Consolidating Task Abstraction for Dashboard Development

Dataset Selection: Los Angeles Crime Dataset (crime trends & public safety insights)

Final Problem Statement

Does crime follow a predictable spatial and temporal pattern? Is crime random, or are there patterns that can be recognized depending on time (such as time of the day or season of the year) and location (such as specific neighborhoods or public places)? This project aims to analyze crime data over a decade to identify temporal and geographic trends in criminal activity. Understanding when and where crimes are most likely to occur will help allocate resources more efficiently, improve public safety, and support targeted interventions in high-risk areas, benefiting both residents and visitors alike.

List of Abstracted Tasks, grouped into categories

Task 1: Identify Crime Hotspots

- **Action:** Identify areas with the highest frequency of crime.
- **Target:** Crime frequency by area.
- **Relevant Attributes:** Area Name, Crime Code, Latitude/Longitude, Crime Description.
- **Justification:** Crime hotspots are vital for allocating resources and preventing crime. Identifying these areas helps law enforcement focus their efforts on high-risk neighborhoods.

Task 2: Examine Temporal Crime Patterns

- **Action:** Explore the temporal distribution of crimes to detect patterns (e.g., peak hours, days, and months).
- **Target:** Date and time of crime occurrence.
- **Relevant Attributes:** DATE OCC, TIME OCC.
- **Justification:** Understanding when crimes are most likely to occur allows for better resource allocation and timely law enforcement actions.

Task 3: Analyze Crime Severity by Weapon Type

- **Action:** Investigate the weapon used in crimes, particularly for violent crimes.
- **Target:** Types of weapons used in crimes.
- **Relevant Attributes:** Weapon Desc, Crime Code, Premis Desc.
- **Justification:** This helps understand the nature of crime severity and can provide insights into patterns related to violent crimes in specific areas.

Task 4: Examine Crime Trends Over Time

- **Action:** Compare crime rates across years to track trends (e.g., increasing or decreasing crime rates).
- **Target:** Yearly crime frequency.
- **Relevant Attributes:** DATE OCC (filtered by year), Crime Code.
- **Justification:** Yearly comparisons help identify long-term trends, providing insights into the effectiveness of past policies and interventions.

Task 5: Assess Crime Risk by Time of Day and Week

- **Action:** Identify peak times of day and days of the week for various crime types.
- **Target:** Hourly and daily crime patterns.
- **Relevant Attributes:** TIME OCC, DAY OF WEEK, Crime Code.
- **Justification:** Identifying high-risk periods for specific crimes helps law enforcement adjust patrol schedules and public safety measures accordingly.

Task 6: Investigate Crime Hotspots by Crime Type

- **Action:** Compare crime rates by type across various areas to determine if certain areas are prone to specific types of crime.
- **Target:** Crime type distribution across areas.
- **Relevant Attributes:** Crime Code, Area Name, Latitude/Longitude.
- **Justification:** This helps tailor crime prevention measures specific to the types of crimes prevalent in each area.

Task 7: Identify the Average Age of the Victim Affected Characterized by Crime

- **Action:** Highlight what the average age of victims targeted based on various crime codes.
- **Target:** Age distributions across criminal codes.
- **Relevant Attributes:** Vict Age, Crime Code, Criminal Code Description
- **Justification:** This highlights vulnerabilities in ages that are most affected by certain crimes. To do this, I need to derive the average age.

<u>Justification for Task Selection</u>

Task 1: Identify Crime Hotspots

- **Why It's Important:** Identifying crime hotspots is a primary focus of the project, as it directly addresses the goal of improving resource allocation and crime prevention. It allows law enforcement to direct efforts to areas with the highest need for intervention.
- **Insights:** Insights into where the highest concentration of crimes occur, potentially indicating areas in need of more policing, surveillance, or community-based interventions.

- **Dataset Alignment:** Uses location data (LAT/LON) and crime data (Crime Code) to identify high-crime areas.

Task 2: Examine Temporal Crime Patterns

- **Why It's Important:** Temporal analysis helps us understand the ebb and flow of crime over time. This insight can be used to adjust law enforcement schedules and prepare for peak crime times.
- **Insights:** Crime can vary by time of day, day of the week, and season, and understanding these variations helps optimize patrol schedules.
- **Dataset Alignment:** Uses time and date attributes (DATE OCC, TIME OCC) to understand when crimes happen.

Task 3: Analyze Crime Severity by Weapon Type

- **Why It's Important:** Understanding the weapons used in crimes, especially violent ones, helps law enforcement address crime severity. This task will help understand what type of violence is occurring in different areas and identify trends in weapon use.
- **Insights:** Insights into the nature of violent crimes, including the prevalence of specific weapons.
- **Dataset Alignment:** Weapon description (Weapon Desc) and crime code (Crime Code) are key attributes for this analysis.

Task 4: Examine Crime Trends Over Time

- **Why It's Important:** Long-term trends allow for an understanding of crime reduction or escalation, helping law enforcement and city officials assess past policies and develop new strategies.
- **Insights:** Insights into crime reduction or escalation, highlighting potential areas for future intervention or policy adjustment.
- **Dataset Alignment:** Crime frequency by year (DATE OCC) will be used to track changes over time**.**

Task 5: Assess Crime Risk by Time of Day and Week

- **Why It's Important:** Some crimes are more likely to occur at certain times. Identifying these periods helps ensure resources are available at high-risk times, thus improving public safety.
- **Insights:** Identifies when crimes are most likely to occur during the day and the week, optimizing law enforcement presence during peak crime periods.
- **Dataset Alignment:** Time-related attributes (TIME OCC, DAY OF WEEK) help determine temporal crime patterns.

Task 6: Investigate Crime Hotspots by Crime Type

- **Why It's Important:** Understanding how crime types vary by location provides targeted interventions and policies for specific neighborhoods.
- **Insights:** Reveals whether certain areas are more prone to specific crimes like burglary, assault, or vehicle theft, guiding more focused crime prevention measures.
- **Dataset Alignment:** Geographic data (LAT/LON, Area) and crime type data (Crime Code).

Task 7: Identify the Average Age of the Victim Affected Characterized by Crime

- **Why It's Important:** If there is an area that specific ages are targeted, tourists, families, and individuals will know to stay away especially if there is certain gang violence.
- **Insights:** Law enforcement and local schools can age-targeted safety awareness campaigns and protective measures based on their knowledge of who is most affected.
- **Dataset Alignment:** Demographic Data (Vict Age) and crime type data (Crime Code).