Crime in India

Crime against Women (2001-2012)

INTRODUCTION:

Crimes in India are increasing at a very tremendous rate. Over the past years, there has been plenty of growth and has moved on the way to success and India is one in every one of them. India is one of the countries that has tried to balance the advancement and their culture. We Indians pray to women on one hand and then attempt to suppress their voices on the opposite hand. the rise in the number of crimes against women within the past few decades indicates the statement. In a country where the economy is blooming and growing in every state and sector. Despite all this, there has been a huge increase in the number of crimes against women. According to the report WHO on crime against women published on 29th Nov 2017, one out of each 3 women across the globe faces some crime a minimum of once in their life. So, if we glance at the statistics, around 35 you look after the girl bear this and are mostly done by their partners or knowns.

My main aim is here to show how crimes against women were increasing from 2001 to 2012.



Source/ Dataset:

<https://www.kaggle.com/datasets/rajanand/crime-in-india>

This link contains various crimes that happening in India like cases of crime against women, Custodial Deaths, Victims of Kidnapping & Abduction for specific purposes, Human Rights Violations by Police, Serious Fraud, Murder, Juveniles case, Property Stolen & Recovered, etc.

From all these crimes I selected "Crime Against Women". Crime against women reported every two minutes over the last decade. It is 2022, But still, we survived one of the worst years, and hopefully, everything will be back to normal. But one thing which hasn't changed yet is the number of crimes against women. domestic violence complaints were at a 10-year high during the COVID-19 lockdown.

Keywords:

* Crimes ratio in Year
* Crime ratio in different States/UT
* Machine Learning
* Data Analysis
* Visualization
* Crime detection.

METHODOLOGY:

The following modules are there in the proposed work:

* Data Requirement Selection
* Data Collection
* Data Pre-processing
* Data Analysis
  + Prediction mode
* Data Interpretation
  + Data Visualization

**Description:**

* Data Requirement Selection:

The dataset required for this major project needs to be of a time of around 10 years. The dataset should specify the type of crime committed against a particular victim. The dataset should geographically cover an entire region or a country (say India). Preferably state-wise or pin-code-wise data. The dataset should contain row entries around 8000 to 10000 to have accurate and efficient clustering. We are using the dataset which has got entries from all over the country and has records of all the crimes that have happened.

* Data Collection:

The data being used in this project is collected from https://data.gov.in. The dataset contains data on numerous crimes committed against women in different states and cities between the year 2001 to 2012. The data includes over 7 different types of crimes that have happened across the country.

* Data Pre-processing:

Data pre-processing is a technique that does all the transforming work to convert vague data input to some understandable data. The dataset we collected is from real-world data which may often be inconsistent or incomplete. May also lack certain trends or behaviors. Hence, we clean the data and make it ready for our algorithms so that it becomes easy to make predictions. Also, eliminate the occurrence of any errors.

* Data Analysis:

The data analysis step is the process of analyzing data to extract insights that support decision-making. Here, we employ certain methods and techniques to gain useful and significant insights from our dataset. Here we have worked on some different prediction algos to get some predicted values out of the same.

* Prediction Model

The prediction model-building step involves working on a different statistical method, training those models with the help of tests, and then using the same to predict values out of it to get some useful information that can help the end user in some manner, let it be predicting crimes or detect a safe zone.

* Data Interpretation:

Data interpretation is the implementation of the process of by which some useful insights or some pattern can be detected by the end user and help them to conclusions. It comprises of the following things: Working on the output of data analysis and then seeing the things which we can infer from the same, and finally, thinking of the ways where we can apply it i.e. concluding. Here, along with using DATA VISUALIZATION with DATA INTERPRETATION, we’ll get to know about the different crimes happening in different states and cities.

* Data Visualization:

Data visualization is the technique of converting the information which was provided to us in the form of textual data into some great visuals, like Bar Plots, Scatter Plots, and Pie charts to make it easier for the end user to understand and work upon. Here, we plot graphs for various crimes committed against women such that yearly distribution and state-wise distribution of crime are visually represented. This helps us to better understand and accurately interpretations of useful insights from the raw dataset with the help of data analysis and data visualization.

Exploratory Data Analysis (EDA):

* Are there any missing or null Values in the Dataset?
* How many rows and columns are in the dataset?
* How many and which are the unique values in the “STATE/UT” column?
* How should we analyze the data year-wise?
* What is the total number of crimes between 2001 to 2012?
* How many total numbers of crimes were registered year-wise?
* Can we visualize the total number of crime cases in the year 2001 to 2012?
* In which year we can see steady changes in the crime against women?
* Which was the highest reported crime, and which one was the least?
* What is the ratio of each crime that was registered from 2001 to 2012?
* How many rows and columns will be there if we are merging the STATE/UT column?
* Which State/Union Territories were “Highest” with the number of criminal cases against women?
* Which State/Union Territories were “Lowest” with the number of criminal cases against women?
* Out Of 7 types of Crimes, which State/UT has the "maximum" cases of each type of crime against women in India between 2001 to 2012?
* Out Of 7 types of Crimes, which State/UT has the "minimum" cases of each type of crime against women in India between 2001 to 2012?

