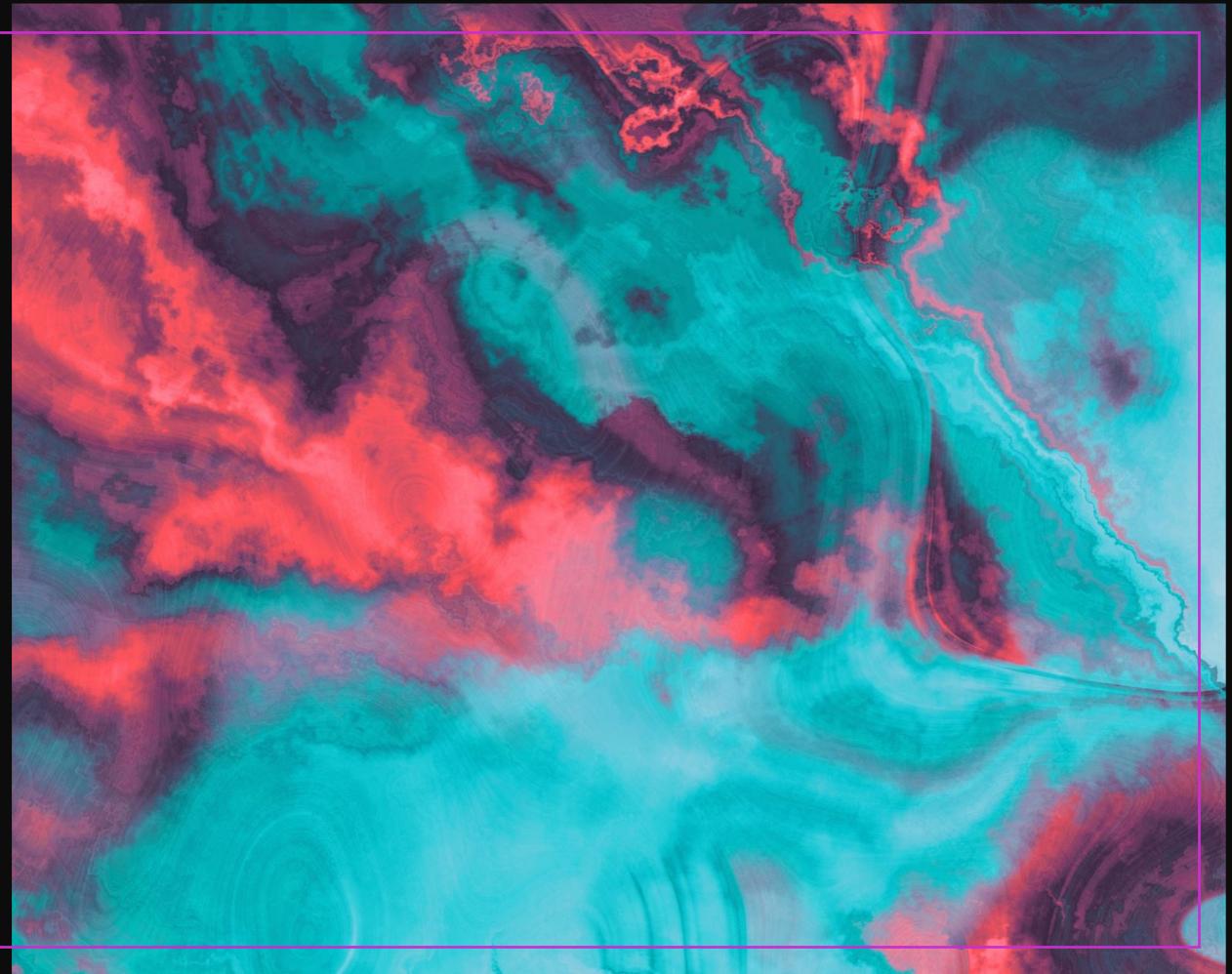


AABER Analytics

Investigating Crime Patterns in Austin, TX

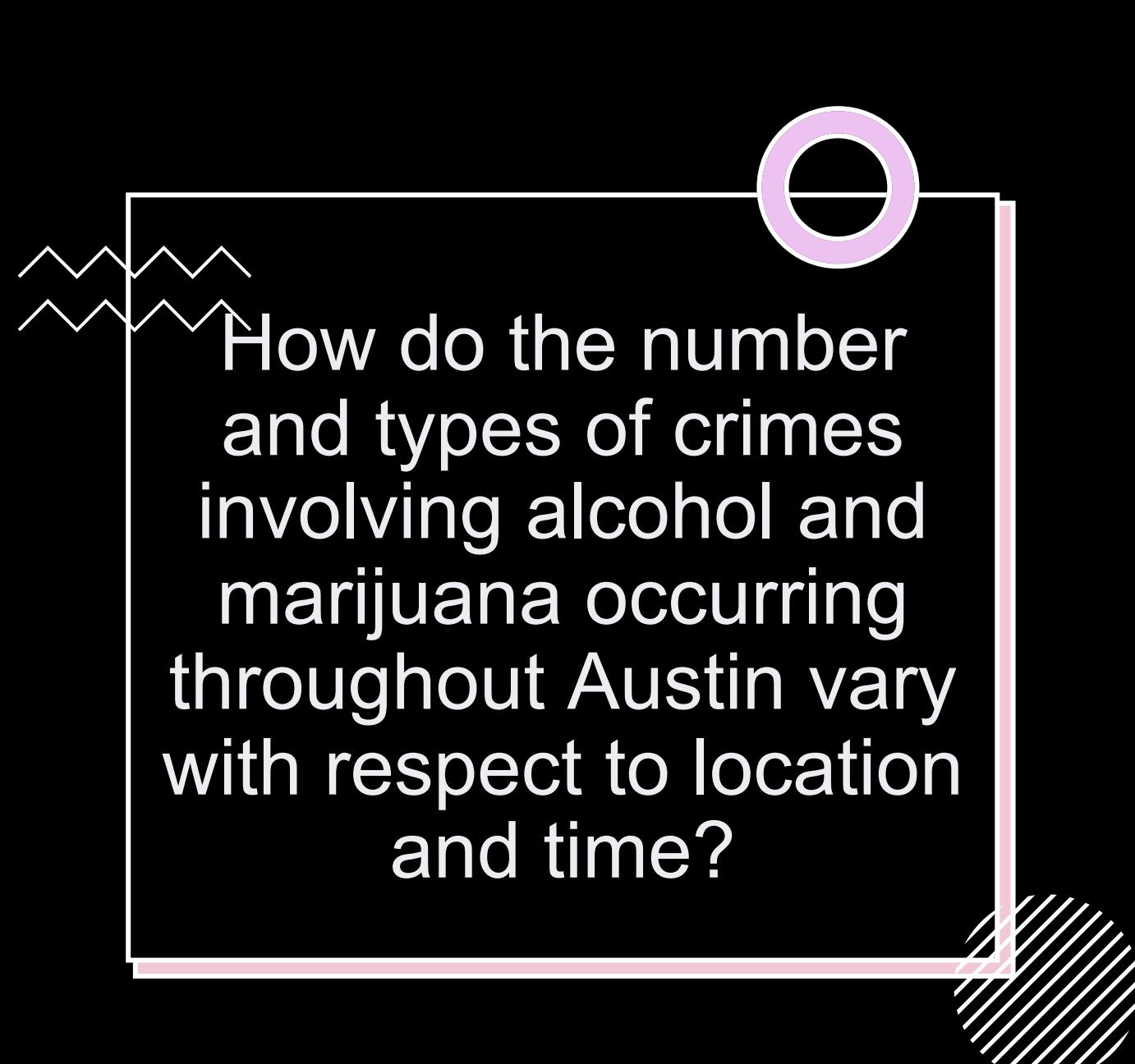


Objective and Data Source Used

We chose to analyze the public safety (data catalog) more precisely the crime reports around Austin, Texas over the years.

