

# Predicting Fine Collection Outcomes for Low-Level Civil Tickets in New York City

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Allison Gao  
October 2021



# SUMMONS TO APPEAR FOR CIVIL PENALTIES ONLY

SUMMONS NUMBER: 0000 000 000  
ENFORCEMENT AGENCY: Police Department

Respondent Last Name	First	M.I.
A	Angela	
Phone No	<input type="checkbox"/> Cell <input type="checkbox"/> Home	D.O.B. MM/DD/YY Sex <input type="checkbox"/> Male <input type="checkbox"/> Female
Mailing Address		
3029 AVENUE S BROOKLYN 11235 NEW YORK		
ID Number	ID Type	
Race <input type="checkbox"/> White <input type="checkbox"/> Black <input type="checkbox"/> Hisp. White <input type="checkbox"/> Hisp. Black <input type="checkbox"/> Am. Ind./Alaskan Native <input type="checkbox"/> Asian/Pacific. Is.		
Date of Occurrence	Time of Occurrence	<input type="checkbox"/> AM <input checked="" type="checkbox"/> PM
06/25/2004	5:10	
Place of Occurrence ( <input type="checkbox"/> At <input type="checkbox"/> In Front Of <input type="checkbox"/> Opposite)		Precinct
527 KINGS HIGHWAY BROOKLYN 11223 NEW YORK		

Include the summons number above on all communications

HEARING DATE: 09/20/2004 AT: HH:MM ☐ AM  
☐ PM

You must respond by the above date.  
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**Hearing Location:** Office of Administrative Trials and Hearings (OATH)

Borough: Brooklyn (See back for address) (844) 628-4692  
www.nyc.gov/oath

<input checked="" type="checkbox"/> Admin. Code	<input type="checkbox"/> Parks Rules: 56 RCNY	<input type="checkbox"/> Other
<input type="checkbox"/> Rules of City of NY	<input type="checkbox"/> Traffic Rules: 34 RCNY	
Section/Rule		
A.C. 20-453		
Mail-in Penalty	Max. Penalty	Property Removed <input type="checkbox"/> Yes <input type="checkbox"/> No
\$250		

Details of Charge(s):

UNLICENSED  
Factual Allegations  
GENERAL VENDOR

OATH

NYC Charter Section 104b and 104b-a and the Rules of the City of New York authorize the NYC Office of Administrative Trials and Hearings (OATH) to hold hearings. 1) an employee of the agency named above, affirm under penalty of perjury that: 1) I personally observed the commission of the violation charged; 2) I verified the existence of the violation through a review of Departmental records; or 3) I was informed of the commission of the violation by a reliable witness that is known to the Department. False statements made herein are punishable as a Class A Misdemeanor pursuant to Section 210.45 of the Penal Law.

I/O Signature		Command
Rank/Title	Name	Tax No.

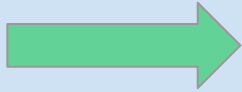


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## Classification Model

Fine  
Collected

No Fine  
Collected



Stakeholders:

The City of New York

&

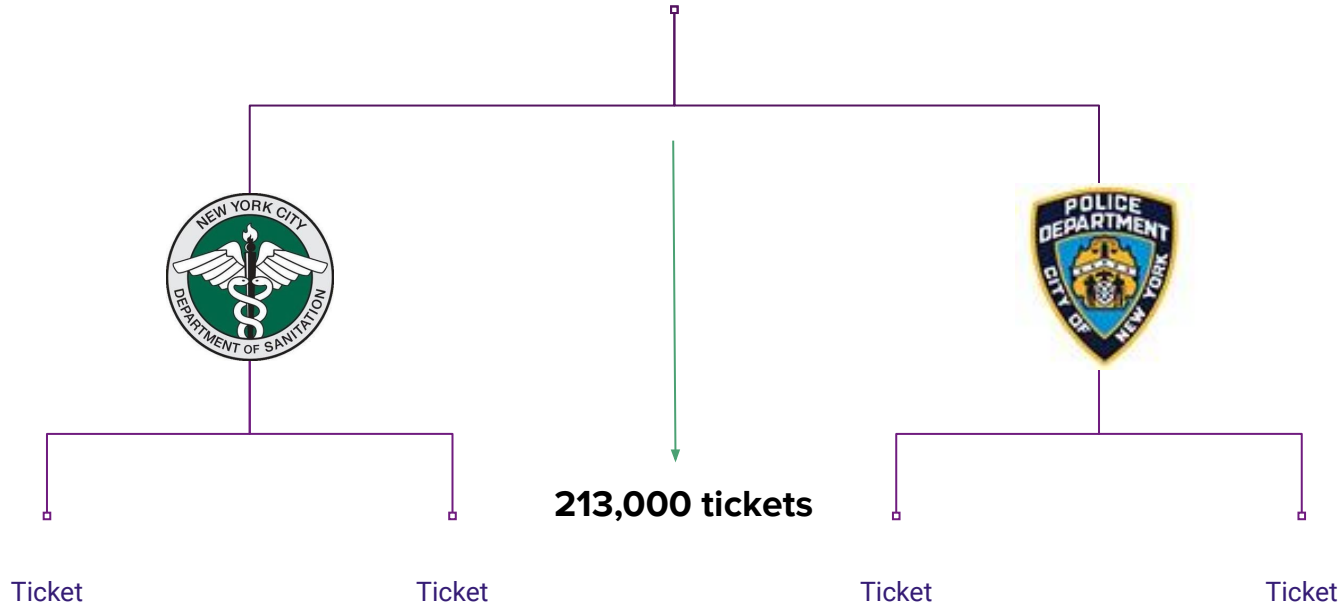
Elected Public Officials



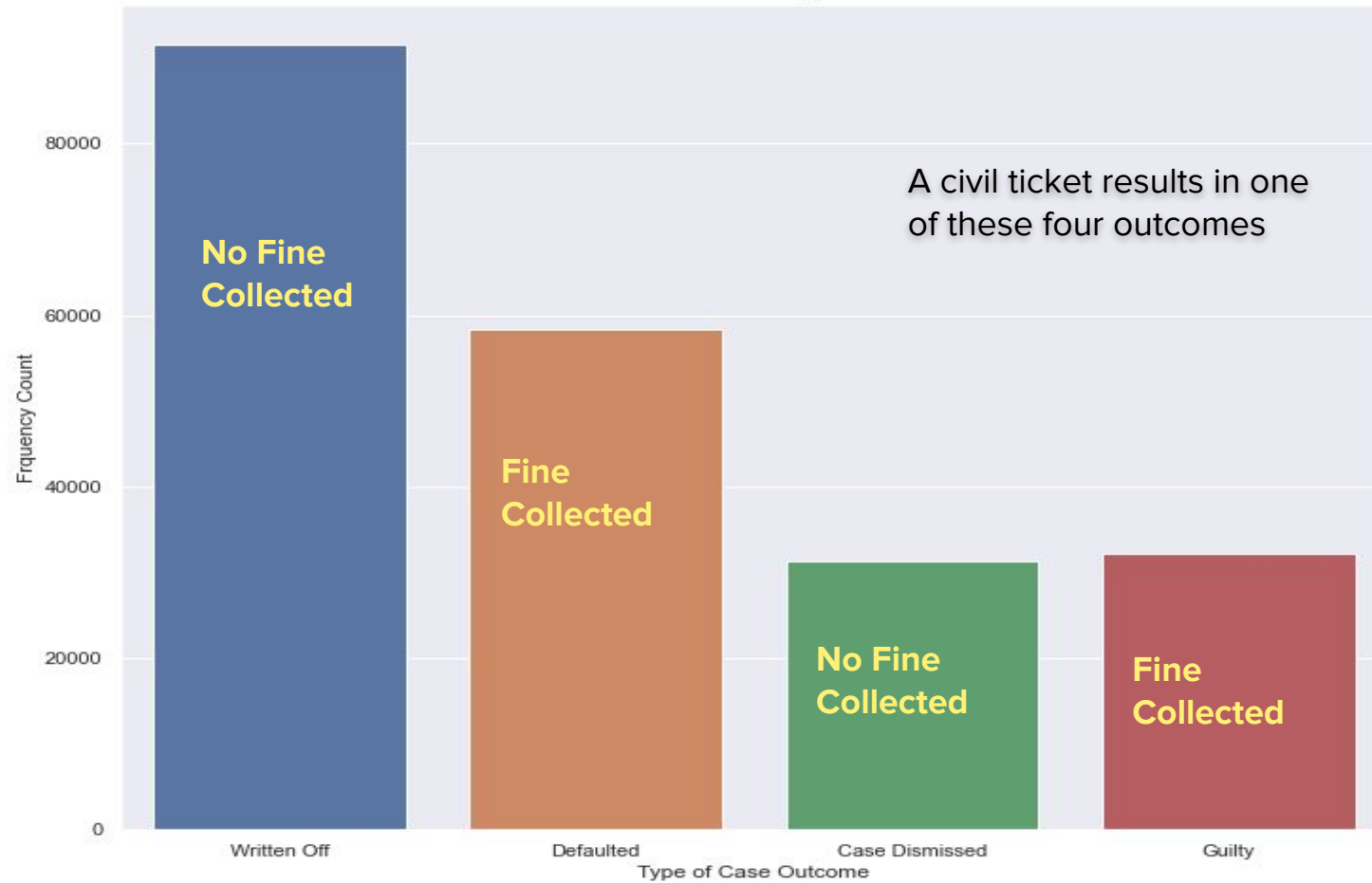
# Office of Administrative Trials and Hearings Case

