

# NYPD Hate Crime Data Project


By Andrew Lin and John Sun

Task: Help summarize this data for a local non-profit so they know how they can adequately address the problem.

**Hate Crimes** are offenses that are motivated in whole or substantial part by a person's, a group's or a place's identification with a particular race, religion, ethnicity, gender, age, disability, ancestry, national origin or sexual orientation.

<https://www1.nyc.gov/site/nypd/stats/reports-analysis/hate-crimes.page>

# Problems with the Complaints Part of the Data





PRECINCT	60 YEARS OLD OR MORE	ANTI-ARAB	ANTI-ASIAN	ANTI-BLACK	ANTI-CATHOLIC	ANTI-FEMALE HOMOSEXUAL (LESBIAN)	ANTI-HINDU	ANTI-HISPANIC	ANTI-ISLAMIC	ANTI-JEWISH	ANTI-LGBT	ANTI-MALE HOMOSEXUAL (GAY)	ANTI-MULTI-RELIGIOUS GROUPS	ANTI-OTHER ETHNICITY/NATIONAL ORIGIN/ANCESTRY
1	0	0	0	0	1	0	0	0	0	9	0	1	0	0
5	0	0	0	0	0	0	0	0	0	2	1	0	0	0
6	0	0	1	2	0	0	0	0	0	2	0	1	0	0
7	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9	0	0	0	0	0	0	0	0	0	0	0	1	0	0
10	0	0	0	0	0	0	0	0	0	3	0	0	0	0
13	0	0	0	1	0	0	0	0	0	5	0	2	0	0

2017 MURDER\_F\_ASSAULTS FOR W...

Complaints

Precinct	Murder Complaints	Felony Assault Complaint
1	0	1
5	0	0
6	0	1
7	0	0
9	0	0
10	0	1
13	0	0
14	1	0
17	0	1
18	0	0
19	0	0
20	0	0
22	0	1
23	0	0
24	0	0
25	0	0
26	0	1
28	0	0
30	0	0
32	0	0
33	0	0
34	0	0



NYC Hate Crime Report					
Arrest Statistics Involving Hate Crime Incidents					
by Pct,Gender, Race, Age and Bias Motivation					
Calendar Year 2018					
Number	Precinct	Gender	Race	Age	Bias-Motivation
1	1	Male	Black	24	Anti-Jewish
2		Male	Black	24	Anti-Jewish
3		Male	Black	24	Anti-Jewish
4		Male	Black	24	Anti-Jewish
5		Female	Black	37	Anti-White
6		Male	White	35	Anti-Jewish
7		Male	White	35	Anti
8	5	Male	Black	29	Anti-male hc
9		Male	White	57	Anti
10		Female	White	58	Anti-Tr
11	6	Male	White	44	Anti-male hc
12		Male	White	47	Anti-Islar
13		Male	White	35	Anti
14	7	Male	White	37	Anti
15	9	Male	Black	42	Anti-Islar
16		Male	White	58	Anti
17	10	Male	Black	49	Anti-Islar
18		Male	Black	24	Anti
19		Male	Black	53	Anti-male hc
20	13	Male	Black	47	Anti
21		Male	White	35	Anti
22		Male	White	25	Anti-male hc
23	14	Male	Black	20	Anti-Tr
24		Male	White	35	Anti
25		Male	White	21	Anti
26	17	Male	White	21	Anti
27		Male	Black	24	Anti
28		Male	White	35	Anti

