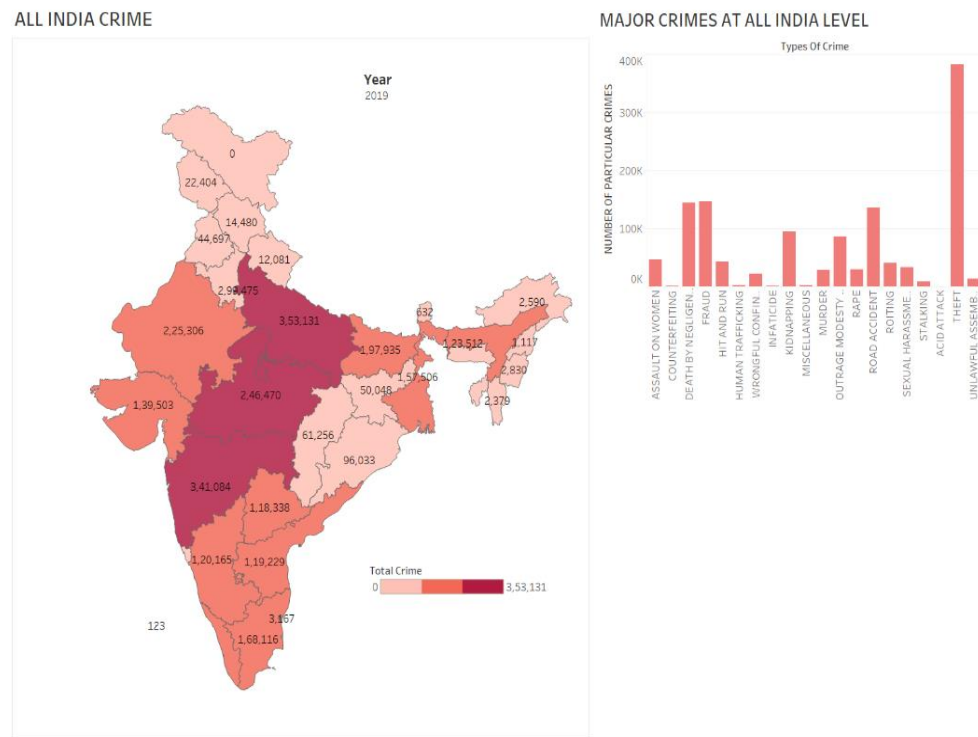


CHARGESHEET RATE

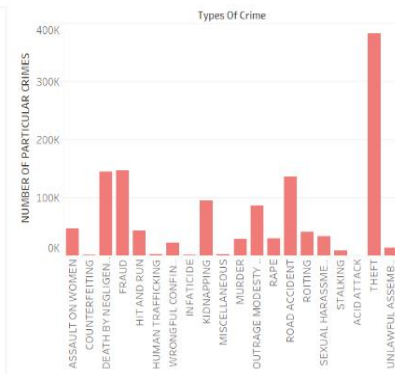


A line chart depicts the trend of crime over the years ranging from 2002 to 2021. Here the key significance which we saw sharp rise in crime rate increased in 2020 .According to our research , the case might lie in the COVID-19 pandemic which the words faced , made to an increase of crimes due to the uncertainty , economic hardships they faced . But the confinement in room may lead to the reduction in chargesheet rate. There is an upward trend in the total number of crimes reported per year in India. After 2019 there is a student increase in the number of crimes reported and a decline after 2020. This trend may be attributed to COVID-19 and increase in domestic violence cases and there after a decrease from 2020.

- HISTORIC TREND
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- CRIME AGAINST WOMEN
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- KIDNAPPING