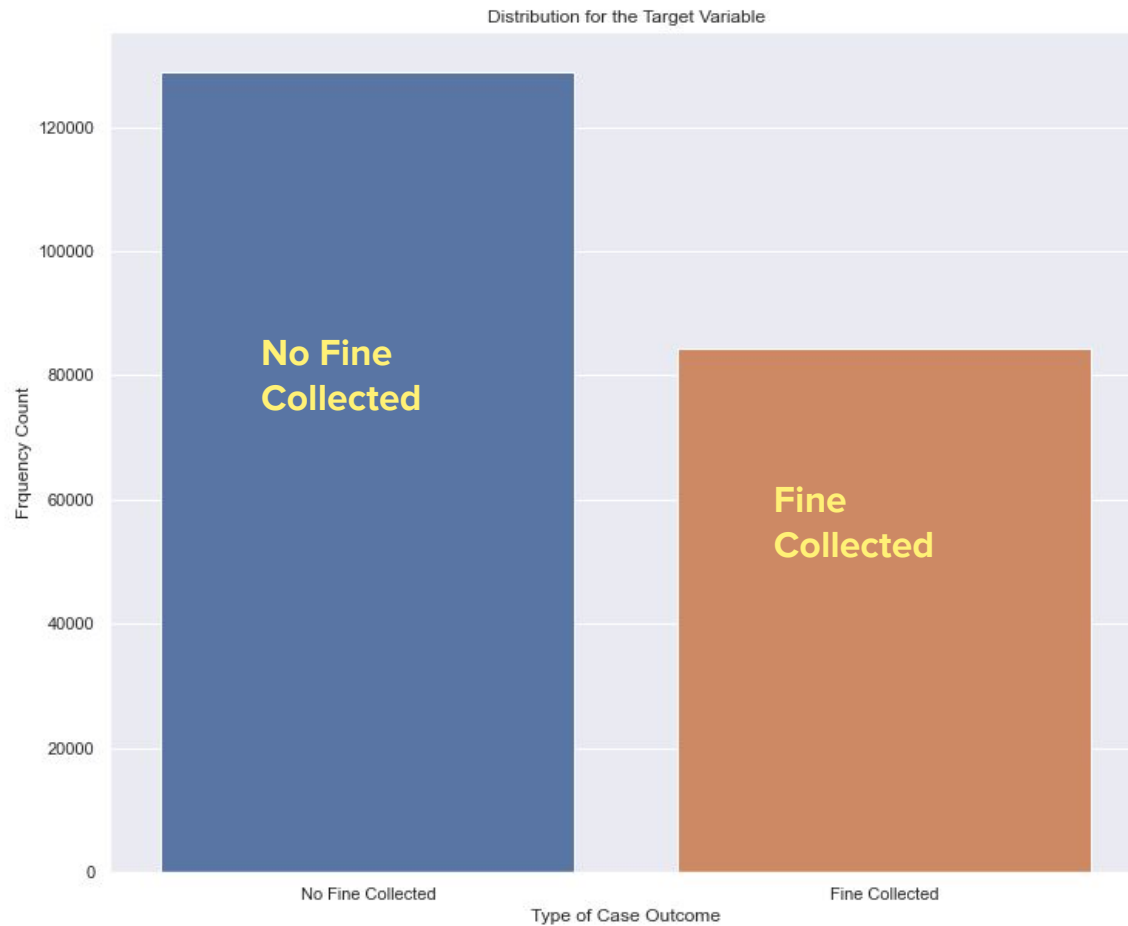
## Status Tracker

(17.9 million tickets)



Distribution for the Target Variable







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Respondent Last Name **A** First **Angela** M.I.

Phone No. ☐ Cell ☐ Home ☐ D.O.B. **MM/DD/YY** Sex ☐ Male ☐ Female

Mailing Address  
**3029 AVENUE S BROOKLYN 11235 NEW YORK**

ID Number ID Type

Race ☐ White ☐ Black ☐ Hisp. White ☐ Hisp. Black ☐ Am. Ind./Alaskan Native ☐ Asian/Pacific. Is.

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Place of Occurrence (☐ At ☐ In Front Of ☐ Opposite) Precinct

