

## An Application for Risk of Crime Prediction Using Machine Learning

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**Abstract :** The increase of the world population, especially in large urban centers, has resulted in new challenges particularly with the control and optimization of public safety. Thus, in the present work, a solution is proposed for the prediction of criminal occurrences in a city based on historical data of incidents and demographic information. The entire research and implementation will be presented start with the data collection from its original source, the treatment and transformations applied to them, choice and the evaluation and implementation of the Machine Learning model up to the application layer. Classification models will be implemented to predict criminal risk for a given time interval and location. Machine Learning algorithms such as Random Forest, Neural Networks, K-Nearest Neighbors and Logistic Regression will be used to predict occurrences, and their performance will be compared according to the data processing and transformation used. The results show that the use of Machine Learning techniques helps to anticipate criminal occurrences, which contributed to the reinforcement of public security. Finally, the models were implemented on a platform that will provide an API to enable other entities to make requests for predictions in real-time. An application will also be presented where it is possible to show criminal predictions visually.

**Keywords :** crime prediction, machine learning, public safety, smart city

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