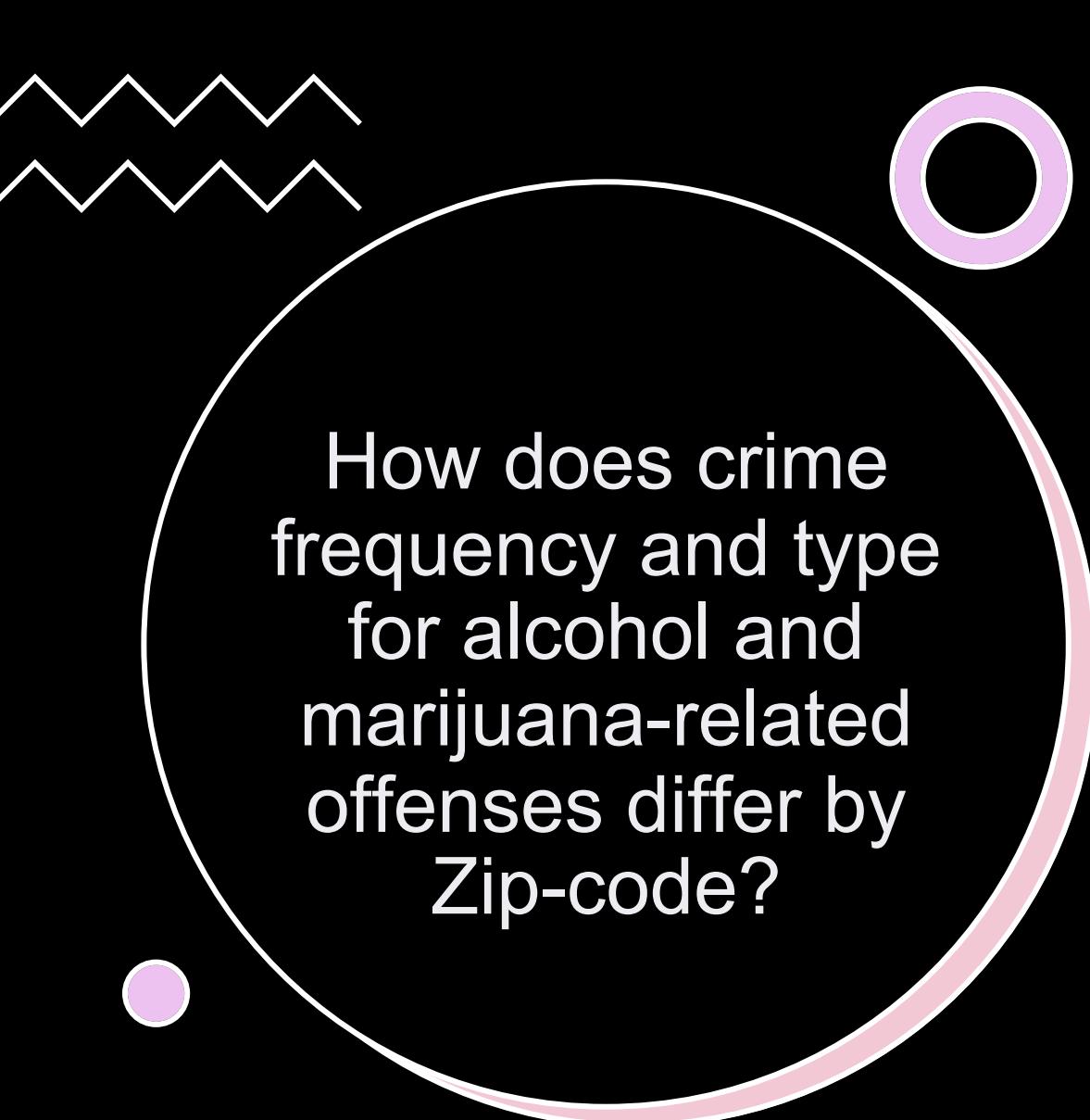
On exploring the City of Austin - Public Data Portal and the available data sources, the Crime Reports dataset looked interesting and has larger scope on analysis and visualization.

