

# BOSTON CRIME RATE

Group Members

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# INTRODUCTION

- Boston is Massachusetts' capital and largest city. Founded in 1630.
- It was the scene of several key events of the American Revolution, such as the Boston Massacre, the Boston Tea Party, the Battle of Bunker Hill, and the Siege of Boston.
- Upon gaining U.S. independence from Great Britain, it continued to be an important port and manufacturing hub as well as a center for education and culture.
- Its rich history attracts many tourists, with Faneuil Hall alone drawing more than 20 million visitors per year.
- Hence the crime rate here has seen fluctuations throughout.
- A city's crime rate has always been a factor. In Boston, where the violent crime rate is 70% higher than the national average, residents also have to worry about hate crime.

# DATA SPECIFICATION

Source -

<https://www.kaggle.com/vitorgamalemos/visualization-boston-crimes/data>

- The data has main crimes.csv file containing the Boston Crime data from 2015 – 2018.
- It has an approximate of 3,00,000 rows and 16 columns.
- The columns include Incident\_number, Offence Code group, Offence Description, District, Reporting, Date of Occurrence, Year, Month, Day\_of\_week, UCR\_Part ( there are 4 parts the crimes are divided in...Part One , Part two and so on), Hour, Street, Longitude and Latitude.



## PROCESS AND TOOLS USED

The data was cleaned using **Python( Jupyter Notebook)** – Nan values were replaced and column ‘Shooting’ was deleted because 90% of the entries were missing.

The crimes.csv file loaded in the **AWS S3 Bucket** (cloud storage).

Hosted the **MySQL server** on AWS RDS.

**Query editor** to create 4 tables ( Date\_Time.csv, Incident\_occurred, Location.csv, Offence\_info.csv).

**Tableau** for Visualization and Analysis.

# TABLES CREATED

## Location

column1	STREET	Lat	Long	Location	INCIDENT_NUMBER
1	318306 LAWRENCE AVE	42.31161123	-71.076256	(42.31161123, -71.07625600)	I152050036
2	317567 KERR WAY	42.33358389	-71.08554259	(42.33358389, -71.08554259)	I152050961
3	317367 DUDLEY ST	42.31780762	-71.0668499	(42.31780762, -71.06684990)	I152051161
4	316374 S MUNROE TER	42.29214062	-71.0520224	(42.29214062, -71.05202240)	I152052391
5	316108 TALBOT AVE	42.29041538	-71.07269542	(42.29041538, -71.07269542)	I152052674
6	316037 HOLWORTHY ST	42.31632131	-71.0892305	(42.31632131, -71.08923050)	I152052766
7	315528 SPENCER ST	42.29384269	-71.07609427	(42.29384269, -71.07609427)	I152053302
8	315501 ROUND HILL ST	42.32469169	-71.10618924	(42.32469169, -71.10618924)	I152053337
9	315483 BRENT ST	42.29026471	-71.06599003	(42.29026471, -71.06599003)	I152053353
10	314638 FESSENDEN ST	42.27855984	-71.09199697	(42.27855984, -71.09199697)	I152054324
11	314277 NORFOLK ST	42.28621457	-71.0796774	(42.28621457, -71.07967740)	I152054740
12	314237 GREENVILLE ST	42.32696802	-71.08051941	(42.32696802, -71.08051941)	I152054787
13	313959 ROSSETER ST	42.30116123	-71.07284279	(42.30116123, -71.07284279)	I152055092
14	313949 FRANCIS ST	42.33606304	-71.10782832	(42.33606304, -71.10782832)	I152055102
15	313764 GLENBURNIE ST	42.31512218	-71.08252020	(42.31512218, -71.08252020)	I152055311
16	313755 HUMBOLDT AVE	42.31915702	-71.0860195	(42.31915702, -71.08601950)	I152055319
17	313526 BOWER ST	42.31996758	-71.08715022	(42.31996758, -71.08715022)	I152055577
18	313498 MONSIGNOR DENNIS F O'CALL	42.32583998	-71.05463516	(42.32583998, -71.05463516)	I152055608
19	312773 HUMBOLDT AVE	42.31705618	-71.08652731	(42.31705618, -71.08652731)	I152056444
20	311971 WEAVER WAY	42.32095696	-71.09680448	(42.32095696, -71.09680448)	I152057392
21	311955 MORTON ST	42.28028398	-71.08235497	(42.28028398, -71.08235497)	I152057410
22	311825 DEVON ST	42.30812619	-71.07692974	(42.30812619, -71.07692974)	I152057567
23	311720 WASHINGTON ST	42.30649283	-71.08180677	(42.30649283, -71.08180677)	I152057684
24	311718 DUDLEY ST	42.32849143	-71.08121253	(42.32849143, -71.08121253)	I152057685
25	311143 BLUE HILL AVE	42.2729449	-71.09348933	(42.2729449, -71.09348933)	I152058305
26	310548 HORADAN WAY	42.33371742	-71.09665806	(42.33371742, -71.09665806)	I152058960
27	310302 COLUMBUS AVE	42.31488579	-71.09720699	(42.31488579, -71.09720699)	I152059221
28	310262 GLEASON ST	42.29630559	-71.08134086	(42.29630559, -71.08134086)	I152059273
29	309723 BROOKWAY RD	42.29396688	-71.11893964	(42.29396688, -71.11893964)	I152059883
30	309520 MARTIN LUTHER KING JR BLV	42.3208382	-71.09018598	(42.32083820, -71.09018598)	I152060108
31	309028 WILDWOOD ST	42.28378654	-71.0871581	(42.28378654, -71.08715810)	I152060642
32	308672 CHESTNUT AVE	42.31981996	-71.1042968	(42.31981996, -71.10429680)	I152061055
33	308397 BROOKLEDGE ST	42.30956305	-71.08990197	(42.30956305, -71.08990197)	I152061366

## Incident\_Occurred

column1	INCIDENT_NUMBER	OFFENSE_CODE	OFFENSE_CODE_GROUP	OFFENSE_DESCRIPTION
1	I152050036	413	Aggravated Assault	ASSAULT - AGGRAVATED - BATTERY
2	I152050961	413	Aggravated Assault	ASSAULT - AGGRAVATED - BATTERY
3	I152051161	1501	Firearm Violations	WEAPON - FIREARM - CARRYING / POSSESSING, ETC
4	I152052391	413	Aggravated Assault	ASSAULT - AGGRAVATED - BATTERY
5	I152052674	413	Aggravated Assault	ASSAULT - AGGRAVATED - BATTERY
6	I152052766	413	Aggravated Assault	ASSAULT - AGGRAVATED - BATTERY
7	I152053302	413	Aggravated Assault	ASSAULT - AGGRAVATED - BATTERY
8	I152053337	1402	Vandalism	VANDALISM
9	I152053353	413	Aggravated Assault	ASSAULT - AGGRAVATED - BATTERY
10	I152054324	413	Aggravated Assault	ASSAULT - AGGRAVATED - BATTERY
11	I152054740	423	Aggravated Assault	ASSAULT - AGGRAVATED
12	I152054787	3001	Medical Assistance	DEATH INVESTIGATION
13	I152055092	413	Aggravated Assault	ASSAULT - AGGRAVATED - BATTERY
14	I152055102	413	Aggravated Assault	ASSAULT - AGGRAVATED - BATTERY
15	I152055311	111	Homicide	MURDER, NON-NEGLIGENT MANSLAUGHTER
16	I152055319	413	Aggravated Assault	ASSAULT - AGGRAVATED - BATTERY
17	I152055577	413	Aggravated Assault	ASSAULT - AGGRAVATED - BATTERY
18	I152055608	301	Robbery	ROBBERY - STREET
19	I152056444	413	Aggravated Assault	ASSAULT - AGGRAVATED - BATTERY
20	I152057392	413	Aggravated Assault	ASSAULT - AGGRAVATED - BATTERY
21	I152057410	413	Aggravated Assault	ASSAULT - AGGRAVATED - BATTERY
22	I152057567	413	Aggravated Assault	ASSAULT - AGGRAVATED - BATTERY
23	I152057684	413	Aggravated Assault	ASSAULT - AGGRAVATED - BATTERY
24	I152057685	413	Aggravated Assault	ASSAULT - AGGRAVATED - BATTERY
25	I152058305	413	Aggravated Assault	ASSAULT - AGGRAVATED - BATTERY
26	I152058960	413	Aggravated Assault	ASSAULT - AGGRAVATED - BATTERY
27	I152059221	413	Aggravated Assault	ASSAULT - AGGRAVATED - BATTERY
28	I152059273	413	Aggravated Assault	ASSAULT - AGGRAVATED - BATTERY
29	I152059883	111	Homicide	MURDER, NON-NEGLIGENT MANSLAUGHTER
30	I152060108	413	Aggravated Assault	ASSAULT - AGGRAVATED - BATTERY
31	I152060642	413	Aggravated Assault	ASSAULT - AGGRAVATED - BATTERY
32	I152061055	413	Aggravated Assault	ASSAULT - AGGRAVATED - BATTERY
33	I152061366	413	Aggravated Assault	ASSAULT - AGGRAVATED - BATTERY