**527 KINGS HIGHWAY BROOKLYN 11223 NEW YORK**

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Borough: **Brooklyn** (See back for address) **(844) 628-4692**  
**www.nyc.gov/oath**

☒ Admin. Code ☐ Parks Rules: 56 RCNY ☐ Other  
☐ Rules of City of NY ☐ Traffic Rules: 34 RCNY

Section/Rule **A.C. 20-453** OATH Code

Mail-in Penalty **\$250** Max. Penalty Property ☐ Yes ☐ No  
Removed ☐ No

Details of Charge(s):

**UNLICENSED  
GENERAL VENDOR**

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I/O Signature Command

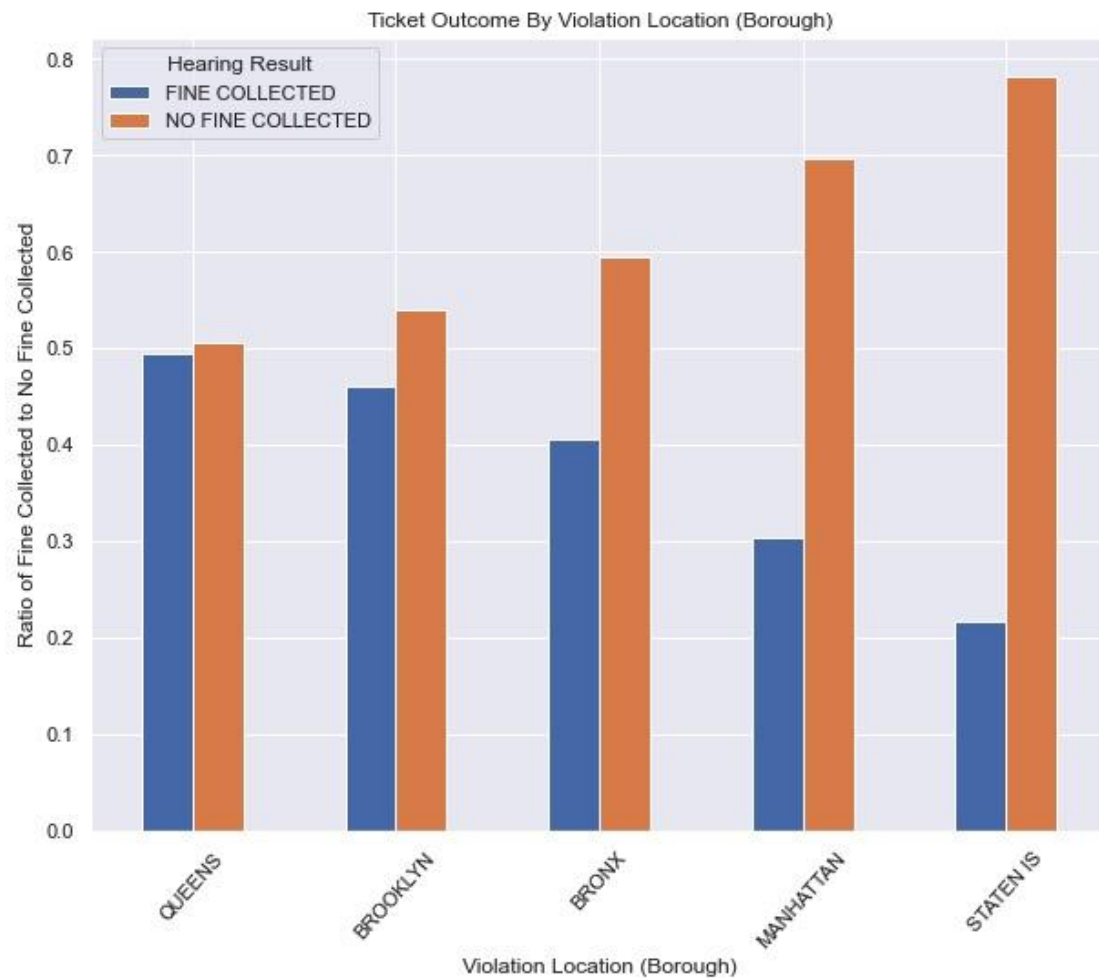
Rank/Title Name Tax No.