We decided on Crime Reports specifically towards Alcohol and Marijuana use. we analyzed them and made some useful visualization related to Location and time.



How do the number and types of crimes involving alcohol and marijuana occurring throughout Austin vary with respect to location and time?

- Hypothesis:
- Alcohol-related crimes are more likely to occur in the same areas as marijuana-related crimes.
- Alcohol-related crimes are more likely to occur at different times of day and days of week than marijuana-related crimes.
- Day of week.



How does crime frequency and type for alcohol and marijuana-related offenses differ by Zip-code?

- Hypothesis:
- There are more crimes in the downtown zip codes? Look at the types of crimes. I imagine distribution vs. possession will be different.
- In the scope of our research we did not do that. We will if we have further time and resources.



Clean-up Process



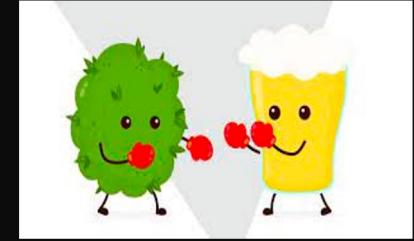
- Locations outside of Austin



- NaN values



- Crimes reported before Occurrence



Selecting only relevant Marijuana and Alcohol Crime Types

BEFORE

Data Categories	Number of Cases
Possession of Marijuana	37,634
Possession* of Synthetic Marijuana	1,023
Delivery* Marijuana	221
Delivery* Synthetic Marijuana	116
Manufacturing* Controlled Substance*/Synthetic* Narcotic*	20
Manufacturing* Synthetic Marijuana	1
DWI	72,892
DWI 2 nd	10,202
DWI .15 BAC or above	6,036
DWI – Drug Recognition Expert	1,206
DWI - Child Passenger	1,088
VOCO (Violation of City Ordinance*) - Alcohol Consumption	9708
Possession* of Alcohol - Age 17 to 20	3109
Possession* of Alcohol - Age 16 & under	376
Delivery* of Alcohol to Minor	131
Possession* of Drug Paraphernalia	35,288
Possession* Controlled Substance*/Synthetic* Narcotic	1,630

Data Categories Cont..	Number of Cases Cont..
Poss(ession*) Controlled Sub(stance*)Narcotic	35,054
Driving while Intox(icated*)/Felony	4,401
Liquor Law Violation/Other	2,748
Obtain Controlled Sub(stance*) by fraud	1,442
DUI - Age 17 to 20	1,417
Tobacco Viol(ation*) - Under Age 17	708
Tobacco Viol(ation*) - Age 17	333
Crash/Intoxication Assault	366
Del(ivery*) Controlled Sub(stance*)/Syn(thetic*) Marijuana	320
Making Tobacco Avail(able*) to Minor	247
Del(ivery*) Controlled Sub(stance*)/Other	184
DUI - Age 16 and Under	124
Manf(ufacturing*) Controlled Sub(stance*) – Other	110
Distr(ibute*) Harmful Material Minor	104
Dang(erous*) Drug Viol(ation*) – Other	71
Crash/Intox(icated*) Manslaughter	66
Obtain Dang(erous*) Drug By Fraud	66

Data Categories Cont..	Number of Cases Cont..
Expired-Att(empt*) Obt(ain*) Cont(rolled*) Sub(stance*) Fraud	65
Controlled Sub(stance*) Viol(ation*) - Other	48
Boating While Intoxicated	41
Del(ivery*) of Dang(erous*) Drug	15
Expired-Att(empt*) Ob(tain*) Dang(erous*) Drug Fraud	10
Sale of Liq(uor*) Without Permit	7
BWI (Boating While Intoxicated)-Expired Use 2110	7
Tobacco Viol(ation) - Under Age 21	5
Poss(ession*) of Liq(uor*) on School Property	3
Sale of Liq(uor*) In Prohib(ited*) Area	2
Sale of DXM (Dextromethorphan - medication used as cough suppressant) to Minor	1
Illegal Transportation of Liq(uor*)	1

AFTER

Data Categories	Number of Cases
Possession of Marijuana	37,634
Poss(ession*) Synthetic Marijuana	1023
Del(ivery*) Marijuana	221
Del(ivery*) Synthetic Marijuana	116
Man(facturing*) Synthetic Marijuana	1
DWI	72,892
DWI 2 nd	10,202
DWI .15 BAC (Blood Alcohol Content*) or above	6,036
DWI - Drug Recognition Expert	1,206
DWI - Child Passenger	1,088
VOCO (Violation of City Ordinance*) - Alcohol Consumption	9,708
Poss(ession*) of Alcohol - Age 17 to 20	3,109
Poss(ession*) of Alcohol - Age 16 & under	376
Del(ivery*) of Alcohol to Minor	131
Driving while Intox(icated*)/Felony	4,401
Liquor Law Violation/Other	2,748