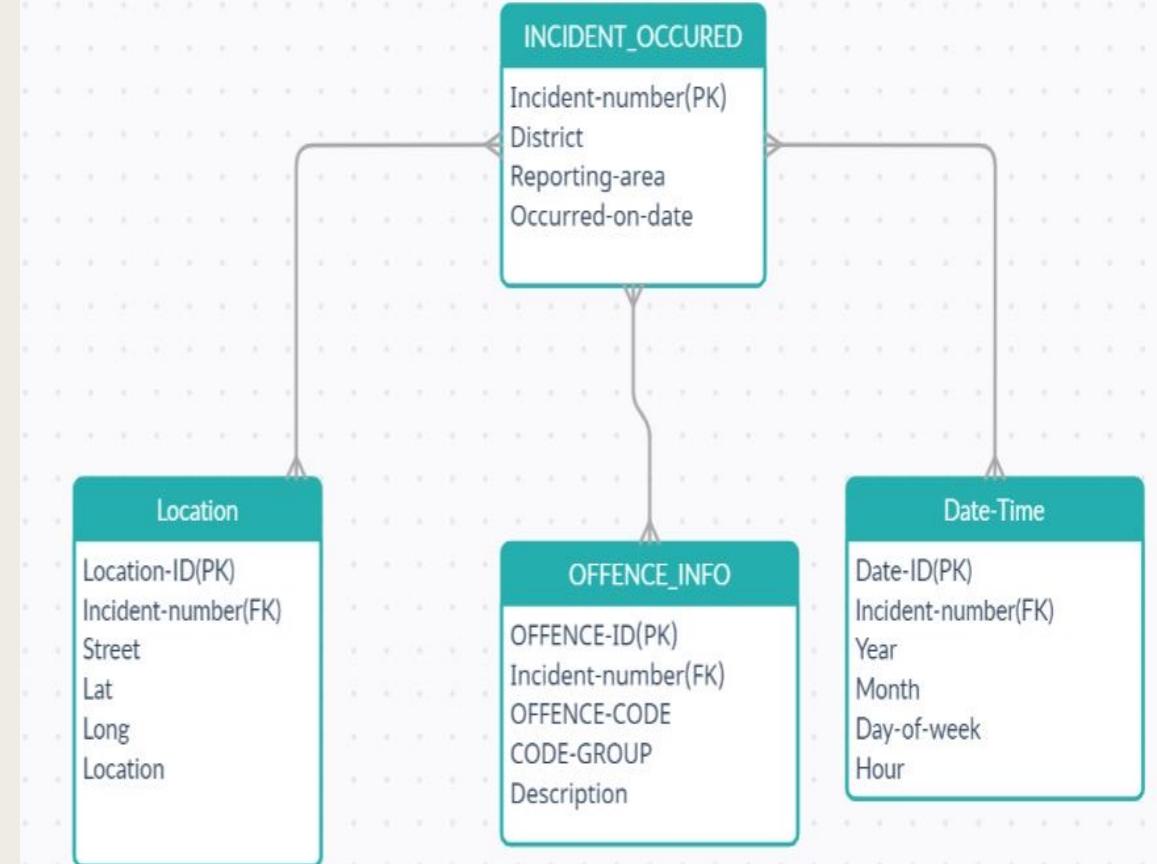
## Date\_Time

	column1	INCIDENT_NUMBER	DISTRICT	REPORTING_AREA	OCCURRED_ON_DATE	
1	318306	I152050036	B2	326	2015-06-16 20:41:00.0000000	
2	317567	I152050961	B2	286	2015-06-19 21:20:00.0000000	
3	317367	I152051161	B2	238	2015-06-20 00:00:00.0000000	
4	316374	I152052391	C11	377	2015-06-24 19:44:00.0000000	
5	316108	I152052674	B3	450	2015-06-25 18:38:00.0000000	
6	316037	I152052766	B2	312	2015-06-26 02:08:00.0000000	
7	315528	I152053302	B3	448	2015-06-27 19:38:00.0000000	
8	315501	I152053337	E13	583	2015-06-27 22:59:00.0000000	
9	315483	I152053353	C11	364	2015-07-23 11:12:00.0000000	
10	314638	I152054324	B3	427	2015-07-01 13:59:00.0000000	
11	314277	I152054740	B3	434	2015-07-02 18:23:25.0000000	
12	314237	I152054787	B2	281	2015-07-02 23:08:00.0000000	
13	313959	I152055092	C11	462	2015-07-04 02:39:00.0000000	
14	313949	I152055102	B2	612	2015-07-04 02:19:00.0000000	
15	313764	I152055311	B2	322	2015-07-04 22:47:00.0000000	
16	313755	I152055319	B2	309	2015-07-05 00:40:00.0000000	
17	313526	I152055577	B2	308	2015-07-05 23:39:00.0000000	
18	313498	I152055608	C6	914	2015-07-06 03:29:00.0000000	
19	312773	I152056444	B2	313	2015-07-08 00:00:00.0000000	
20	311971	I152057392	B2	304	2015-07-11 22:13:00.0000000	
21	311955	I152057410	B3	420	2015-07-11 22:49:00.0000000	
22	311825	I152057567	B2	329	2015-07-12 16:24:00.0000000	
23	311720	I152057684	B2	330	2015-07-12 23:47:00.0000000	
24	311718	I152057685	B2	281	2015-07-13 00:33:00.0000000	
25	311143	I152058305	B3	425	2015-07-14 18:52:00.0000000	
26	310548	I152058960	B2	901	2015-07-16 23:29:00.0000000	
27	310302	I152059221	E13	307	2015-07-17 20:04:00.0000000	
28	310262	I152059273	B3	444	2015-07-17 23:57:00.0000000	
29	309723	I152059883	E5	941	2015-07-20 10:35:00.0000000	
30	309520	I152060108	B2	305	2015-07-20 23:06:00.0000000	
31	309028	I152060642	B3	429	2015-07-22 18:57:00.0000000	
32	308672	I152061055	E13	578	2015-07-24 01:03:00.0000000	
33	308397	I152061366	B2	318	2015-07-24 23:54:00.0000000	

