PLOCCK

Police Location Optimization of Chicago Crimes using K-Means

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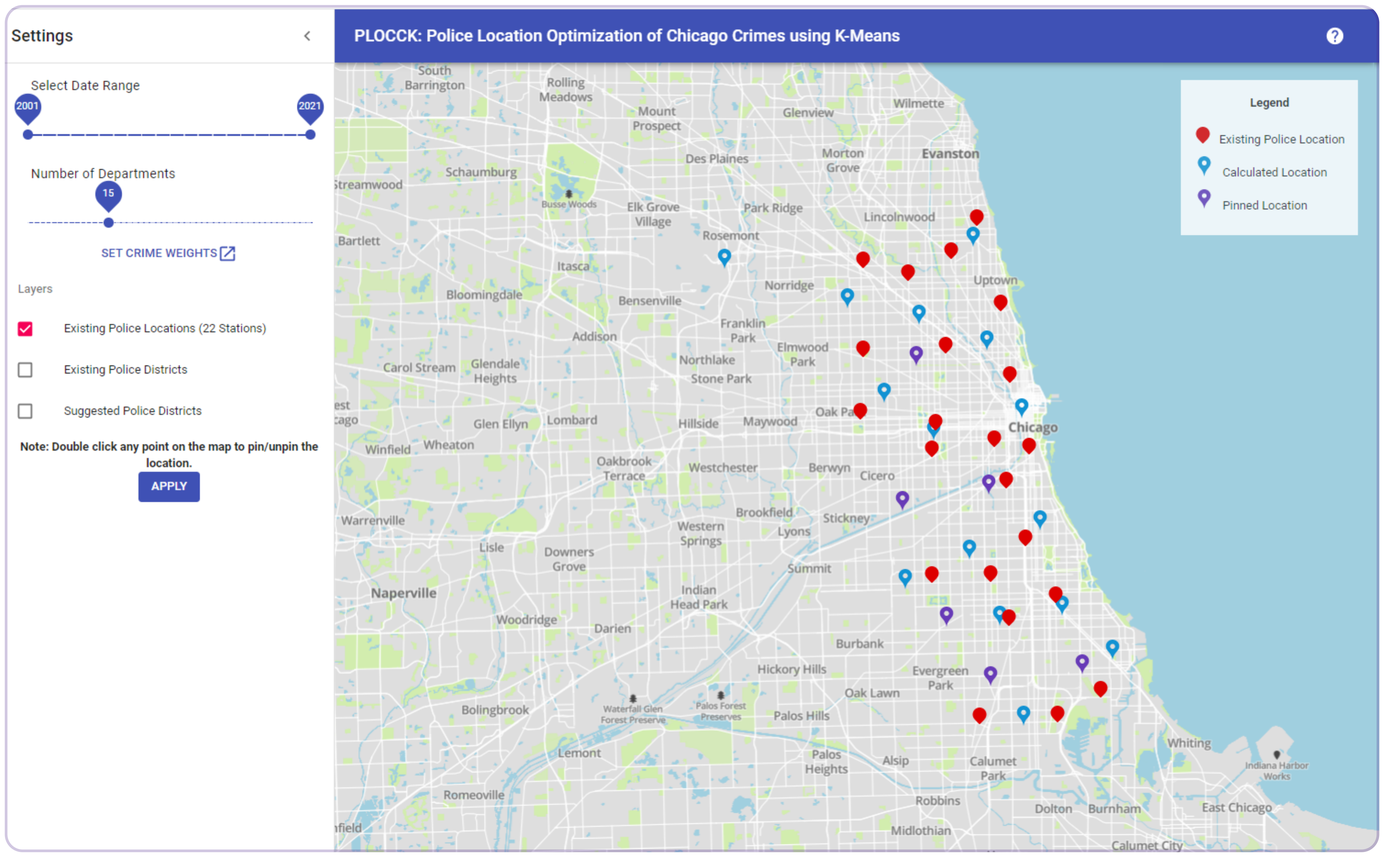
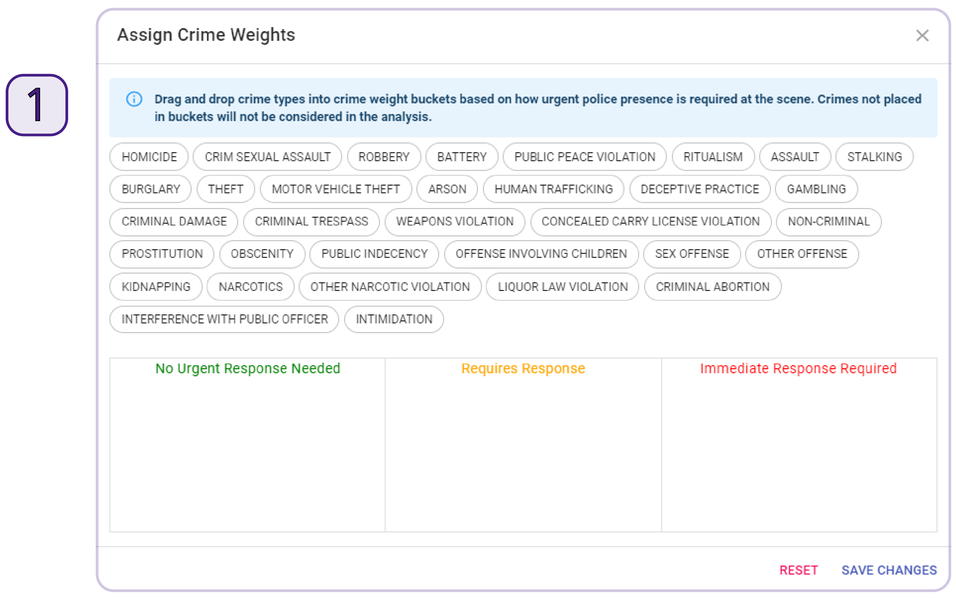
Summary

PLOCCK uses machine learning to cluster Chicago crime data in order to provide suggested locations for police stations and predict crime hotspots. This innovative tool is interactive and allows the user to customize the parameters of the analysis and uses scalable cloud computing to provide flexible, real time results.





1 Flexible Algorithm Parameters

The user can use the dynamic time frame to select the years of crime data to be used in the analysis and can set the number of recommended police stations returned to them. Weights can be assigned to the crime type based on how urgent police presence is required at the scene. Users can also decide to exclude a crime type for the purposes of their analysis.

2 Customizable User Interface

If there are locations the user wants to include in the results returned by PLOCCK, they can pin the location by double-clicking the location on the map. Map layers are provided so the user can see where existing police stations are, the existing police district boundaries and the suggested district boundaries returned by the analysis.

Scalable Cloud Computing

PLOCCK is hosted in AWS and is packaged in a single EC2 instance. The crime data is structured and stored in a MySQL database, making it simple to add new data and opens up the possibility for real time data ingestion.

Reducing the Response Time to Crime

It is assumed that the Manhattan distance between a police station and reported crime scene is an accurate proxy for the response time.

Police stations generated by PLOCCK reduce the response time to crime by **almost 30%.**