# Uncleaned Data

NYC Hate Crime Report					
Arrest Statistics Involving Hate Crime Incidents					
by Arrestee Gender, Race, Age and Bias Motivation					
Calendar Year 2019					
Number	Precinct	Gender	Race	Age	Bias-Motivation
1	1	Female	White	64	Anti-Islamic (Muslim)
2	5	Female	White	49	Anti-Hispanic
3	5	Male	White	44	Anti-Islamic (Muslim)
4	5	Male	Black	41	Anti-White
5	6	Male	Black	21	Anti-Jewish
6		Male	Black	33	Anti-White
7		Male	Black	33	Anti-White
8	9	Male	Black	51	Anti-Jewish
9		Male	White	37	Anti-male homosexual (Gay)
10		Male	White	38	Anti-male homosexual (Gay)
11	10	Male	White	52	Anti-Black
12		Male	Black	33	Anti-White
13		Male	White	35	Anti-Jewish
14	13	Male	Black	33	Anti-White
15		Male	Black	33	Anti-White
16		Male	Black	33	Anti-White
17	14	Male	White	27	Anti-Jewish
18		Male	White	73	Anti-multi racial groups
19		Male	White	28	Anti-Jewish
20	17	Male	White	23	Anti-Black
21		Male	White	25	Anti-Black
22		Male	White	28	Anti-Jewish
23	18	Male	White	21	Anti-male homosexual (Gay)
24		Male	White	24	Anti-male homosexual (Gay)
25		Male	Black	24	Anti-White
26	25	Male	Black	19	Anti-Jewish
27		Male	Black	21	Anti-Jewish
28		Male	Black	28	Anti-Jewish
29	25	Male	White	43	Anti-Jewish
30		Male	White	44	Anti-Jewish
31		Male	White	44	Anti-Jewish

Hate Crime Report					
Arrest Statistics Involving Hate Crime Incidents					
by Arrestee Gender, Race, Age and Bias Motivation					
Calendar Year 2017					
Precinct	Number	Gender	Race	Age	Bias Motivation
1	1	Male	White	40	Anti-Other Religion
	2	Male	Black	29	Anti-White
	3	Male	White	48	Anti-Asian
6	4	Male	White	32	Anti-LGBT
	5	Male	White	59	Anti-Black
	6	Male	Black	25	Anti-Islamic (Muslim)
	7	Male	White	23	Anti-Black
	8	Male	White	29	Anti-White
	9	Male	White	21	Anti-Black
	10	Male	White	23	Anti-Black
	11	Male	Black	26	Anti-LGBT
	12	Male	Asian	20	Anti-LGBT
	13	Male	White	18	Anti-LGBT
	14	Male	White	28	Undetermind
	15	Male	Black	32	Anti-Jewish
	16	Male	Black	24	Anti-Gender Non-Conforming
	17	Male	Black	50	Anti-LGBT
	18	Male	Black	18	Anti-White
	19	Male	White	26	Anti-LGBT
	20	Male	White	28	Anti-Black
	21	Female	White	21	Anti-Islamic (Muslim)
	22	Male	White	64	Anti-Jewish
	23	Female	Black	54	Anti-White
	24	Male	Black	32	Anti-Jewish
	25	Male	White	48	Anti-Islamic (Muslim)
	26	Male	White	23	Anti-Black
	27	Male	Black	30	Anti-Other Religion

# Cleaning the Data

```
import glob

x = glob.glob("/content/drive/My Drive/Project 1 /Data/Clean Data/*.csv")
d19 = pd.read_csv(x[0])
d18 = pd.read_csv(x[2])
d17 = pd.read_csv(x[1])

d19["Year"] = 2019
d18["Year"] = 2018
d17["Year"] = 2017

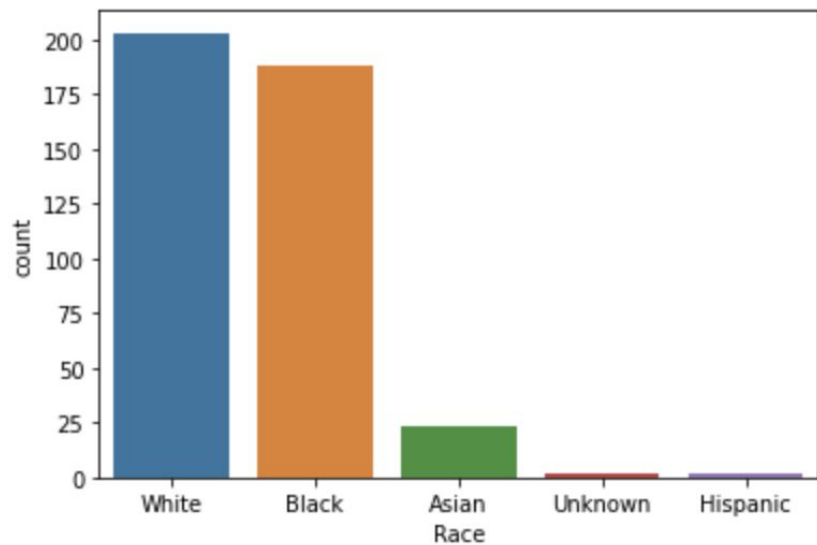
d17 = d17.rename(columns={"Bias Motivation" : "Bias-Motivation", " Age" : "Age"})

full = pd.concat([d19, d18, d17])
```