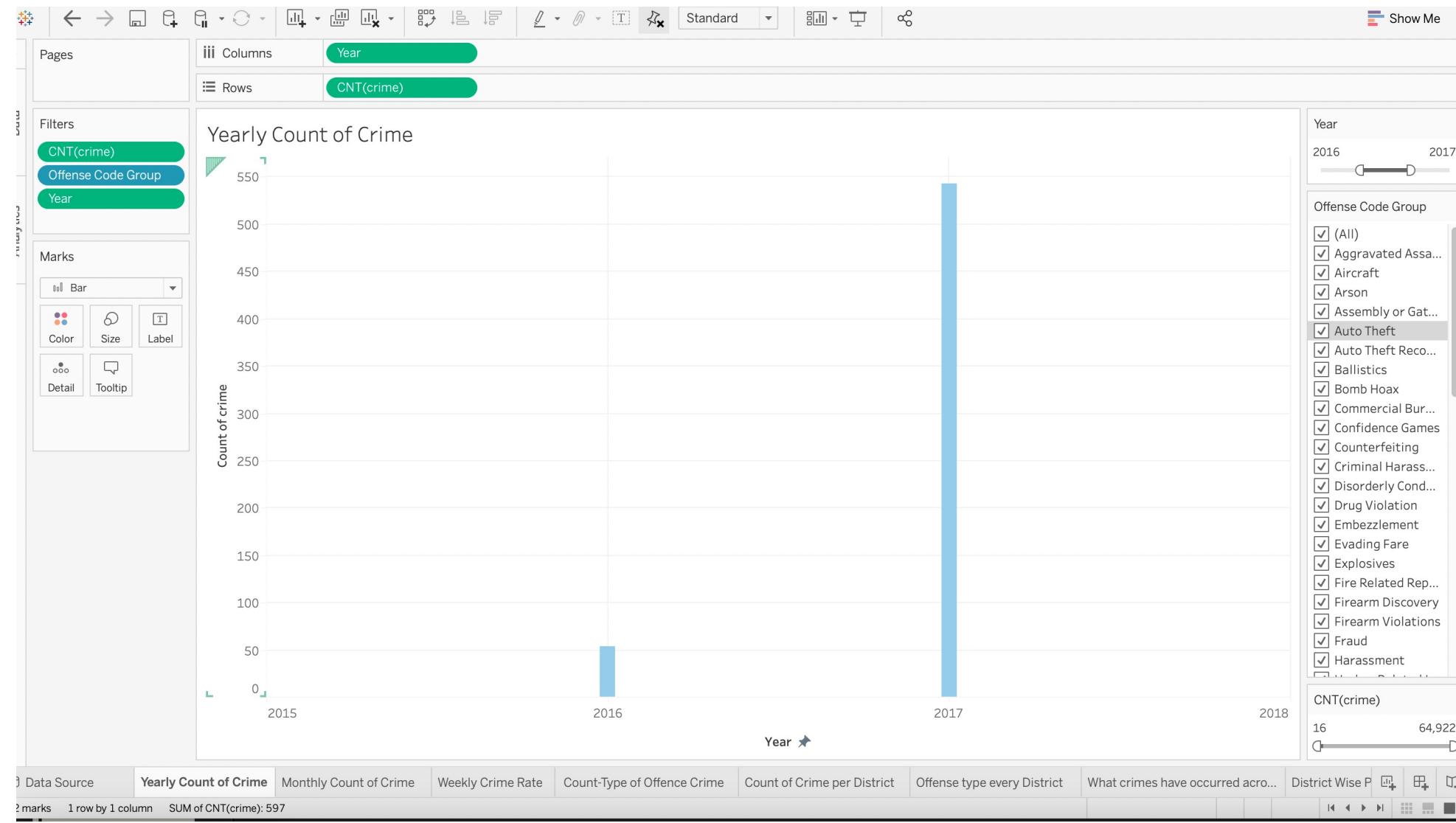
## Offense\_Info

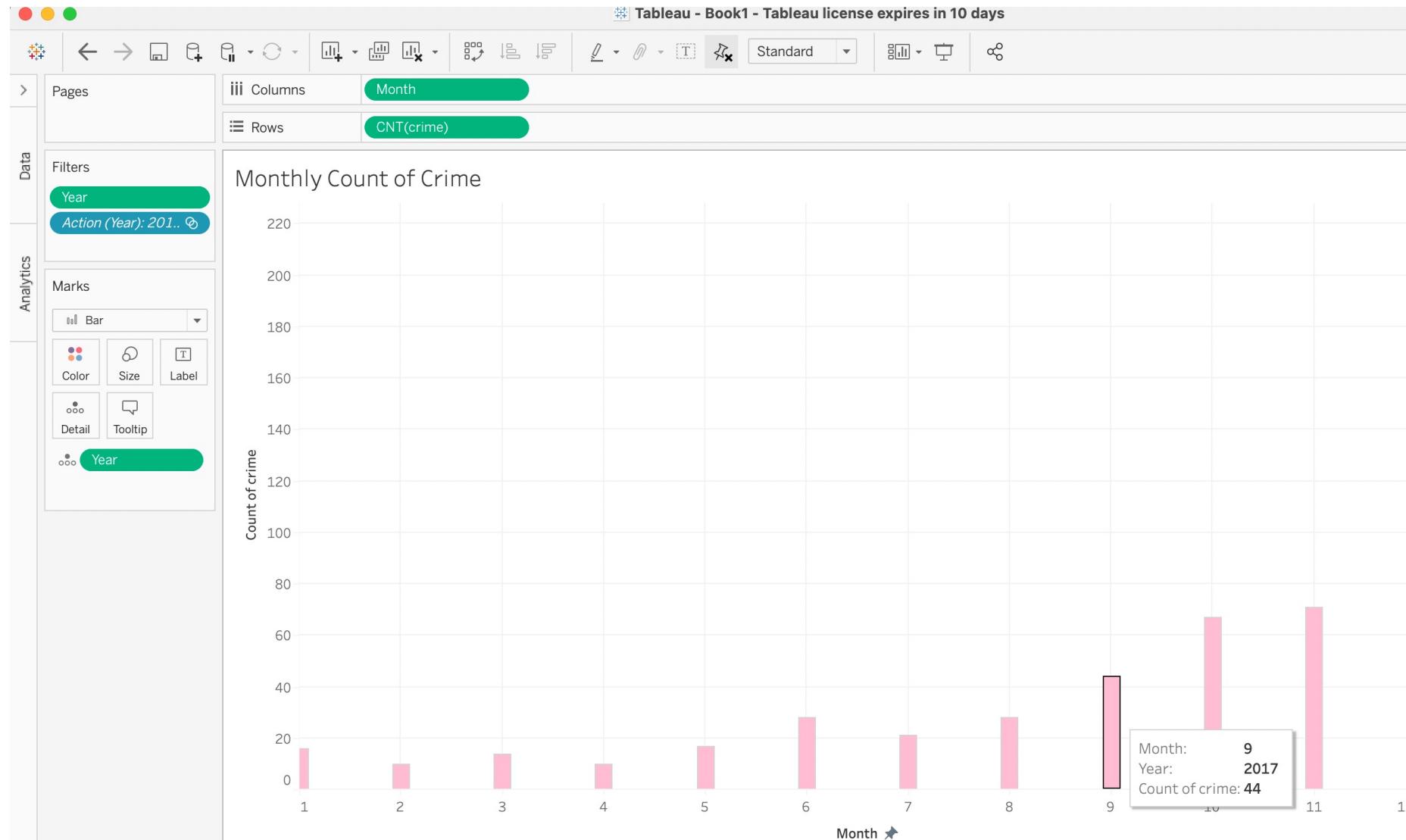
	A	B	C	D	E
1		INCIDENT_NUMBER	OFFENSE_CODE	OFFENSE_CODE_GROUP	OFFENSE_DESCRIPTION
2		1295 I182069509		413 Aggravated Assault	ASSAULT - AGGRAVATED - BATTERY
3		1860 I182068876		413 Aggravated Assault	ASSAULT - AGGRAVATED - BATTERY
4		3259 I182067317		111 Homicide	MURDER, NON-NEGLIGENT MANSLAUGHTER
5		4107 I182066420		413 Aggravated Assault	ASSAULT - AGGRAVATED - BATTERY
6		5162 I182065260		1501 Firearm Violations	WEAPON - FIREARM - CARRYING / POSSESSING, ETC
7		5689 I182064699		111 Homicide	MURDER, NON-NEGLIGENT MANSLAUGHTER
8		6038 I182064331		413 Aggravated Assault	ASSAULT - AGGRAVATED - BATTERY
9		6046 I182064319		413 Aggravated Assault	ASSAULT - AGGRAVATED - BATTERY
10		6277 I182064057		413 Aggravated Assault	ASSAULT - AGGRAVATED - BATTERY
11		6278 I182064056		111 Homicide	MURDER, NON-NEGLIGENT MANSLAUGHTER
12		6477 I182063831		413 Aggravated Assault	ASSAULT - AGGRAVATED - BATTERY
13		7385 I182062810		413 Aggravated Assault	ASSAULT - AGGRAVATED - BATTERY
14		7992 I182062147		413 Aggravated Assault	ASSAULT - AGGRAVATED - BATTERY
15		8219 I182061887		413 Aggravated Assault	ASSAULT - AGGRAVATED - BATTERY
16		8431 I182061662		413 Aggravated Assault	ASSAULT - AGGRAVATED - BATTERY
17		8782 I182061280		413 Aggravated Assault	ASSAULT - AGGRAVATED - BATTERY
18		9077 I182060953		3001 Medical Assistance	DEATH INVESTIGATION
19		9606 I182060366		413 Aggravated Assault	ASSAULT - AGGRAVATED - BATTERY
20		9658 I182060309		413 Aggravated Assault	ASSAULT - AGGRAVATED - BATTERY
21		11020 I182058835		413 Aggravated Assault	ASSAULT - AGGRAVATED - BATTERY
22		11631 I182058179		413 Aggravated Assault	ASSAULT - AGGRAVATED - BATTERY
23		12126 I182057654		111 Homicide	MURDER, NON-NEGLIGENT MANSLAUGHTER
24		13447 I182056227		413 Aggravated Assault	ASSAULT - AGGRAVATED - BATTERY
25		14422 I182055198		413 Aggravated Assault	ASSAULT - AGGRAVATED - BATTERY
26		15368 I182054207		413 Aggravated Assault	ASSAULT - AGGRAVATED - BATTERY
27		15495 I182054067		413 Aggravated Assault	ASSAULT - AGGRAVATED - BATTERY