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Violation Location








Issuing Agency





SUMMONS TO APPEAR  
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SUMMONS NUMBER: 0000 000 000  
ISSUING AGENCY: Police Department

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☒ Admin. Code ☐ Parks Rules: 56 RCNY ☐ Other  
☐ Rules of City of NY ☐ Traffic Rules: 34 RCNY

Section/Rule <b>A.C. 20-453</b>	OATH Code
Mail-in Penalty <b>\$250</b>	Max. Penalty
	Property <input type="checkbox"/> Yes Removed <input type="checkbox"/> No

Details of Charge(s):

**UNLICENSED**  
Factual Allegations

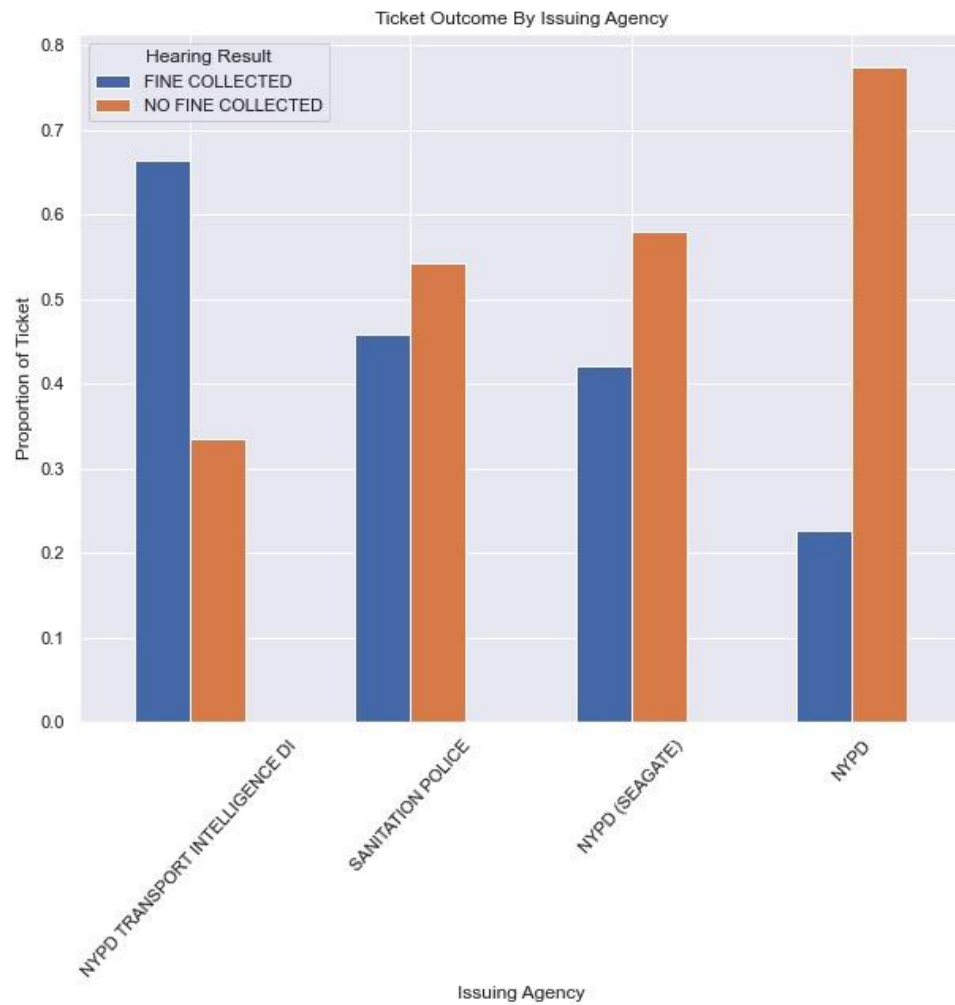
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Section/Rule A.C. 20-453		
Min./Inf. Penalty \$250	Max. Penalty	OATH Code Property <input type="checkbox"/> Yes Removed <input type="checkbox"/> No

