**Project-Phase III: Dashboard Implementation**

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IFT 598 Topic: Data Visualization & Reporting for IT

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November 27, 2022

**Section 1: Dashboard**

Map

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The above dashboard describes the crime rate in Denver metropolitan city. It elucidates trend of crime over the years based on geographic location. It also clarifies the victim’s affected area. This dataset is well used and can be operated by Denver city police and any central intelligence agency for crime trafficking. It gives details of all districts, neighborhood and also categorized in three states safest, safe and not safe. It can also be used to find out total victim count per offence type.

**Section 2: The Dataset**

All crimes committed in Denver, Colorado over the past six years, plus the first six months of this year, are represented in this data set. The information is drawn from the National Incident-Based Reporting System (NIBRS), which accounts for all crimes committed within a given incident, not just those committed against a specific person. We can always have the most up-to-date information in the database because of the data's dynamic nature, which allows for the addition, deletion, and modification of records at any time. Because new data is constantly being entered, the total number of records that can be retrieved in each extraction can fluctuate. Monday through Friday new crime reports will be available.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Column | Datatype | Domain | Attribute type | Description |
| 1. Incident\_id | Number (Whole) | It can have any number | Categorical | This used to identify each incident individually. It can be duplicated if multiple offence is done in a single incident |
| 1. OFFENCE\_ID | Number (Whole) | This is formed by combining incident id, offence code and offence code extension | Categorical | This is used to identifies each offence uniquely. |
| 1. OFFENCE\_CODE | Number (Whole) | It can have a range of values. each value represents a type of offence | Categorical | This uniquely identifies an offence. |
| 1. OFFENSE\_CODE\_EXTENSION | Number (Whole) | It can have a range of values | Categorical | It is used to identify a sub offence under a specific crime |
| 1. OFFENSE\_TYPE\_ID | String | It can have a value from a limited set | Categorical | It contains the actual name of the offence for which the data point exist. |
| 1. OFFENSE\_CATEGORY\_ID | String | It can have names of the theft happen | Categorial | It provides general categorization for crimes |
| 1. FIRST\_OCCURENCE\_DATE | Number  (Time) | It can have dates of the crime occur first. | Categorial | It provides first date of offense occurred |
| 1. LAST\_OCCURENCE\_DATE | Number  (Time) | It can have dates of the crime occur last. | Categorial | It provides last date of offense occurred |
| 1. REPORTED\_DATE | Number  (Time) | It can have dates of the crime reported first. | Categorial | It provides reported date of offense occurred |
| 1. INCIDENT\_ADDRESS | String | It can have data of the crime location. | Nominal | It provides address of offense occurred. |
| 1. GEO\_X | Number | It can have numerical values representing the X coordinate location in feet | Continuous | It represents the X coordinate of the location in feet |
| 1. GEO\_Y | Number | It can have numerical values representing the Y coordinate location in feet | Continuous | It represents the Y coordinate of the location in feet |
| 1. GEO\_LON | Number | It can have numerical values representing the Longitude | Continuous | It represents the longitude of the location |
| 1. GEO\_LAT | Number | It can have numerical values representing the latitude | Continuous | It represents the latitude of the location |
| 1. DISTRICT\_ID | Number | It can have numbers representing the district ID of crime | Categorical | It represents the district id of the districts present in Denver, Colorado |
| 1. PRECINCT\_ID | Number(whole) | It can have any number | Categorical | This column represents the precinct ID number |
| 1. NEIGHBORHOOD\_ID | String | It can have the names of the neighborhood | Categorical | It represents the names of neighborhood |
| 1. IS\_CRIME | Number(whole) | It has value 1 | Ratio | This column represents the number of crimes happened. |
| 1. IS\_TRAFFIC | Number(whole) | It has value 0 | Ratio | It represents the traffic. |
| 1. VICTIM\_COUNT | Number(whole) | It has values ranging from 1 to any number. | Ratio | This column represents the number of victims affected by the crime. |

**Section 3: Dashboard Users**

**Denver Police Department:** Police Department will use this dashboard to track the crime rate in the city. This dashboard will enable them to see regions in the city where more patrolling must be done. Where warning must be issued etc.

**Federal Bureau of Investigation:** The dashboard assists the Federal Bureau of Investigation in learning the demographic groups that are targeted for the types of offenses that are associated with crime incidents in Denver

**Section 4: Questions**

1. What is the trend of Crime over the year and average crime rate ?
2. What is the geographical location of different offence type? With an option to filter the data based on offence type.
3. What are the number of victims affected due to the crime in a location?
4. Which is the Top 5 Crime Category in Denver ?
5. What is the average of crimes in all districts? and which districts have crimes more than the average?
6. Which districts have less crimes than average of all districts? What are the maximum, minimum values of crime for all districts?
7. Top 5 Crime affected neighborhood
8. What is the trend in different crime categories?
9. Categorize the districts into three categories namely safest, safe and not safe.
10. What are number of occurrences of each offense type in different districts.
11. What is the total victim count per offence type?

**Section 5: Plots**

1. What is the trend of Crime over the year and average crime rate ?

Chart, line chart

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1. What is the geographical location of different offence type? With an option to filter the data based on offence type.

Graphical user interface, application, map

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1. What are the number of victims affected due to the crime in a location?

Graphical user interface, application, map

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1. Which is the Top 5 Crime Category in Denver ?

Chart

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1. What is the average of crimes in all districts? and which districts have crimes more than the average?
2. Which districts have less crimes than average of all districts? What are the maximum, minimum values of crime for all districts?

Graphical user interface, application

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1. Top 5 Crime affected neighborhood

Graphical user interface, application

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1. What is the trend in different crime categories?

Chart

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1. Categorize the districts into three categories namely safest, safe and not safe.

A picture containing chart

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1. What are number of occurrences of each offense type in different districts.

A picture containing calendar

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1. What is the total victim count per offence type?

Chart

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**Section 6: Interactivity**

1. The user can change the offence type id to get the geographical location of different offences that occurred accordingly (question 2).

2. The user has a slider option to change victim count to get the geographical location of the victims affected by the crime (for question 3).

3. The user can filter the top 5 crime categories using a slider (for question 4).

4. The user can filter the top 5 crime affected neighborhoods using a slider (for question 7).

**References**

Paul, M. (2022, October 13). *Denver Crime Data*. Kaggle. Retrieved November 13, 2022, from

<https://www.kaggle.com/datasets/paultimothymooney/denver-crime-data>

<https://www.denvergov.org/Government/Agencies-Departments-Offices/Agencies-Departments-Offices-Directory/Police-Department>

<https://www.denvergov.org/opendata/dataset/city-and-county-of-denver-crime>

Mural Link:

<https://app.mural.co/t/student6216/m/student6216/1668027483965/99fbbcbd1b339d6820dfd5744026486f11120c96?sender=u7d5c822e573b3c3158e81389>

Tableau Link:

<https://public.tableau.com/app/profile/rafe8615/viz/DenverCrimeVisualization/DenverCrimeVizualization#4>