# **“:Stream lit Application:”**

# **Crime Distribution Analysis**

## **Overview**

This Stream lit application provides an interactive dashboard for analyzing crime data across different states and years. It allows users to filter crime data, visualize trends, and explore statistical summaries.

## **🔹 Key Insights on Total Crime**

### **✅ 1. Crime Trends Over the Years**

* **Objective**: Identify whether crime rates are increasing or decreasing over time.
* **Visualization**: A **line chart** can help us see yearly trends.
* **Findings**:
  + A rising trend suggests increasing crime rates.
  + A declining trend may indicate better law enforcement.

### **✅ 2. States with the Highest Total Crime**

* **Objective**: Identify states contributing the most to national crime.
* **Visualization**: A **bar chart** showing total crime per state.
* **Findings**:
  + Some states have consistently high crime, indicating hotspots.
  + Certain states may have low crime rates due to strict law enforcement.

### **✅ 3. Crime Distribution Across Categories**

* **Objective**: Determine which crime types contribute the most.
* **Visualization**: A **pie chart** showing the proportion of each crime.
* **Findings**:
  + Some crimes (e.g., assault on women, hurt) may be more common.
  + Others (e.g., dacoity, arson) may be rare but severe.

✅ **4. Crime Distribution by Gender**

**Objective:** Analyze crime prevalence between genders.

**Visualization:** A bar chart comparing male and female victim counts.

**Findings:**

* Crimes against women, such as **assault and harassment**, are significantly high, reflecting the need for better legal protection and awareness campaigns.
* Gender-based crime trends help shape policies focused on improving safety measures for vulnerable populations.

✅ **5. Crime Severity vs. Frequency**

**Objective:** Differentiate between high-frequency and high-severity crimes.

**Visualization:** A scatter plot comparing crime occurrence and severity.

**Findings:**

* Some crimes, like **theft and assault**, occur frequently but may have lower immediate severity.
* Others, such as **murder and arson**, are less common but have severe and long-lasting effects on victims and society.

✅ **6. Most Common Crime Types**

**Objective:** Identify the most frequently occurring crimes.

**Visualization:** A histogram showing frequency distribution.

**Findings:**

* Certain crimes, such as **robbery and physical assault**, appear frequently in the dataset.
* Highlighting these common crimes allows law enforcement agencies to prioritize preventive measures and allocate resources efficiently.

✅ **7. Correlation Between Crimes**

**Objective:** Find relationships between different crime types.

**Visualization:** A heatmap showing correlations.

**Findings:**

* Some crimes tend to occur together, such as **robbery and assault**, indicating possible patterns in criminal behavior.
* Understanding crime correlations helps in deploying better law enforcement strategies and crime prevention programs.

✅ **8. Yearly Crime Rate Changes per State**

**Objective:** Examine how crime rates fluctuate by state.

**Visualization:** A line chart comparing crime rates across states.

**Findings:**

* Some states show a steady increase in crime rates, suggesting the need for stronger policies and interventions.
* Other states exhibit declining crime trends, which may indicate successful law enforcement strategies and governance improvements.

✅ **9. Outlier Detection in Crime Data**

**Objective:** Identify unusual spikes or extreme values in crime statistics.

**Visualization:** A box plot highlighting outliers.

**Findings:**

* Some states or years show extreme crime spikes, which may be due to unique events such as riots, economic downturns, or lapses in law enforcement.
* Identifying anomalies can help policymakers address specific high-crime periods and implement preventive measures.

✅ **10. Policy Implications**

**Objective:** Use crime distribution insights for better law enforcement planning. **Visualization:** Data-driven strategies based on crime trends.

**Findings:**

* Data insights allow law enforcement agencies to allocate resources more effectively, focusing on high-crime areas and severe crime types.
* Public awareness campaigns and policy changes can be tailored to address both frequent crimes and high-severity offenses, improving overall public safety.