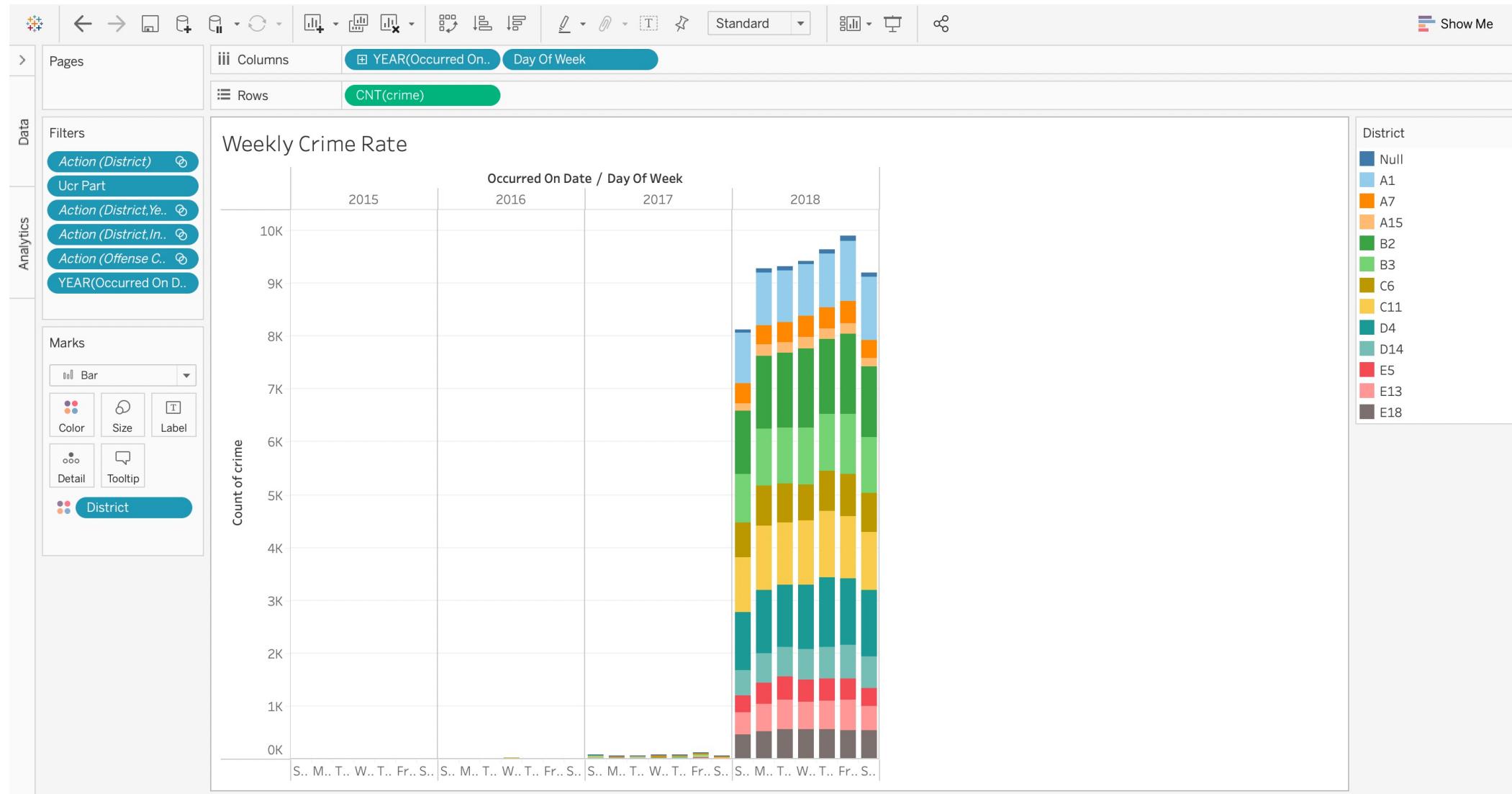
# ER DIAGRAM

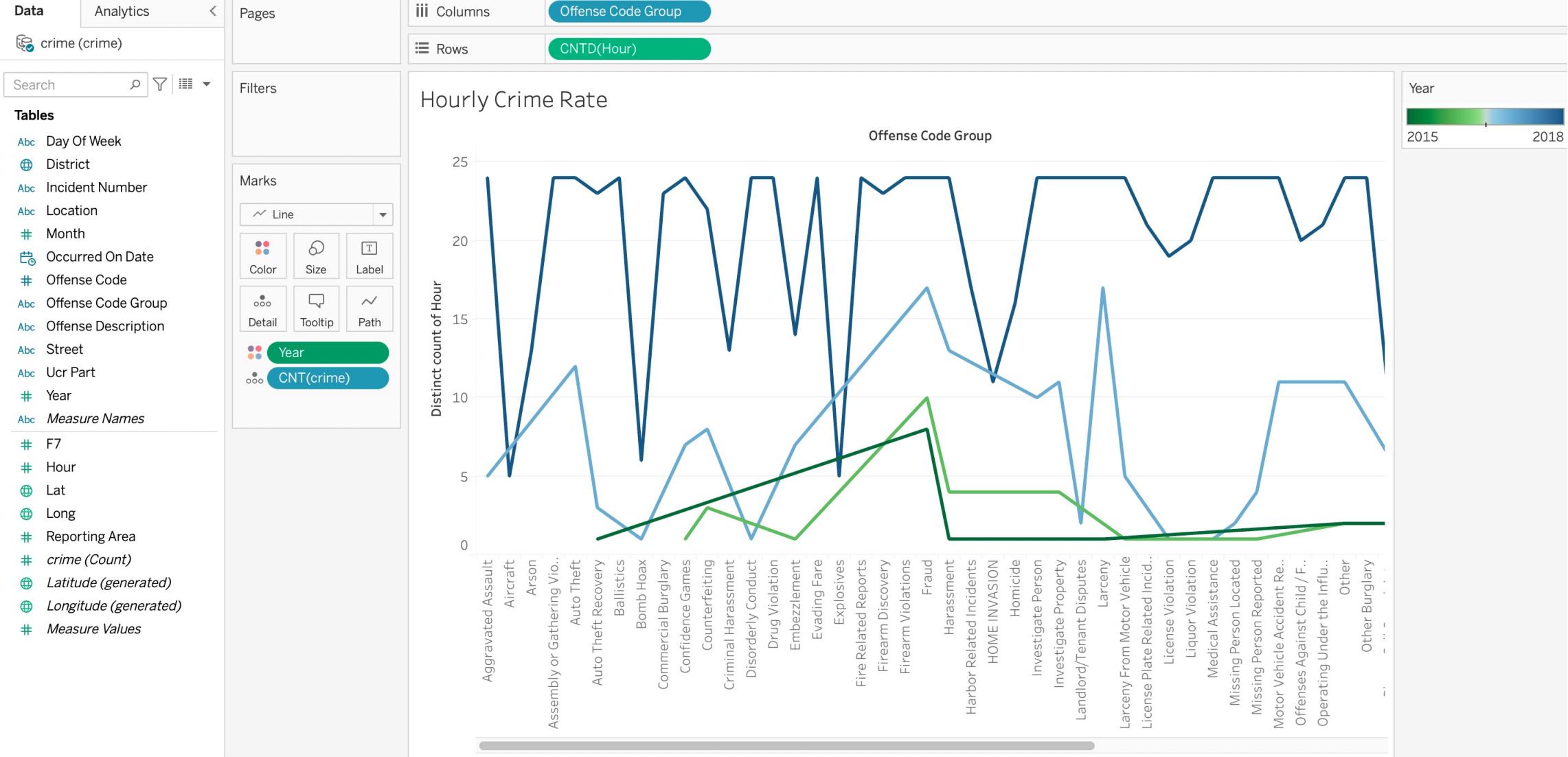


# TABLEAU VISUALIZATION