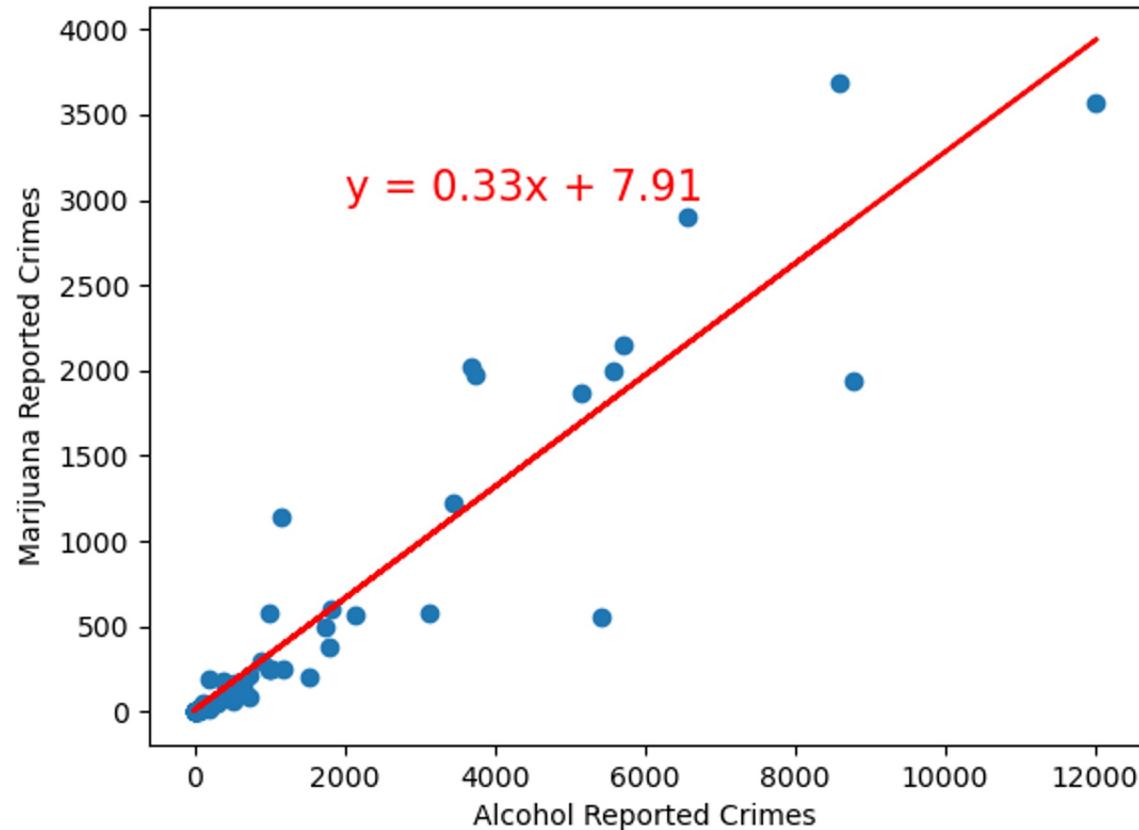
Data Categories	Number of Cases
DUI - Age 17 to 20	1,417
Crash/Intoxication Assault	366
Del(ivery*) Controlled Sub(stance*)/Syn(thetic*) Marijuana	320
DUI - Age 16 and Under	124
Crash/Intox(icated*) Manslaughter	66
Boating While Intoxicated	41
Sale of Liq(uor*) Without Permit	7
BWI (Boating While Intoxicated)-Expired Use 2110	7
Poss(ession*) of Liq(uor*) on School Property	3
Sale of Liq(uor*) In Prohib(itied*) Area	2
Illegal Transportation of Liq(uor*)	1

Data Exploration



- We chose to examine the City of Austin Open Data Portal, because it has large, clean, well documented datasets, and the data is relevant to members of the team.
- We looked at traffic incident data, crime reports data, police data,
- Specifically, we were interested in understanding how the number and types of crimes vary with respect to location and time and focused on two types of crimes:
 - Alcohol-Related Crime
 - Marijuana-Related Crimes

Correlation of Marijuana and Alcohol by Zip Code from 2003 to 2023



Top Zip Codes for Alcohol

Number of Reports	
78701.0	12011
78704.0	8778
78741.0	8588
78702.0	6574
78753.0	5712