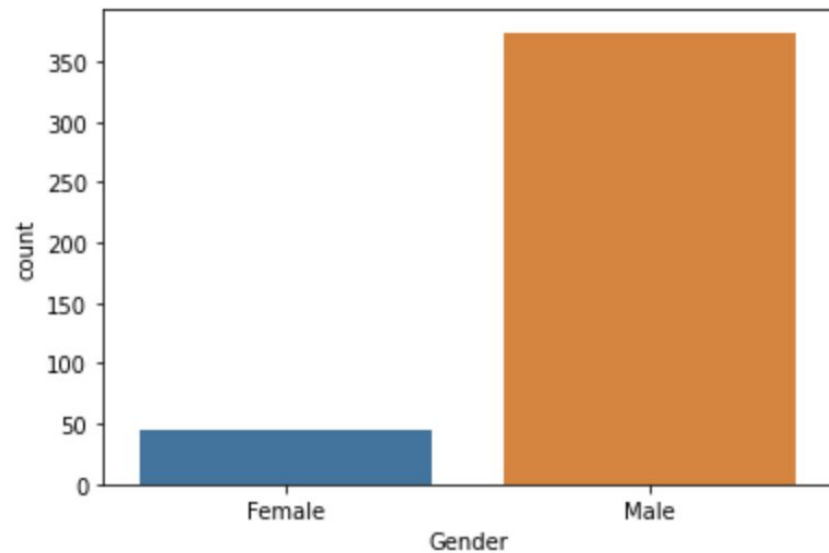
# Cleaned Data

	Number	Precinct	Gender	Race	Age	Bias-Motivation	Year
0	1	1	Female	White		64 Anti-Islamic (Muslim	2019
1	2	5	Female	White		49 Anti-Hispanic	2019
2	3	5	Male	White		44 Anti-Islamic (Muslim	2019
3	4	5	Male	Black		41 Anti-White	2019
4	5	6	Male	Black		21 Anti-Jewish	2019
5	6	6	Male	Black		33 Anti-White	2019
6	7	6	Male	Black		33 Anti-White	2019
7	8	9	Male	Black		51 Anti-Jewish	2019
8	9	9	Male	White		37 Anti-male homosexu	2019
9	10	9	Male	White		38 Anti-male homosexu	2019
10	11	10	Male	White		52 Anti-Black	2019
11	12	10	Male	Black		33 Anti-White	2019
12	13	13	Male	White		35 Anti-Jewish	2019
13	14	13	Male	Black		33 Anti-White	2019
14	15	13	Male	Black		33 Anti-White	2019
15	16	14	Male	White		27 Anti-Jewish	2019
16	17	17	Male	White		73 Anti-multi racial gro	2019
17	18	17	Male	White		28 Anti-Jewish	2019
18	19	18	Male	White		23 Anti-Black	2019
19	20	18	Male	White		25 Anti-Black	2019
20	21	18	Male	White		28 Anti-Jewish	2019
21	22	18	Male	White		21 Anti-male homosexu	2019
22	23	18	Male	White		24 Anti-male homosexu	2019
23	24	18	Male	Black		24 Anti-White	2019
24	25	25	Male	Black		19 Anti-Jewish	2019
25	26	25	Male	Black		21 Anti-Jewish	2019
26	27	25	Male	Black		28 Anti-Jewish	2019
27	28	25	Male	White		43 Anti-Jewish	2019
28	29	25	Male	White		44 Anti-Jewish	2019
29	30	28	Male	White		44 Anti-Jewish	2019
30	31	28	Male	Black		37 Anti-White	2019
31	32	30	Male	Black		38 Anti-male homosexu	2019
32	33	32	Male	Black		20 Anti-LGBT (mixed gr	2019
33	34	32	Male	Black		20 Anti-LGBT (mixed gr	2019