Answer:

* Are there any missing or null Values in the Dataset?

**Ans.** No, there is no missing value and null values are available in the dataset.

Text

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* How many rows and columns are in the dataset?

**Ans.** 9017 rows and 10 columns are in the dataset.

Table

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* How many and which are the unique values in the “STATE/UT” column?

Text

Description automatically generated**Ans.** There are 35 unique columns in the “STATE/UT” column.

* How should we analyze the data year-wise?

**Ans.** We will use groupby for merging the year.

**Table

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* What is the total number of crimes between 2001 to 2012?

**Ans. **

* How many total numbers of crimes were registered year-wise?

**Table

Description automatically generatedAns.**

* Can we visualize the total number of crime cases in the year 2001 to 2012?

**Chart, line chart

Description automatically generatedAns.**

* In which year we can see steady changes in the crime against women?

**Chart, line chart

Description automatically generatedAns.** There is a steady change in crime during 2006-2007.

* Which was the highest reported crime, and which one was the least?

**Ans.** As we can see “Cruelty by Husband or his relatives” crime was registered in the highest no of cases and “Importation of Girls” were the least registered crime.

**Graphical user interface, application

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* What is the ratio of each crime that was registered from 2001 to 2012?

**Ans.**

**Chart, pie chart

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* How many rows and columns will be there if we are merging the STATE/UT column?

**Ans.** There are 35 rows and 7 columns if we are merging the “STATE/UT” column.

* Which State/Union Territories were “Highest” with the number of criminal cases against women?

**Ans.**

* + "Andhra Pradesh" has the highest number of crime cases.
  + "Uttar Pradesh" is the second highest.

**Table

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* Which State/Union Territories were “Lowest” with the number of criminal cases against women?

**Ans.**

* **“Lakshadweep” has the lowest crime rate.**

**Table

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* Out Of 7 types of Crimes, which State/UT has the "maximum" cases of each type of crime against women in India between 2001 to 2012?

**Ans.**

* we can say that Madhya Pradesh and Uttar Pradesh has the most registered crimes against women
* or in the other words Madhya Pradesh and Uttar Pradesh are not so safe State for women or girls in India. 😟

Graphical user interface, text, application

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* Out Of 7 types of Crimes, which State/UT has the "minimum" cases of each type of crime against women in India between 2001 to 2012?

**Ans.**

* "Lakshadweep" is the most secure UT for women.

Graphical user interface, text, application

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* **Feature Scaling:**

After cleaning the data, we will predict the model for the years 2013 to 2018.

For that, we will pre-process our data using MinMaxScaler library.

* Standardization:

**This technique to re-scale features value with a distribution value between 0 and 1** is useful for the optimization algorithms, such as gradient descent, that are used within machine learning algorithms that weigh inputs (e.g., regression and neural networks).

For that we will use “**StandardScaler”.**

* Correlation:

Chart

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As we analyze the data, we may find some correlations in our dataset such as

* **Kidnapping & Abduction” nearly correlated with “Rape” cases.**
* **Likewise, “Cruelty by Husband/Relatives” nearly correlated with “Insult to the modesty of women”.**

**Predictive Modelling:**

For the model building, I am using a basic linear Regression model because in a supervised machine learning algorithm we will get continuous and constant slopes for our predicted values.

* Linear Regression

As we are going with the machine learning part for prediction, we will split the data into train data (80%) and test data (20%).

We are predicting the model for the next years from 2013 to 2018, for every type of crime against women. We will get our intercept slope values after the prediction values of the dataset.

* Accuracy:

After getting the predicted values for the years 2013 to 2018 we need to check accuracy of the model.

Crime detection & Prevention:

* Rehabilitation of victims after the crime should be the priority.
* Making and implementing laws to combat the rising percentage of crime against women.
* Capital punishment should be awarded to the accused.
* Faster judicial process is another through which crimes can be stopped **effectively**.
* Making prostitution legal (it has worked in many countries like Italy, Australia, etc)
* Giving women martial art or self-defence training.

Safety Measures:

* Installation of CCTV Cameras in public places.
* Avoid going to lonely places at night.
* Appointing more female police officers.
* Self-defence techniques (like martial arts, pepper spray).
* Seek help from an assistance number when in danger

Conclusion:

Violence against women and girls continues in every continent, country, and culture. It takes a devasting toll on women’s lives, on their families, and on society. Most societies prohibit such violence-yet the reality is that too often, it is covered up or tacitly condoned. We society as a whole need to tackle it because we never know when our own family members may get caught in this evil crime.

RAY OF HOPE:

*“The woman who follows the crowd will usually go no further than the crowd. The woman who walks alone is likely to find herself in places no one has ever been before.”*

A collage of people

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