**Outline**

**First Segment - Decide on your overall project:**

Sketch It Out:

* Selected topic

For topic of the final project, we selected Burglary and Robbery crimes in the state of Colorado against City of Denver crimes to define crime indicators, patterns and use Machine Learning Models to predict when, and where a crime will take place based on the indicators.

* Reason the topic was selected

Crimes are intricate and interesting, and can be both predictable and unpredictable. Crimes have existed for a long time and will remain parts of society. Therefore, I am interested in predicting when and where crime could take place.

* Select your question -- Questions the team hopes to answer with the data

1. Can we predict the location, date and type of a crimes based on key indicators: historical crime data, incident year and number of crimes?
2. Can we predict types of crimes w with key indicators: historical crime data, incident year and number of crimes?
3. What crimes are increasing or decreasing, at what rate and over what timeframes with a given regional?
4. Can we confirm the findings against published statistics?

* Description of the source of data

The data was sourced from Colorado Crime Data Explorer site. The Burglary and Robbery crimes data were available as a download in comma separated values format from the year 2016 to 2019. Since the data is being sourced from the state of Colorado, the dataset will be small. Datasets from the rest of the states need to be incorporated to improve the outcomes of this project.

Links:

NIBRS: https://crime-data-explorer.app.cloud.gov/downloads-and-docs

* Description of the data exploration phase of the project

In the initial data analysis, we explored the structured dataset to uncover initial patterns, characteristics, creating a broad picture of important trends and major points to study in greater detail.

Data Types Breakdown:

Nominal Data examples

ColoradoStateCrime\_09\_19.csv.csv:

Variables: Location Type, Incident Hour of Day, Incident Month, Offense Attempted or Completed, Year, Offense Type

crime.csv

Variables: OFFENSE\_TYPE\_ID, OFFENSE\_CATEGORY\_ID, FIRST\_OCCURRENCE\_YEAR

Numerical Data:

ColoradoBurglaryLocation09\_19.csv:

Variables: Number of Crimes

Crime.csv

Variables: Number of Crimes

* Description of the analysis phase of the project

Pearson Correlation

Logistic Regression

Random forest Classifier Result

Decision Tree

SVM

* Result of analysis
* Recommendation for future analysis
* Anything the team would have done differently

Pull all the data directly from Crime Data Explorer(CDE). Although this will require assembling the dataset together, it will give you a consistent data.

**Deliverables will be posted via GitHub repository containing the following items:**

* Deliverables for the presentation
* GitHub
* Machine Learning Model

Pearson Correlation

Logistic Regression

Random forest Classifier Result

Decision Tree

SVM

* Database sections
* Technologies use

1. Use Python or Excel to clean, prepare, and explore the data as well as to complete the initial analysis.
2. Use database integration (Postgres, MongoDB, or SQLite) to store your cleaned data.
3. Use machine learning to enhance your topic.
4. Use Python libraries, JavaScript libraries (such as Data-Driven Documents, or D3, and Plotly), and Tableau can be used to create visuals to help tell your data story.
5. Use Tableau or JavaScript to build a dashboard to present your results.
6. Use Tools to prepare and deliver the final presentation to walk your class through your project, step by step.

**Second Segment:**

Build the Pieces: Train your model and build out the database you'll use for your final presentation.

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Deliverables for the presentation

GitHub,

Machine Learning Model, and

Database sections

Technologies use

**Third Segment:**

Plug It In: Connect your final database to your model, continue to train your model, and create your dashboard and presentation.

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Database sections

Technologies use

**Fourth Segment:**

Put It All Together: Put the final touches on your model, database, and dashboard. Lastly, create and deliver your final presentation to your class.

**Deliverables will be posted via GitHub repository containing the following items:**

Deliverables for the presentation

GitHub,

Machine Learning Model, and

Database sections

Technologies use