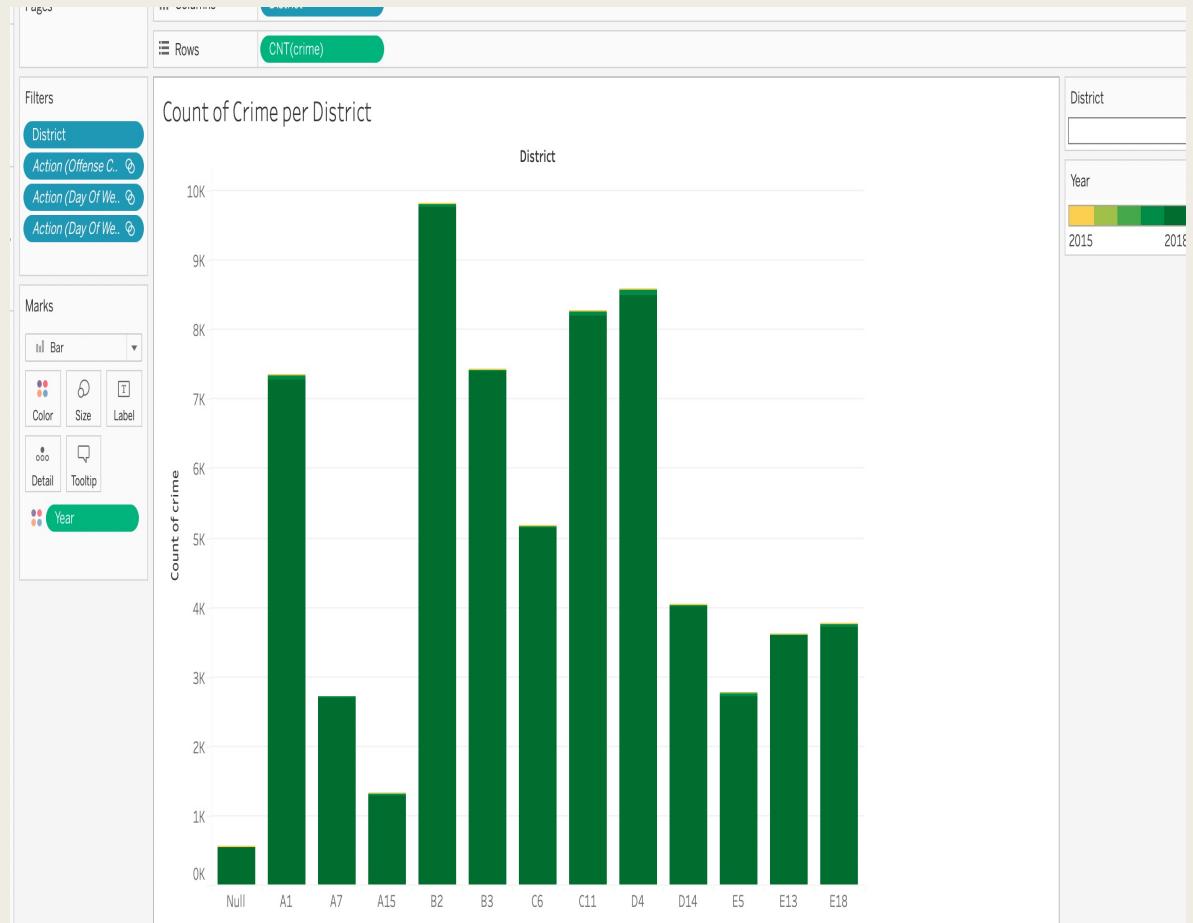






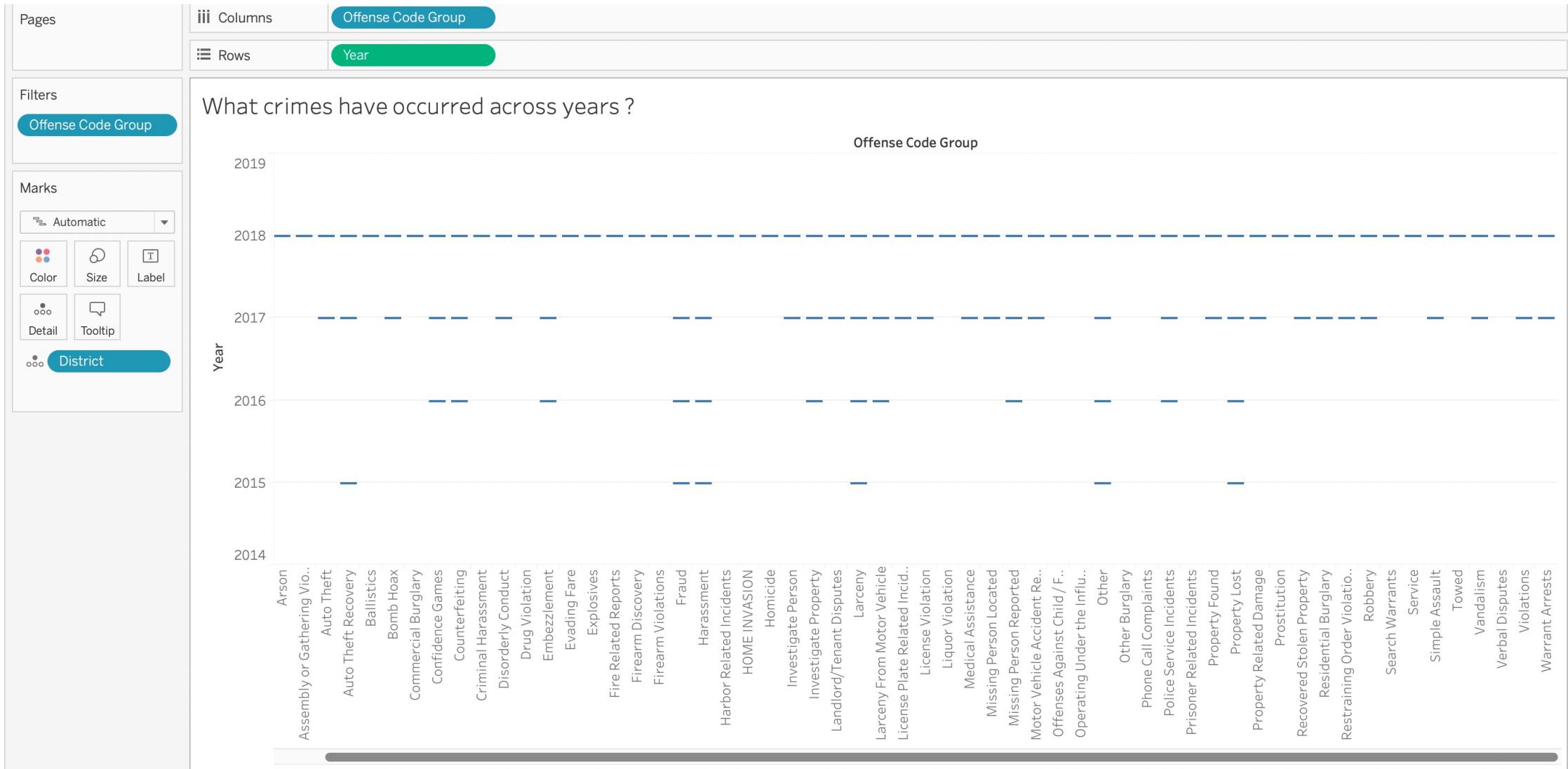


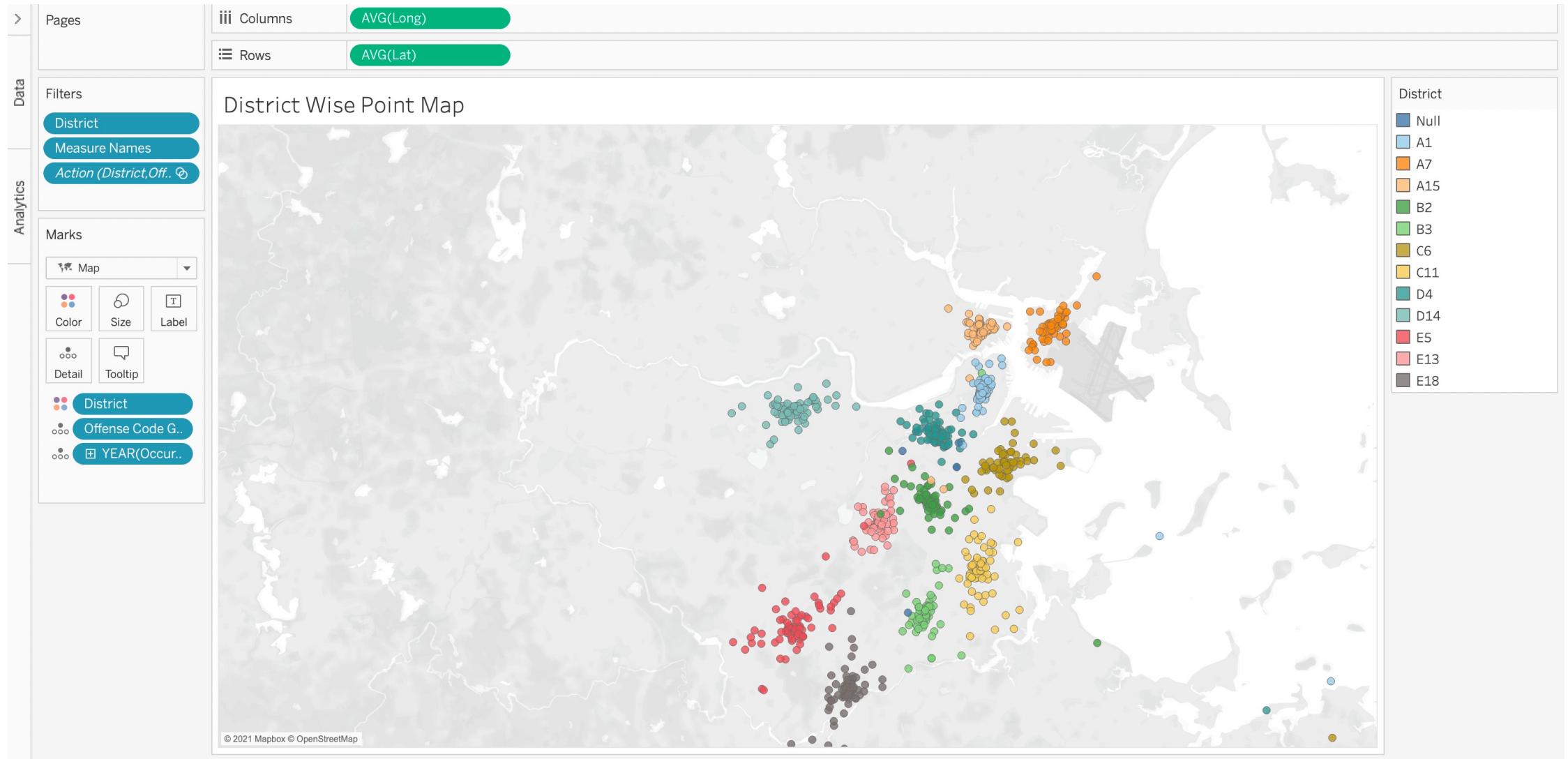