# Count of People Arrested by Race and Gender



```
sns.countplot(x = "Race", data = full)
```



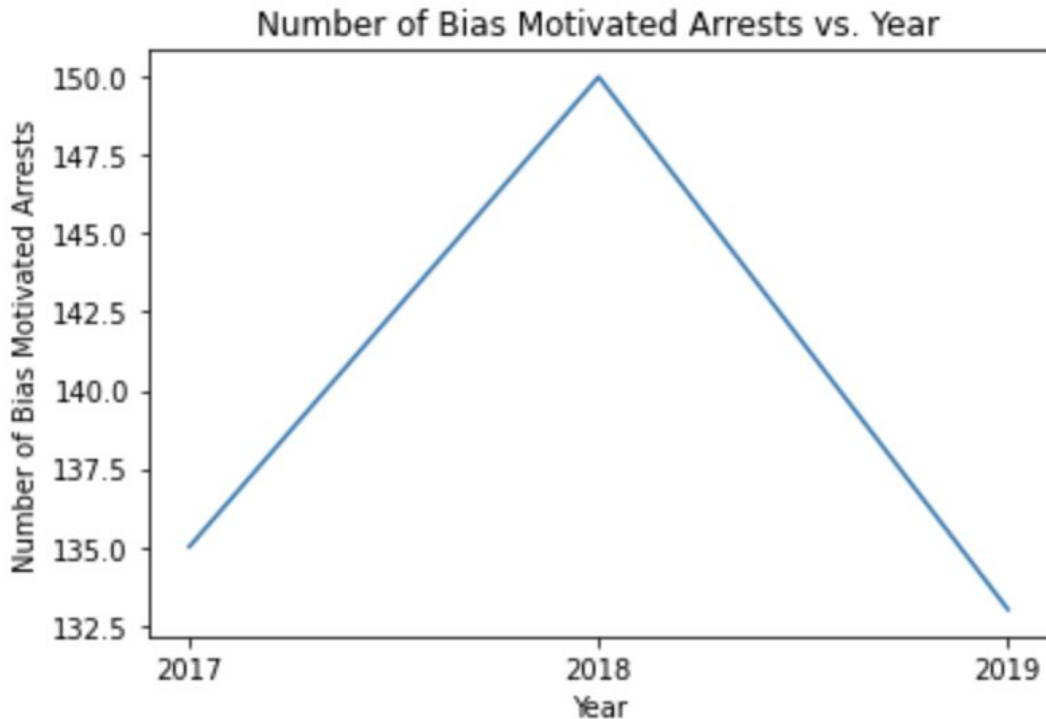
```
sns.countplot(x = "Gender", data = full)
```