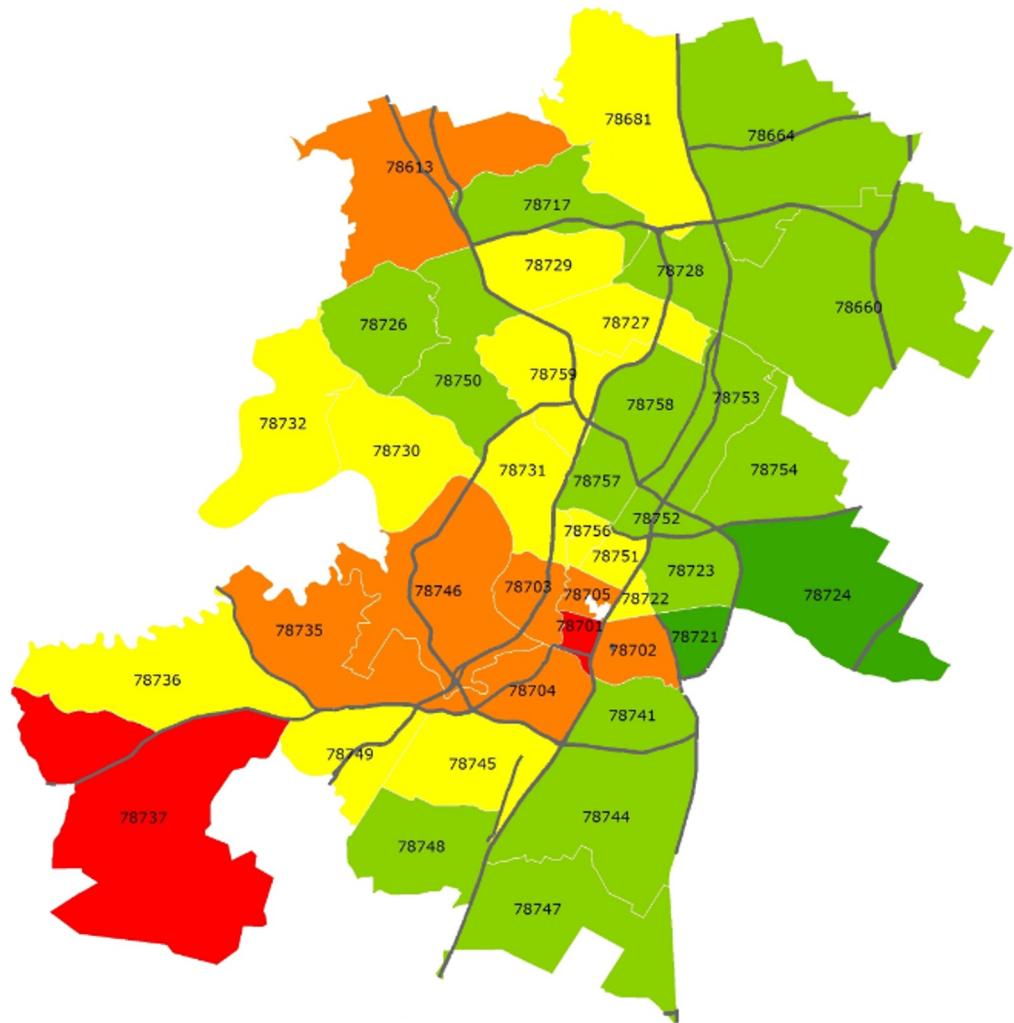
Top Zip Codes for Marijuana

Number of Reports	
78741.0	3682
78701.0	3572
78702.0	2902
78753.0	2156
78723.0	2017

The r-value is: 0.86

The correlation between both is 0.93

Average Rent by ZIP Code in Austin Natural Breaks



Top Zip Codes for Alcohol

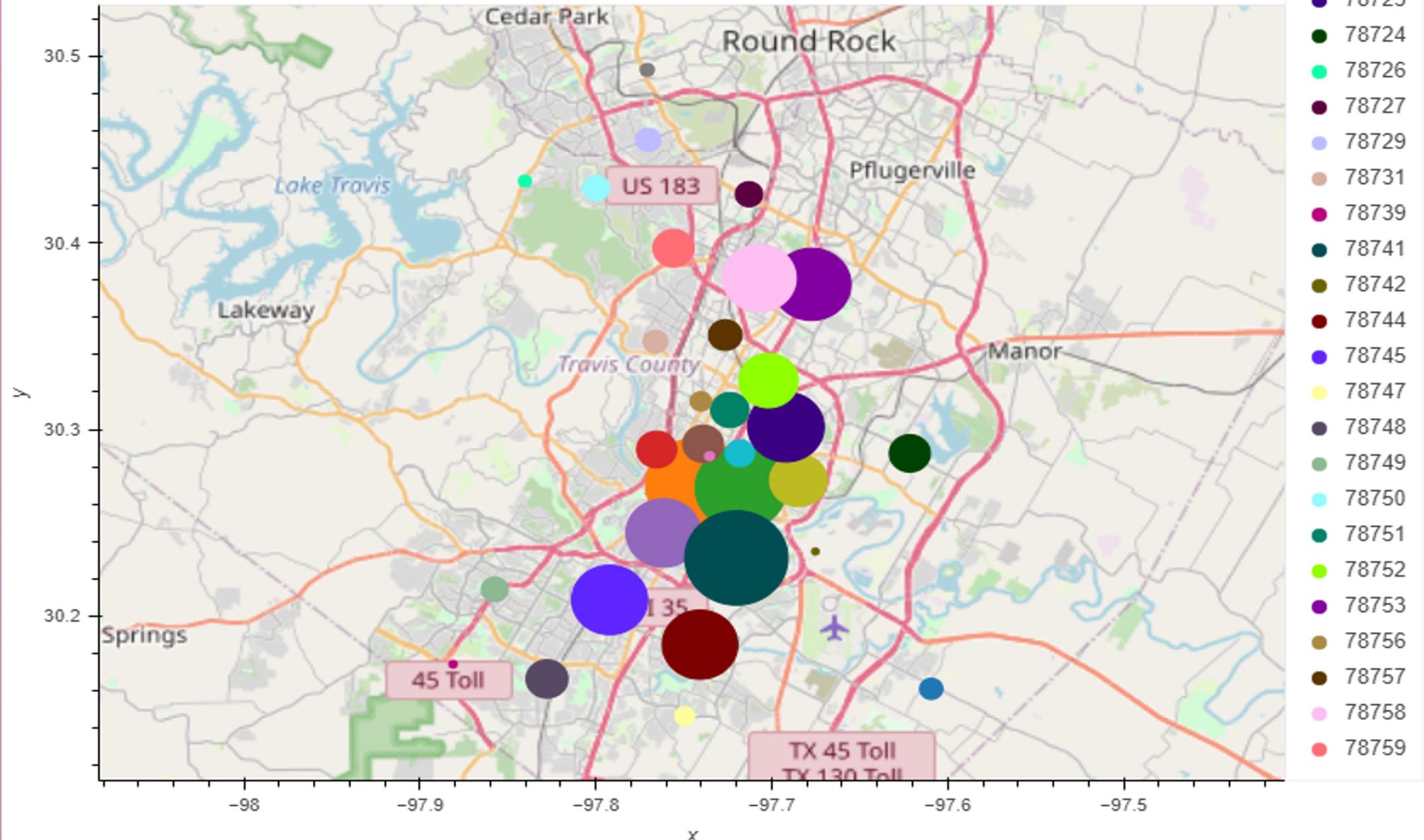
Number of Reports	
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78741.0	8588
78702.0	6574
78753.0	5712

