

Checkpoint 5 Findings

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Background

The goal for this checkpoint was to be able to classify allegation summaries as either “home disturbances” or “other.” We use the term “home disturbance” in order to broaden the category of “home invasions” that can be found in the Chicago Reporter settlements data and the category of “illegal search without a warrant” in the cpdb data. The reasoning for doing so comes down to our question of, “Are Chicagoans safe at home?” Warrant or not, invasion or not, we wanted to be able to identify incidents in which CPD cops were in a Chicagoan’s place of residence and caused some harm or disturbance. This keeps to our theme, as there have been some contested details about the warrant in Breonna Taylor’s case, but when it comes down to it, Breonna Taylor was not safe in her own home because of these police officers. We build an NLP model to identify similar cases by using TF-IDF as our approach.

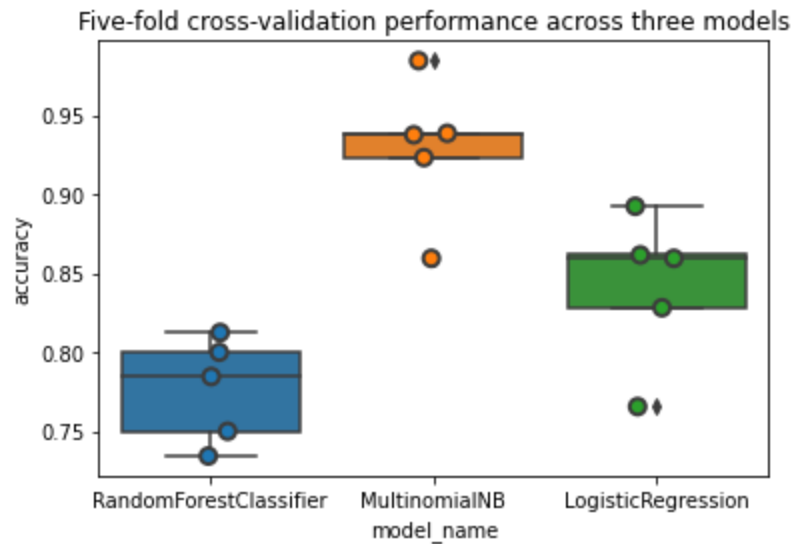
Pre-processing

The model

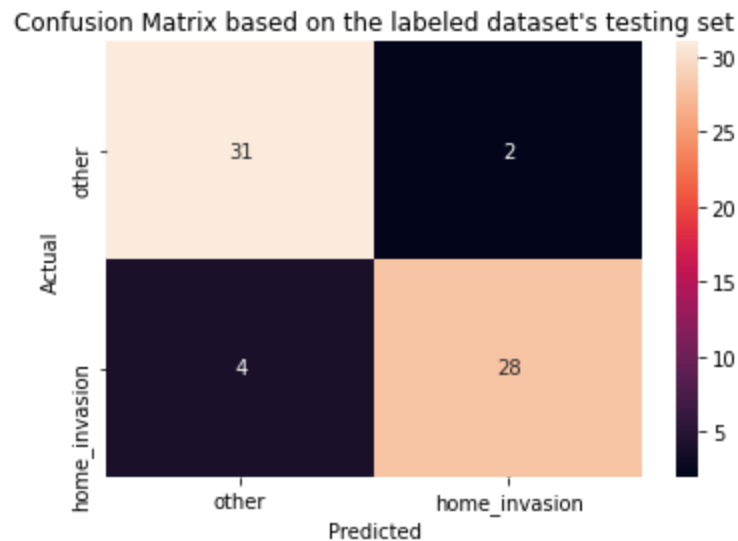
Results

Testing our model on our testing subset of the labeled data resulted in impressively good performance despite the relatively small size of the overall labeled dataset. We tested three different models using five-fold cross-validation and then selected the highest performing model based on its average performance across the five folds. A Multinomial Naive Bayesian model performed the best at nearly 93% accuracy. Below are the full accuracy results for the three models:

LogisticRegression	0.841394
MultinomialNB	0.928558
RandomForestClassifier	0.776298



We created a confusion matrix to investigate if the inaccurate predictions tended to be false positives versus false negatives.