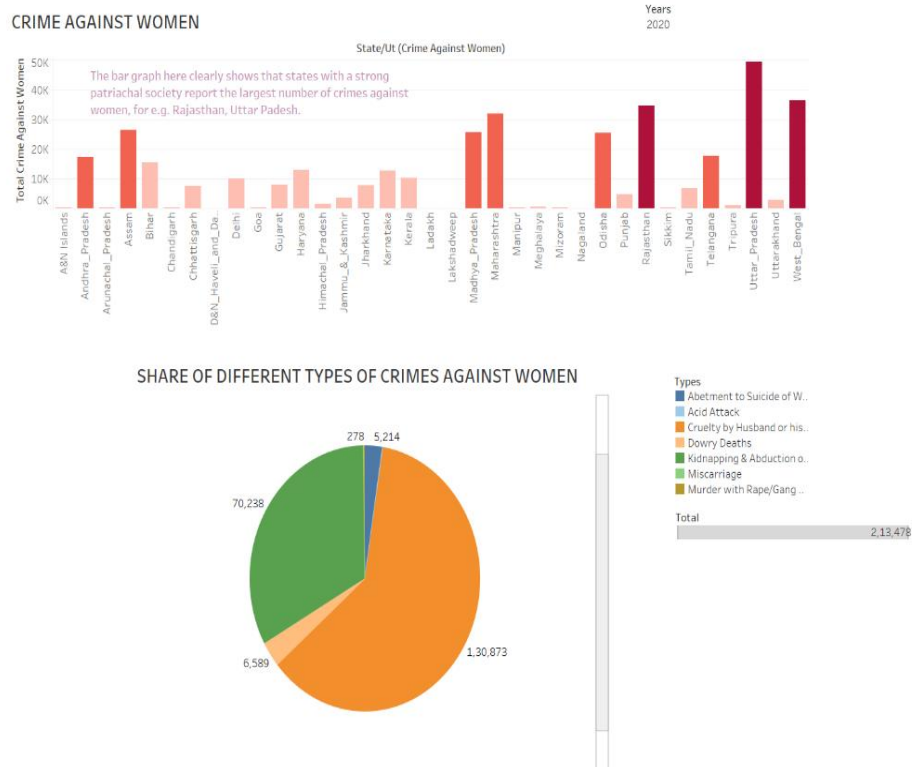


MAJOR CRIMES AT ALL INDIA LEVEL

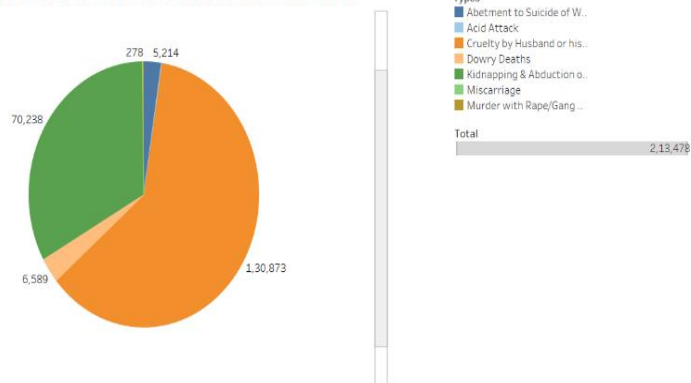


The dashboard, divided into various sections, highlights key aspects of crime data. You can see that in the top right, filters are there to allow selecting users the specific year, state or crime they want to see i.e dynamically updating the dashboard based on the customer’s selection.