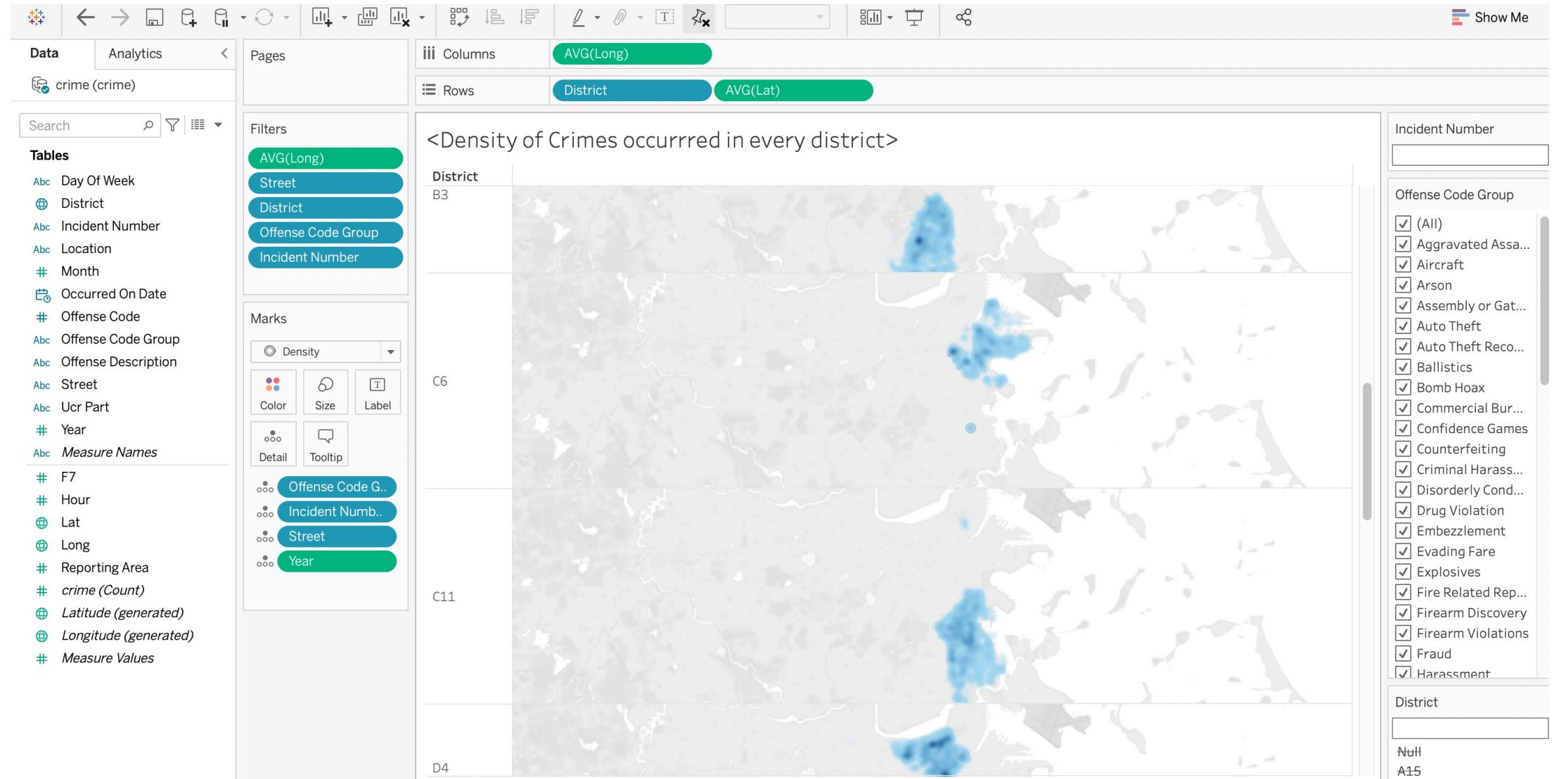


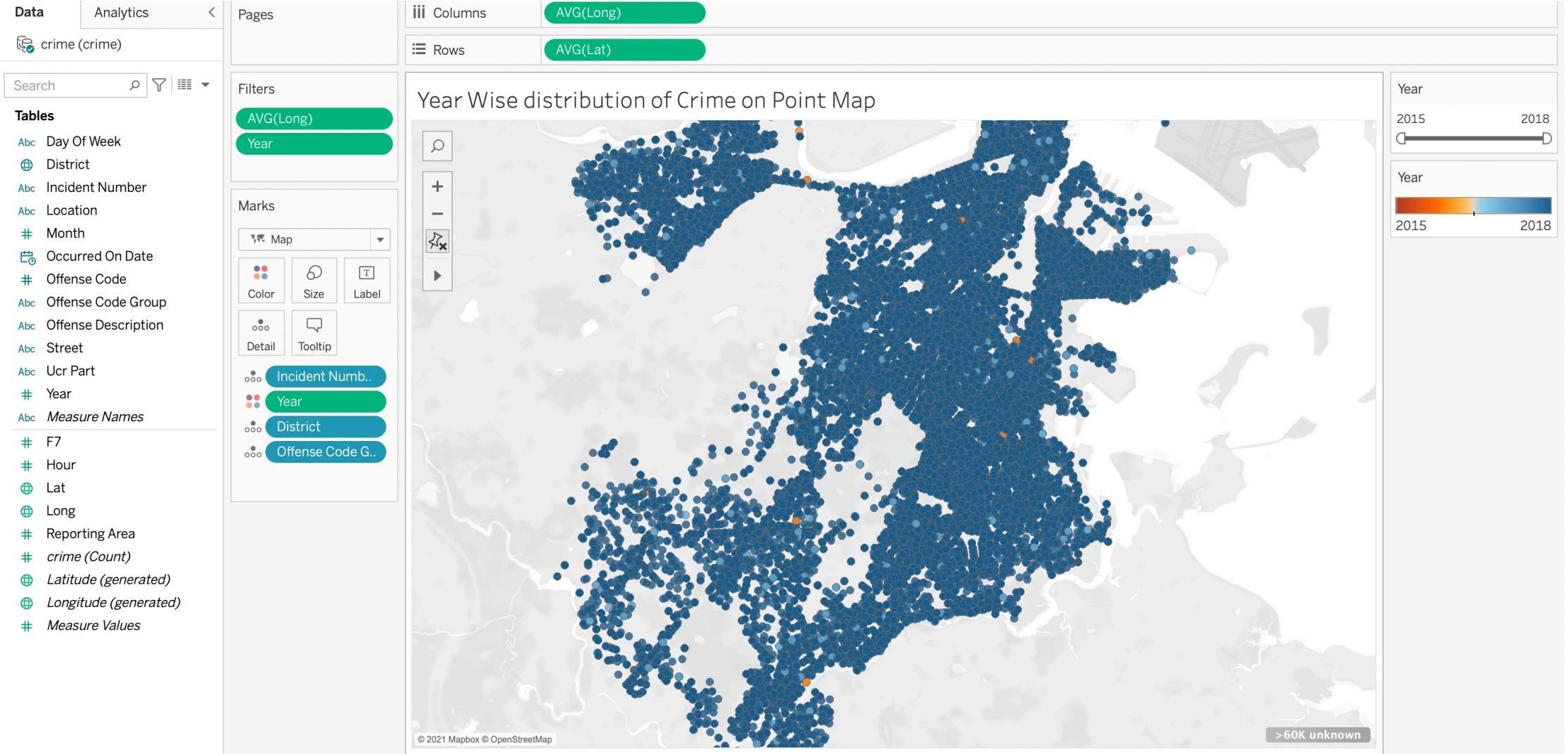
DISTRICT CODE	DISTRICT NAME
A1 and A15	Charlestown and Boston
A7	East Boston
B2	Roxbury
B3	Mattapan
C6	South Boston
C11	Dorchester
D4	South End
D14	Brighton
E5	West Roxbury
E13	Jamaica Plain
E18	Hyde Park