Top Zip Codes for Marijuana

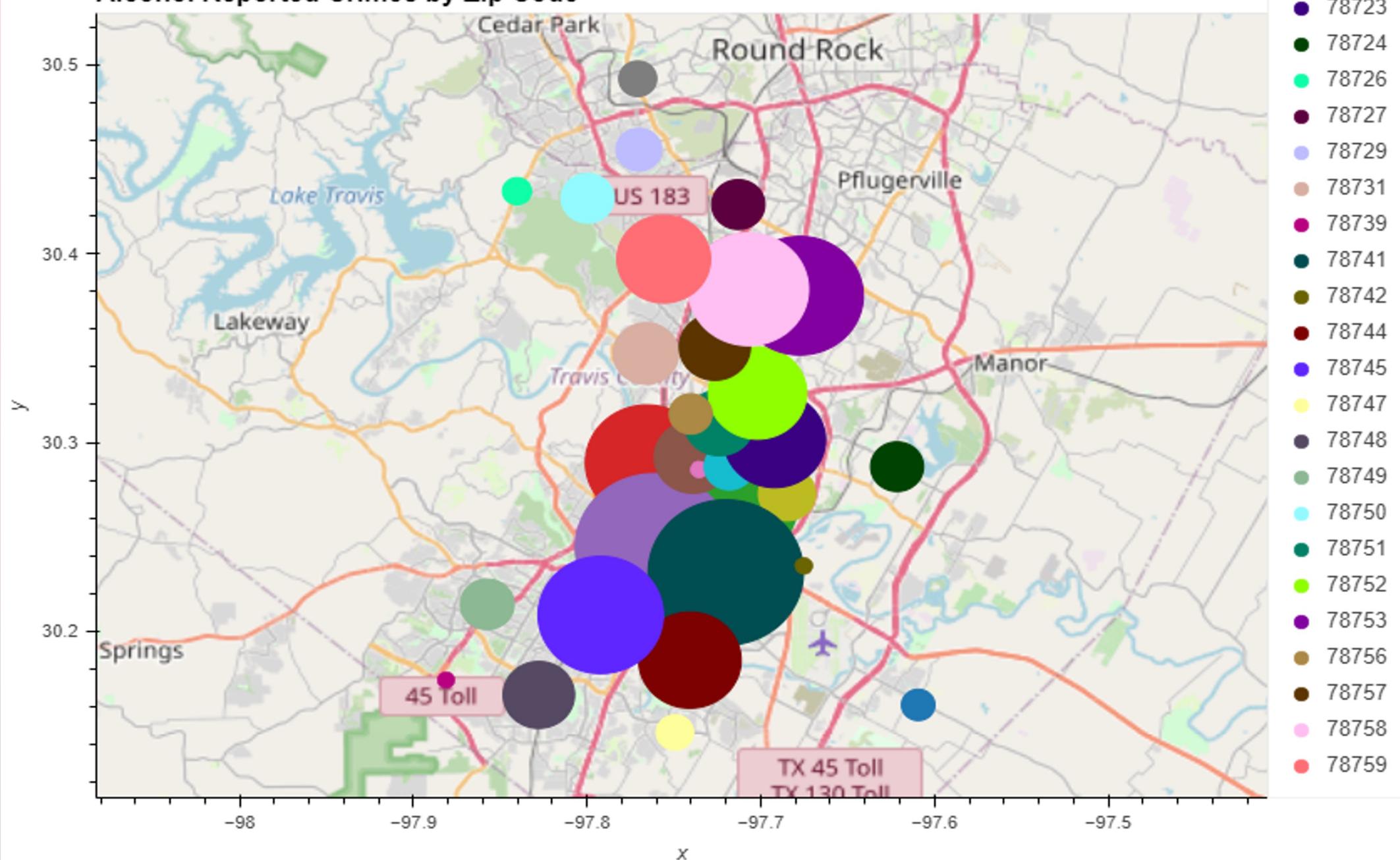
Number of Reports	
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78701.0	3572
78702.0	2902
78753.0	2156
78723.0	2017