# Number of Bias Motivated Arrests Through 2017 - 2019



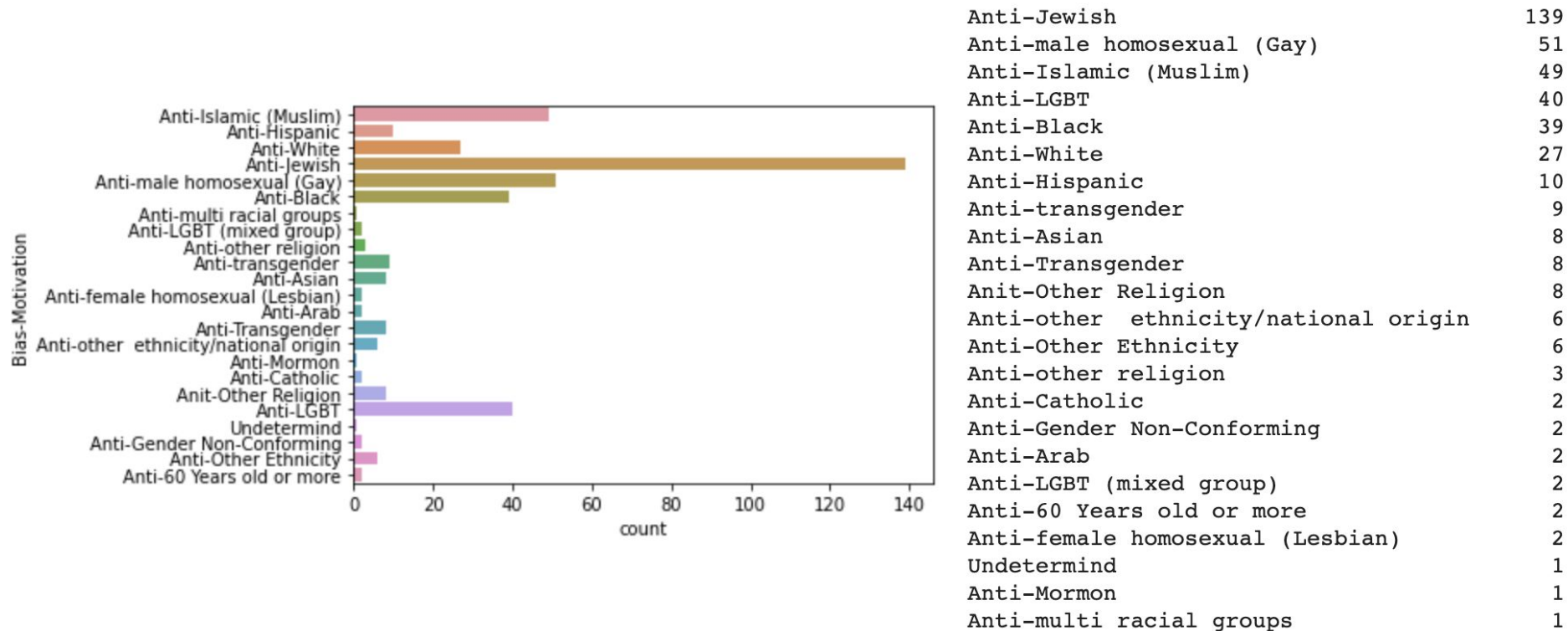
```
X = [2017, 2018, 2019]
y = [135, 150, 133]

plt.plot(X, y)
plt.xlabel("Year")
plt.ylabel("Number of Bias Motivated Arrests")
plt.title("Number of Bias Motivated Arrests vs. Year")
plt.xticks(np.arange(2017, 2020, 1.0))
plt.show()
```





# Number of Arrests by Bias Motivation



# Breakdown of Race and Type of Bias Motivated Crime Committed

White	Anit-Other Religion	6
	Anti-60 Years old or more	2
	Anti-Arab	1
	Anti-Asian	6
	Anti-Black	36
	Anti-Catholic	1
	Anti-Hispanic	5
	Anti-Islamic (Muslim)	29
	Anti-Jewish	66
	Anti-LGBT	11
	Anti-Mormon	1
	Anti-Other Ethnicity	3
	Anti-Transgender	5
	Anti-White	2
	Anti-female homosexual (Lesbian)	1
	Anti-male homosexual (Gay)	19
	Anti-multi racial groups	1
	Anti-other ethnicity/national origin	2
	Anti-other religion	3
	Anti-transgender	2
	Undetermind	1

Black	Anit-Other Religion	2
	Anti-Arab	1
	Anti-Asian	2
	Anti-Black	2
	Anti-Gender Non-Conforming	2
	Anti-Hispanic	5
	Anti-Islamic (Muslim)	16
	Anti-Jewish	61
	Anti-LGBT	27
	Anti-LGBT (mixed group)	2
	Anti-Other Ethnicity	2
	Anti-Transgender	3
	Anti-White	25
	Anti-female homosexual (Lesbian)	1
	Anti-male homosexual (Gay)	27
	Anti-other ethnicity/national origin	4
	Anti-transgender	6

# Continued...

Asian	Anti-Black	1
	Anti-Catholic	1
	Anti-Islamic (Muslim)	4
	Anti-Jewish	9
	Anti-LGBT	2
	Anti-Other Ethnicity	1
	Anti-male homosexual (Gay)	5
Hispanic	Anti-Jewish	2
Unknown	Anti-Jewish	1
	Anti-transgender	1

# Top 3 Arrests by Bias-Motivation Over the Years

Anti-Jewish	2017	23
	2018	69
	2019	47
Anti-LGBT	2017	40
Anti-female homosexual (Lesbian)	2018	1
	2019	1
Anti-male homosexual (Gay)	2018	27
	2019	24
Anti-Transgender	2018	8
	2019	9
Anti-Islamic (Muslim)	2017	22
	2018	10
	2019	17

