Applied Data Science and Machine Learning on Little Rock Crimes Dataset

**1. Introduction and Motivation**

Little Rock has one of the highest rates of violent crime among major U.S. metro areas, and the property crime rate isn't any better. Both of the city's crime rates are nearly double the national rates. [1]

As our first goal, we hope to figure out the relation between crime rate and some other data, etc, the sales prices of properties, the demographic situation. Thus, we could provide a safety guide to visitors or those new residents.

Since prevent ourselves from being hurting is more efficient than dealing with crimes face to face, we hope to predicate specific crimes could happen in some specific areas and specific time ranges with machine learning.

**2. Dataset**

**2.1 The Dataset**

The dataset used in the project is up to date and directly from Little Rock Police Department Statistics. It displays Voilent & Property Crimes that have taken place in the City of Little Rock. These are part of crimes which are reported to FBI. Addressing is not provided on Rapes or associated items for victim privacy. [2]

**2.2 What’s in This Dataset?**

There are approximately 30.5K rows and 12 columns in this dataset. The columns are as followings:

INCIDENT\_DATE - Date when the incident occurred. This is sometimes a best estimate.

INCIDENT\_NUMBER - The Little Rock Police Department RD Number (Records Division Number), which is unique to the incident.

LOCATION\_DISTRICT – It refers to the Little Rock Police Department Patrol District.

OFFENSE\_CODE – It is the same as that of FBI NIBRS code.

OFFENSE\_DESCRIPTION - The primary description of the OFFENSE\_CODE.

LOCATION\_ADDRESS – The location where the incident occurred.

CITY – The city where the incident occurred.

STATE – The state where the incident occurred.

ZIP - The zip code of where the incident occurred.

LATITUDE – The latitude of the location where the incident occurred. This location is shifted from the actual location for partial redaction but falls on the same block.

LONGITUDE – The longitude of the location where the incident occurred. This location is shifted from the actual location for partial redaction but falls on the same block.

Location1 - The location where the incident occurred in a format that allows for creation of maps and other geographic operations on this data portal. This location is shifted from the actual location for partial redaction but falls on the same block.

**3. Perspectives**

By analysis this dataset, we’ll know how the incidents distribute geographically for the last year so that we may list the most dangerous areas and the safest areas. The analysis would give us when the incidents were most likely to happen and how different incidents distribute. It may guide as a consideration where to live. Further more, by using the machine learning model, given the time and place, it’s likely to predict what kind of incident it would probably happen so that people can get prepared ahead of time and know when it’s safer to go to a specific place in the Little Rock.

**Reference**

[1] “How safe is Little Rock, AR?”, https://realestate.usnews.com/places/arkansas/little-rock/crime.

[2] “Little Rock Police Department Statistics 2017 to Year to Date 2018”, https://data.littlerock.gov/Safe-City/Little-Rock-Police-Department-Statistics-2017-to-Y/bz82-34ep.