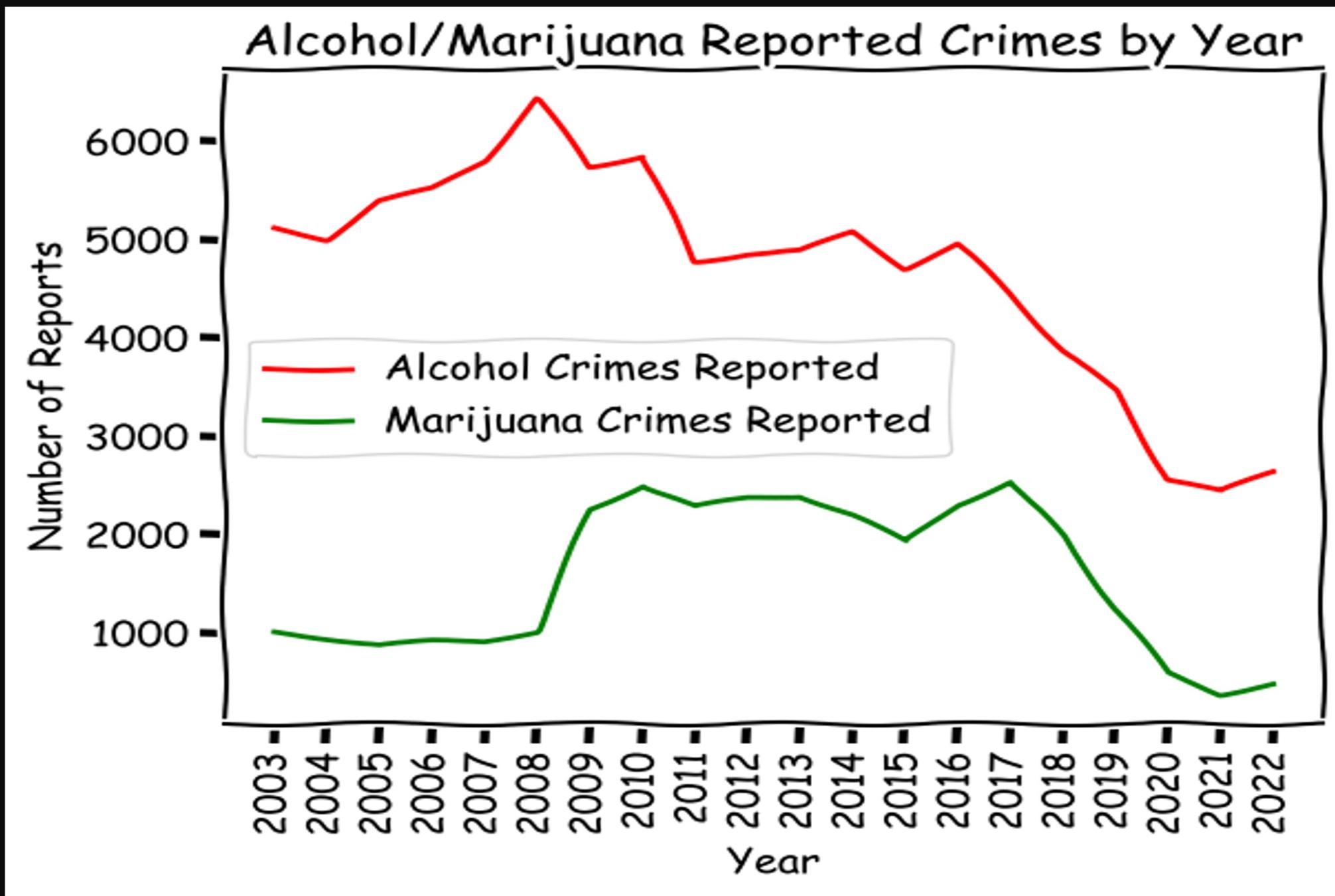
Final Data Analysis

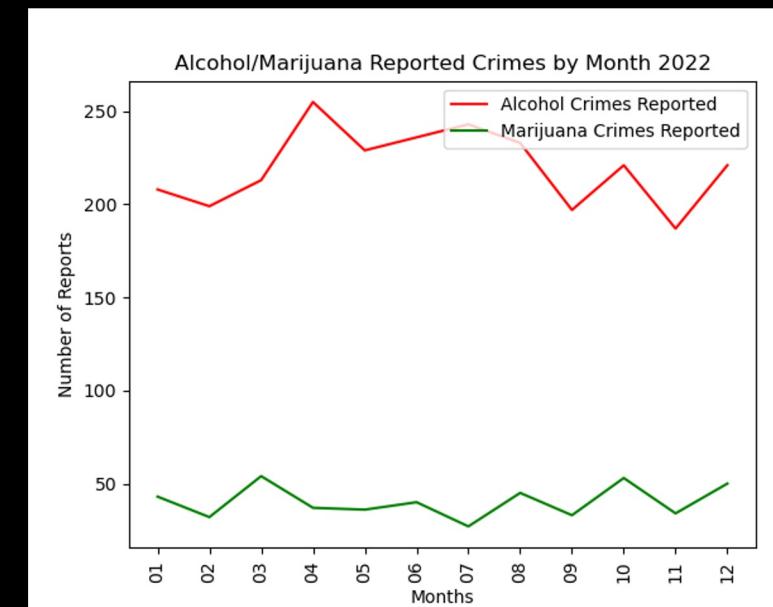
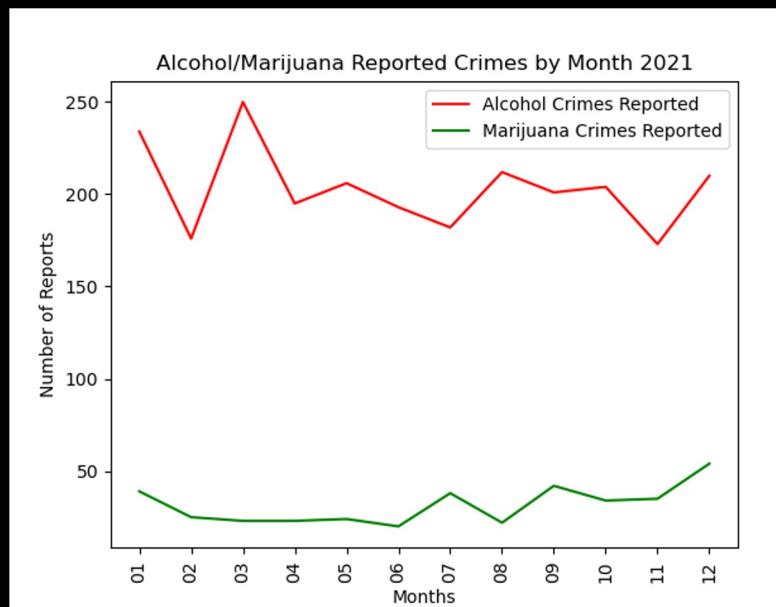
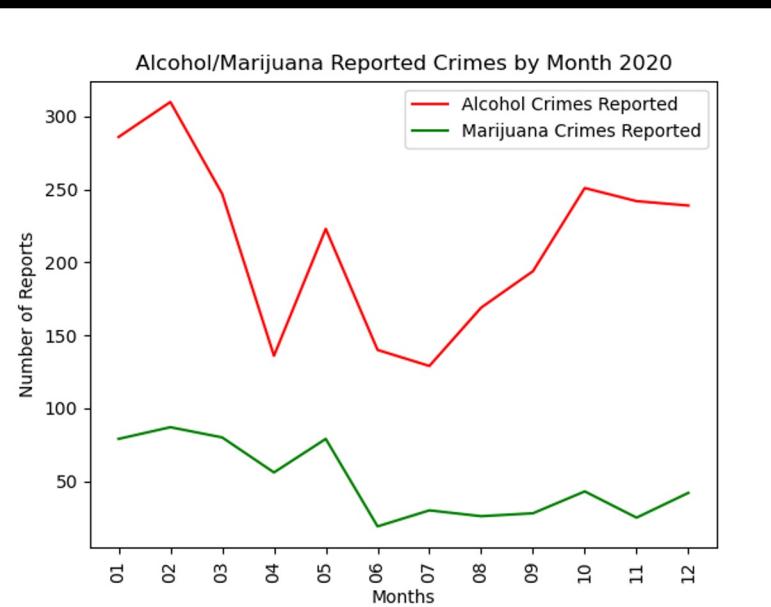