# Which Borough has the most?

```
[16] > df.groupby(by='Precinct')

[19] > gb.get_group(1)
```

	Number	Gender	Race	Age	Bias-Motivation	Year
0	1	Female	White	64	Anti-Islamic (Muslim)	2019
133	1	Male	Black	24	Anti-Jewish	2018
134	2	Male	Black	24	Anti-Jewish	2018
135	3	Male	Black	24	Anti-Jewish	2018
136	4	Male	Black	24	Anti-Jewish	2018
137	5	Female	Black	37	Anti-White	2018
138	6	Male	White	35	Anti-Jewish	2018
139	7	Male	White	35	Anti-Jewish	2018
283	1	Male	White	40	Anit-Other Religion	2017
284	2	Male	Black	29	Anti-White	2017

# Which Borough has the most?

```
[33] ▶ ▶ Ml  
precinct_list = []  
  
for i in df['Precinct'].values:  
    if i not in precinct_list:  
        precinct_list.append(i)
```

```
[38] ▶ ▶ Ml  
  
prec_dict = {}  
for i in sorted(precinct_list):  
    prec_dict[i] = len(gb.get_group(i))  
  
prec_dict
```

## Precincts

Precinct	Phone	Address
Manhattan		
<a href="#">1st Precinct</a>	212-334-0611	16 Ericsson Place
<a href="#">5th Precinct</a>	212-334-0711	19 Elizabeth Street
<a href="#">6th Precinct</a>	212-741-4811	233 West 10 Street
<a href="#">7th Precinct</a>	212-477-7311	19 1/2 Pitt Street
<a href="#">9th Precinct</a>	212-477-7811	321 East 5 Street
<a href="#">10th Precinct</a>	212-741-8211	230 West 20th Street
<a href="#">13th Precinct</a>	212-477-7411	230 East 21st Street
<a href="#">Midtown South Precinct</a>	212-239-9811	357 West 35th Street
<a href="#">17th Precinct</a>	212-826-3211	167 East 51st Street
<a href="#">Midtown North Precinct</a>	212-767-8400	306 West 54th Street
<a href="#">19th Precinct</a>	212-452-0600	153 East 67th Street
<a href="#">20th Precinct</a>	212-580-6411	120 West 82nd Street

[ 94] ▶ M4

```
cdf1.Precinct = cdf1.Precinct.str.strip().replace(r"[a-zA-Z]", '')
cdf2.Precinct = cdf2.Precinct.str.strip().replace(r"[a-zA-Z]", '')
cdf3.Precinct = cdf3.Precinct.str.strip().replace(r"[a-zA-Z]", '')
cdf4.Precinct = cdf4.Precinct.str.strip().replace(r"[a-zA-Z]", '')
cdf5.Precinct = cdf5.Precinct.str.strip().replace(r"[a-zA-Z]", '')
```

[104] ▶ M4

```
bronxcount = 0
brooklyncount = 0
manhattancount = 0
queenscount = 0
stat_islcount = 0
```

```
for i in prec_dict:
```

```
    i = str(i)
```

```
    if i in list(cdf1.Precinct):
        print('yes in cdf1')
        bronxcount += prec_dict[int(i)]
```

```
    elif i in list(cdf2.Precinct):
        print('yes in cdf2')
        brooklyncount += prec_dict[int(i)]
```

```
    elif i in list(cdf3.Precinct):
        print('yes in cdf3')
        manhattancount += prec_dict[int(i)]
```

```
    elif i in list(cdf4.Precinct):
        print('yes in cdf4')
        queenscount += prec_dict[int(i)]
```

```
    elif i in list(cdf5.Precinct):
        print('yes in cdf5')
        stat_islcount += prec_dict[int(i)]
```

```
findict = {'boroughs': ['Bronx', 'Brooklyn', 'Manhattan', 'Queens',
                        'Staten Island'], 'count': [bronxcount, brooklyncount, manhattancount,
                        queenscount, stat_islcount]}
```

[107] ▶ ▶ M4

```
findf = pd.DataFrame.from_dict(finddict)
findf
```

	boroughs	count
0	Bronx	28
1	Brooklyn	184
2	Manhattan	113
3	Queens	54
4	Staten Island	12



Number of racially motivated arrests made by NYC Borough