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UNLICENSED  
Factual Allegations  
GENERAL VENDOR

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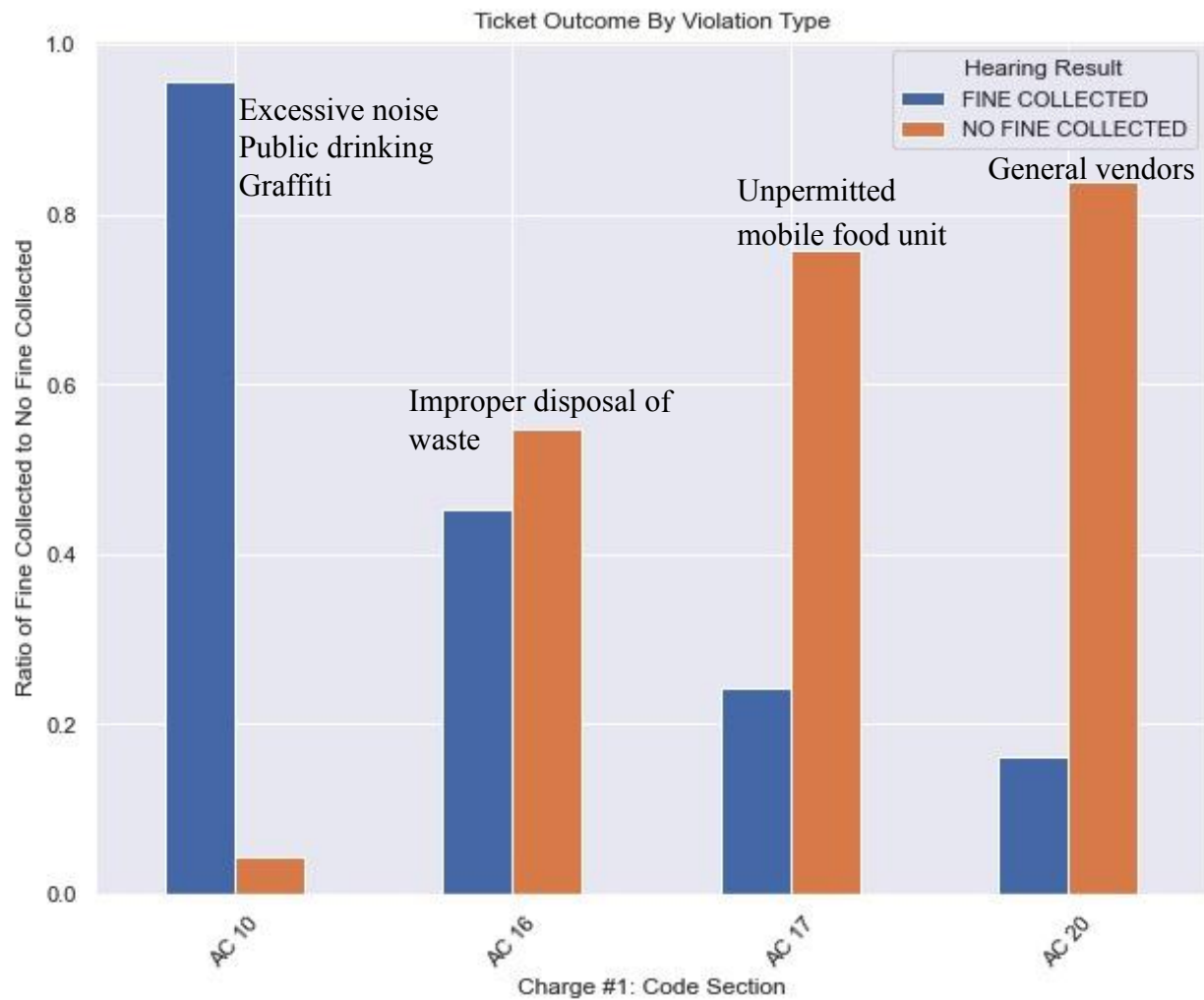
I/O Signature		Command
Rank/Title	Name	Tax No.



