Machine Learning for Crime Prediction

**Goal:**

Use AI/ML to predict the types of crimes that will occur in the city of Los Angeles. Use input features such as population by area, weather, dwelling type, victim age, season, time of day, and day of the week.

**Datasets:**

* Crime Data from 2010 to Present | Los Angeles - Open Data Portal

<https://data.lacity.org/A-Safe-City/Crime-Data-from-2010-to-Present/y8tr-7khq>

* Data World

<https://data.world/datasets/us-crime>

* Open Weather Map – Hourly weather for the city of Los Angeles
* Bureau of Justice

<https://www.bjs.gov/rawdata.cfm>

* United States Census Bureau – Population in city of Los Angeles

<http://us-city.census.okfn.org/dataset/crime-stats>

* <https://knoema.com/atlas/topics/Crime/datasets>
* <https://www.kaggle.com/datasets?sortBy=relevance&group=featured&search=tag%3A%27crime%27>

**Software**:

* Sci-Kit Learn
* Python Pandas
* Matplotlib
* SQLite Database
* Tableau
* DB Browser for SQLite

**Implementation Details:**

* Data uploaded into a SQLite database from Excel csv files
* Data cleaned and transformed using both Excel and Python Pandas
* Various machine learning classification models were used to predict crime codes, crime classification, victim age and dwelling type
  + *k*NN (K-Nearest Neighbors)
  + Decision Tree Classifier
  + Random Forest Classifier
  + Random Forest Regressor
  + Grid Search
  + LogisticRegression
  + Data Visualizations using Tableau and Matplotlib