Because the MultinomialNB's accuracy was so high, only six summaries were misclassified from our testing set of 65 summaries. We further explored what those misclassifications were exactly:

Summaries classified as "other" when the actual label was "home_invasion"

On November 22, 2008, a complaint was registered with the Independent Police Review Authority (IPRA), regarding an incident occurring in the 6th District, on November 21, 2008. It was alleged that an off-duty Chicago Police Department (CPD) officer struck the complainant during a domestic altercation; damaged the complainants cell phone by smashing it

to prevent her from calling the police; and damaged the bathroom door by punching it with his fist. Based on statements from the accused officer, reports, audio recordings, and photographs, IPRA recommended to SUSTAIN the allegations that the accused struck the complainant during a domestic altercation; and smashed the complainant's cell phone to prevent her from calling the police. Further, IPRA recommended a finding of NOT SUSTAINED for the allegation that the accused damaged the bathroom door by punching it with his fist. IPRA recommended a three (3) day suspension for the accused officer.

THE REPORTING PARTY ALLEGES THAT THE ACCUSED OFFICER HAS BEEN LYING IN ORDER TO OBTAIN SEARCH WARRANTS. HE/SHE ALLEGES THAT THE ACCUSED OFFICER TAKES DRUG ADDICTS BEFORE JUDGES WITH FABRICATED TESTIMONY TO OBTAIN SEARCH WARRANTS THAT WERE NOT BASED ON, PROBABLE CAUSE. HE/SHE FURTHER ALLEGES THAT DURING SEVERAL ARREST AND SEARCH WARRANTS, MONEY AND. JEWELRY HAVE BEEN STOLEN FROM THE CITIZEN'S RESIDENCES. THE REPORTING PARTY ALLEGES THAT THE ACCUSED OFFICER HAS BEEN LYING IN ORDER TO OBTAIN SEARCH WARRANTS. HE/SHE ALLEGES THAT THE ACCUSED OFFICER TAKES DRUG ADDICTS BEFORE JUDGES WITH FABRICATED TESTIMONY TO OBTAIN SEARCH WARRANTS THAT WERE NOT BASED ON, PROBABLE CAUSE. HE/SHE FURTHER ALLEGES THAT DURING SEVERAL ARREST AND SEARCH WARRANTS, MONEY AND. JEWELRY HAVE BEEN STOLEN FROM THE CITIZEN'S RESIDENCES.

On February 4, 2009, a complaint was registered with the Independent Police Review Authority (IPRA), regarding an incident that occurred in the 2nd District on February 4, 2009 involving one on-duty Chicago Police Department (CPD) Sergeant (Sergeant A) and seven on-duty CPD Officers (Officers B through H). It was alleged that Sergeant A conducted an improper search; used improper force against Victim A; used improper force against Victim B; used improper force against Victim C; used improper force against Victim D; used improper force against Victim E; directed profanities at Victim A; directed profanities at Victim D; unnecessarily displayed a weapon; threatened to arrest Victim A without basis; engaged in improper verbal action against Victim A; submitted a false report; made a false statement to IPRA; disobeyed two Department Special Orders regarding searching premises; and that his overall actions were contrary to the stated policy, goals, rules, regulations, orders and directi...

The reporting party alleged that the accused officer detained the victim and entered their house without justification. The reporting party further alleged that, when she told the accused officer that she was going to file a complaint on him, he told her to ""shut the fuck up."

Summaries classified as "home_invasion" when the actual label was "other"

The reporting party stated that the accused entered her place of business and arrested an unknown male/black for selling illegal dvds. The reporting party alleges that the victim, commented on the arrest, accused grabbed the back car seat which caused him to fall. The reporting party further alleges that the accused failed to give his name and star number upon request.

justification