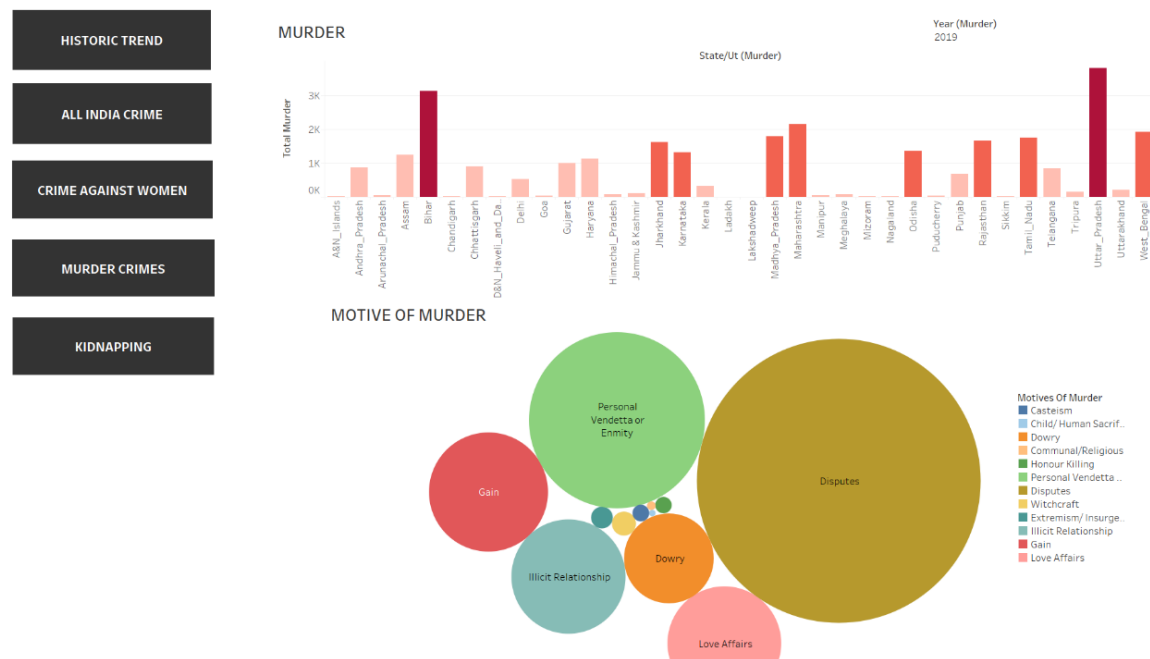
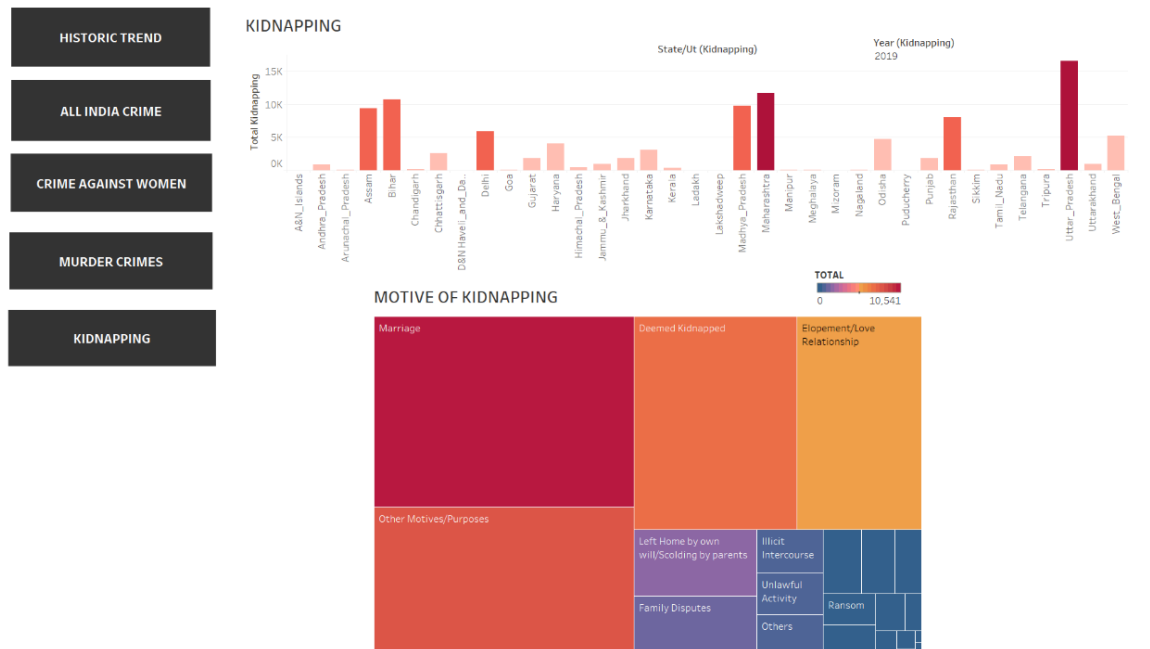
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SHARE OF DIFFERENT TYPES OF CRIMES AGAINST WOMEN



The bar graph here clearly shows that states with a strong patriarchal society report the largest number of crimes against women, for e.g., Rajasthan, Uttar Pradesh.



The visualization at the second page is the Indian map, color-coded displaying the crime rate in India statewise. This provides a quick understanding in the pattern of crime variation across the country. Hovering over each state in the map provides the insight of what the data contains.

## Any challenges faced in a group.

The main challenge faced is due to the huge and complexity of data. So we need to work on data a lot before settling it in our dashboard for further visualisations.

### Data preparation:

Data preparation consists of all these.

#### 1. Data Cleaning and data extraction:

Mainly we needed to extract the data manually as the data was very complex . So choosing the columns and placing the uncertainties and representing the specific columns in graph

Missing Values treatment.

Remove Duplicates: Duplicates in the data may misguide in some or the other cases and hence removing them is the best solution.

Outlier detection: If there are some uncanny values ,we check and do work accordingly.

2. Data Transformation could be done if needed for seeing the data is consistent, and even we can create new variables and parameters according to the requirements

#### 3. Data Integration:

Combine required Data Sources: Alignment of all the years together in our data was really necessary.

Consistent Schema: We measure that our data is consistent throughout all the records .

## What you learnt in the project.

The key learnings of this project include the story telling capability through visualizations. It's not only about charts, numbers, it's the stories that those numbers create magically through this platform, they represent the human lives showing in a mirror, and certain changes , laws we can come up for the betterment. Tableau here acted as a time machine representing the agony, bloodshed and crimes in various parts of India.

### CITATION TO THE NCRB DATA :

<https://ncrb.gov.in/sites/default/files/CII%202020%20SNAPSHOTS%20STATES.pdf>