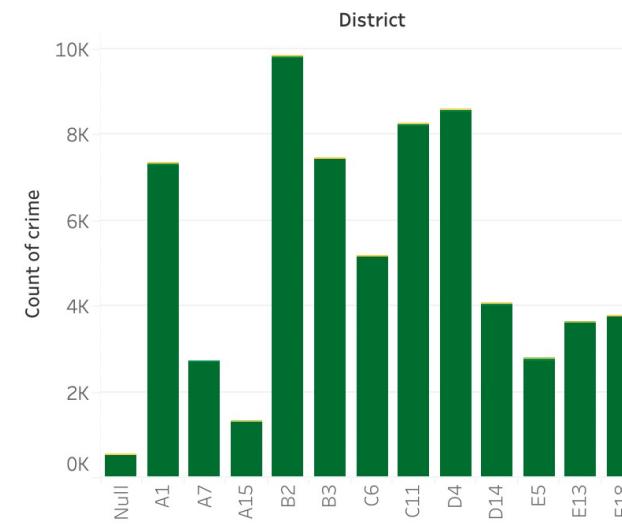




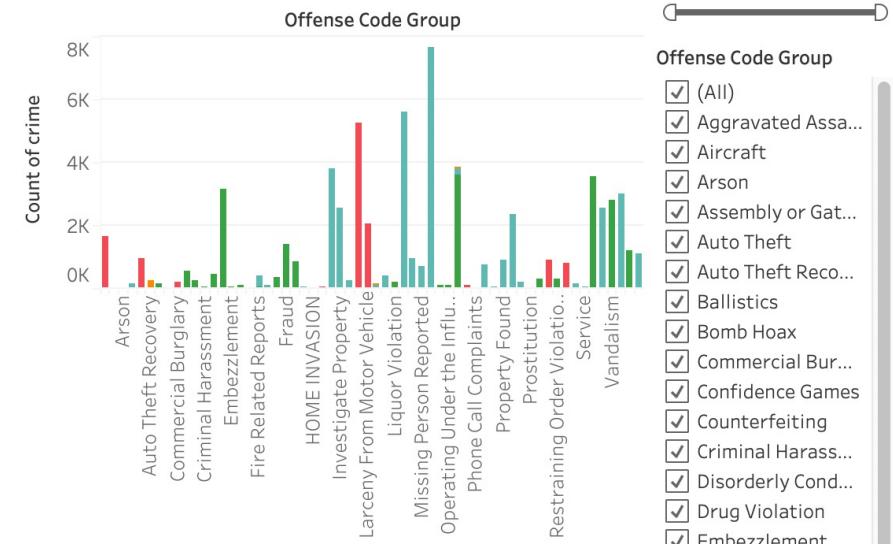




### Count of Crime per District



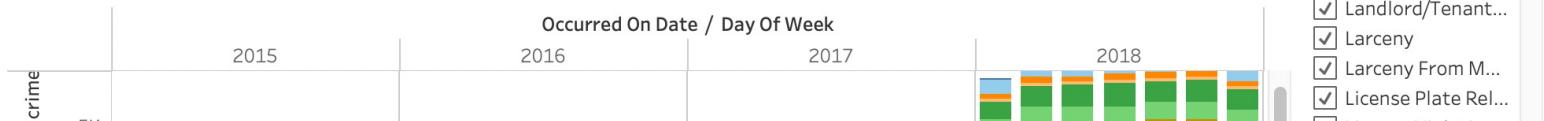
### Count-Type of Offence Crime



### Offense type every District

	District											
Offense Co..	Null	A1	A7	A15	B2	B3	C6	C11	D4	D14	E5	E13
Aggravated..	Abc	Abc	Abc	Abc	Abc	Abc	Abc	Abc	Abc	Abc	Abc	Abc
Aircraft				Abc								
Arson		Abc		Abc	Abc			Abc	Abc	Abc	Abc	
Assembly o..	Abc	Abc	Abc	Abc	Abc	Abc	Abc	Abc	Abc	Abc	Abc	Abc

### Weekly Crime Rate



Count of crime

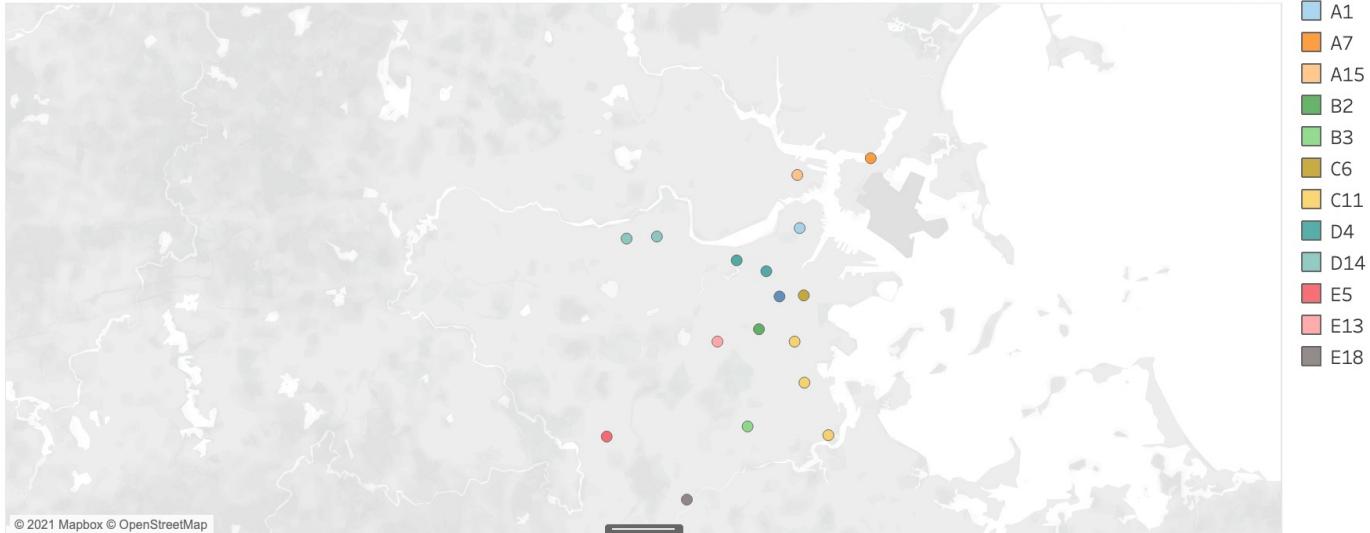
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Offense Code Group

- (All)
- Aggravated Assa...
- Aircraft
- Arson
- Assembly or Gat...
- Auto Theft
- Auto Theft Reco...
- Ballistics
- Bomb Hoax
- Commercial Bur...
- Confidence Games
- Counterfeiting
- Criminal Harass...
- Disorderly Cond...
- Drug Violation
- Embezzlement
- Evading Fare
- Explosives
- Fire Related Rep...
- Firearm Discovery
- Firearm Violations
- Fraud
- Harassment
- Harbor Related I...
- HOME INVASION
- Homicide
- Investigate Pers...
- Investigate Prop...
- Landlord/Tenant...
- Larceny
- Larceny From M...
- License Plate Rel...



## District Wise Point Map



What crimes have occurred across years ?

Offense Code Group

Year

Aircraft Gathering.. Theft Recovery Bomb Hoax Game Harassment lug Violation Vading Fare ted Reports n Violations Harassment E INVASION gate Person nant Dispu.. im Motor V.. se Violation Assistance son Report.. ainst Child.. Other Complaints lated incid.. operty Lost Prostitution al Burglary Robbery Service Towed al Disputes ant Arrests

# ANALYSIS

Since the data for 2015 and 2016 is negligible compared to the 2017 and 2018 data, most of the analysis is based on these 2 years.

- There has been a jump in the crime rate from 2016 - 2017/2018.
- The **B2 District** has had the highest crime rate through out these 4 years.
- The month with the highest crime rate for the year **2017** is December, 2018 is May.
- The **Safest District** in Boston as per the dataset is A15(Charlestown). But as per the current statistics the D14 (Brighton) is the safest district in Boston.

# ANALYSIS

So here we see that the highest frequency crime in majority of the states is MV Accidents

DISTRICT	CRIME
A1	Larceny from Motor Vehicle
A15	Motor Vehicle accident response.
A7	Medical Assistance.
B2	MV Accident response.
B3	MV Accident Response
C6	MV Accident Response
C11	MV Accident Response
D4	Larceny from Motor Vehicle
D14	MV Accident Response
E5	Medical Assistance
E13	MV accident Response
E18	MV Accident Response

# STATISTICS

## (As per the current numbers)

- Boston sees **655 violent crimes per 100,000**, making the city less safe than 83 percent of US cities. The violent crime rate in Boston is nearly double the national violent crime rate. People in Boston have a 1 out of 153 chance of becoming a victim of crime, compared to a 1 in 296 in the state of Massachusetts.
- The Massachusetts murder/homicide rate for 2017 was **2.51 per 100,000 population**, a 26.77% increase from 2016. The Massachusetts murder/homicide rate for 2016 was 1.98 per 100,000 population, a 2.59% increase from 2015.
- According to the WalletHub study, Boston is among the top six cities with the highest number of hate crimes per capita.
- Boston ranked No. 99.

THANK YOU