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Violation Type





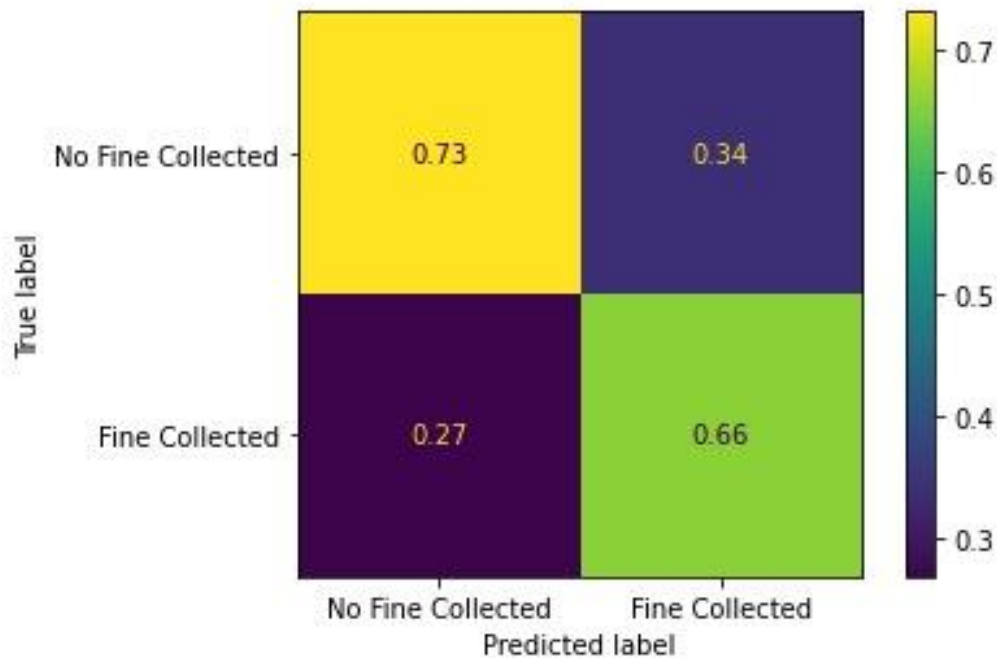
## Model Performance on Training Set

Score Type	Baseline Model	Logistic Regression	Decision Tree	Random Forest	XGBoost
Accuracy Score	52%	64%	62%	66%	66%
Precision Score	40%	57%	54%	60%	60%

**Preferred Model:  
Random Forest**

**Accuracy Score: 71%**

**Precision Score: 66%**



# Takeaways

**NYPD:** Reevaluate ticket issuance approach

**Staten Island:** Inquire why tickets issued in this borough largely resulted in no fine collected

# Project Next Steps

**Data expansion:** Include other issuing agencies (such as the Department of Buildings)

**Feature Engineering:** Obtain additional census data to expand neighborhood-level information



Thank You!

**Allison Gao**

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LinkedIn:

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