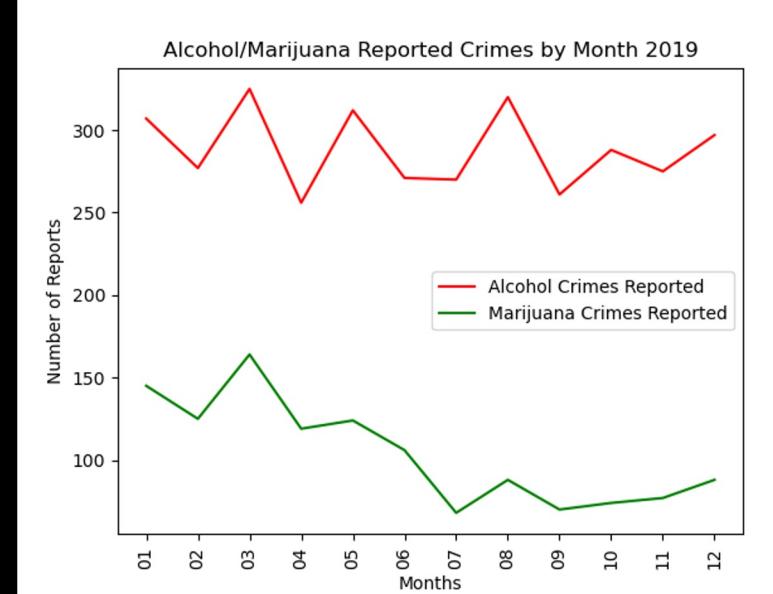
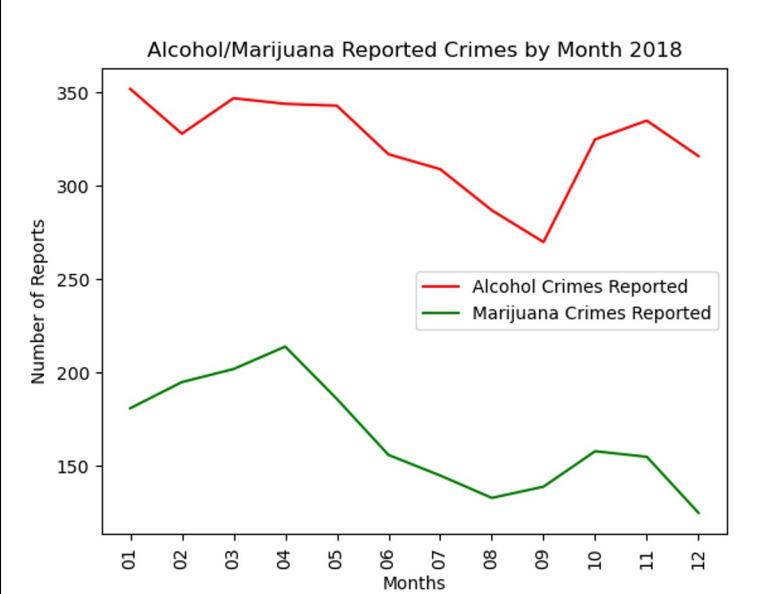
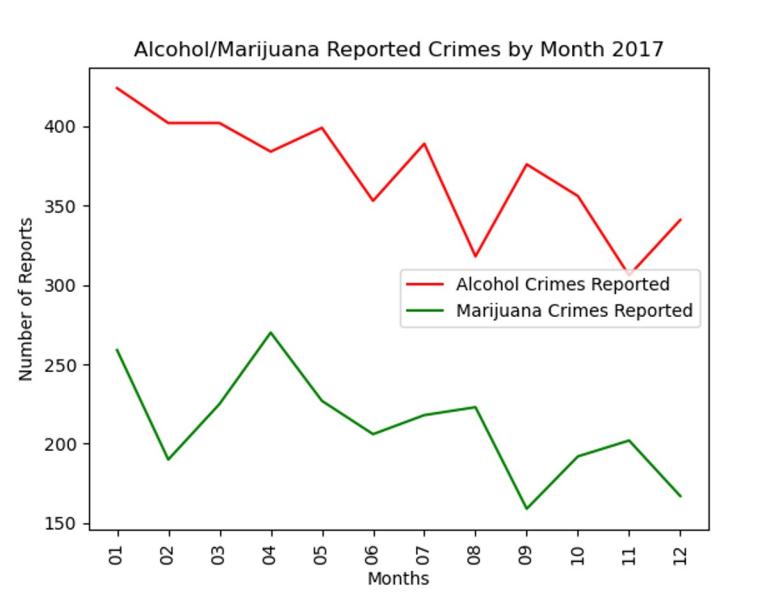
Marijuana Reported Crimes by Zip Code



Alcohol Reported Crimes by Zip Code

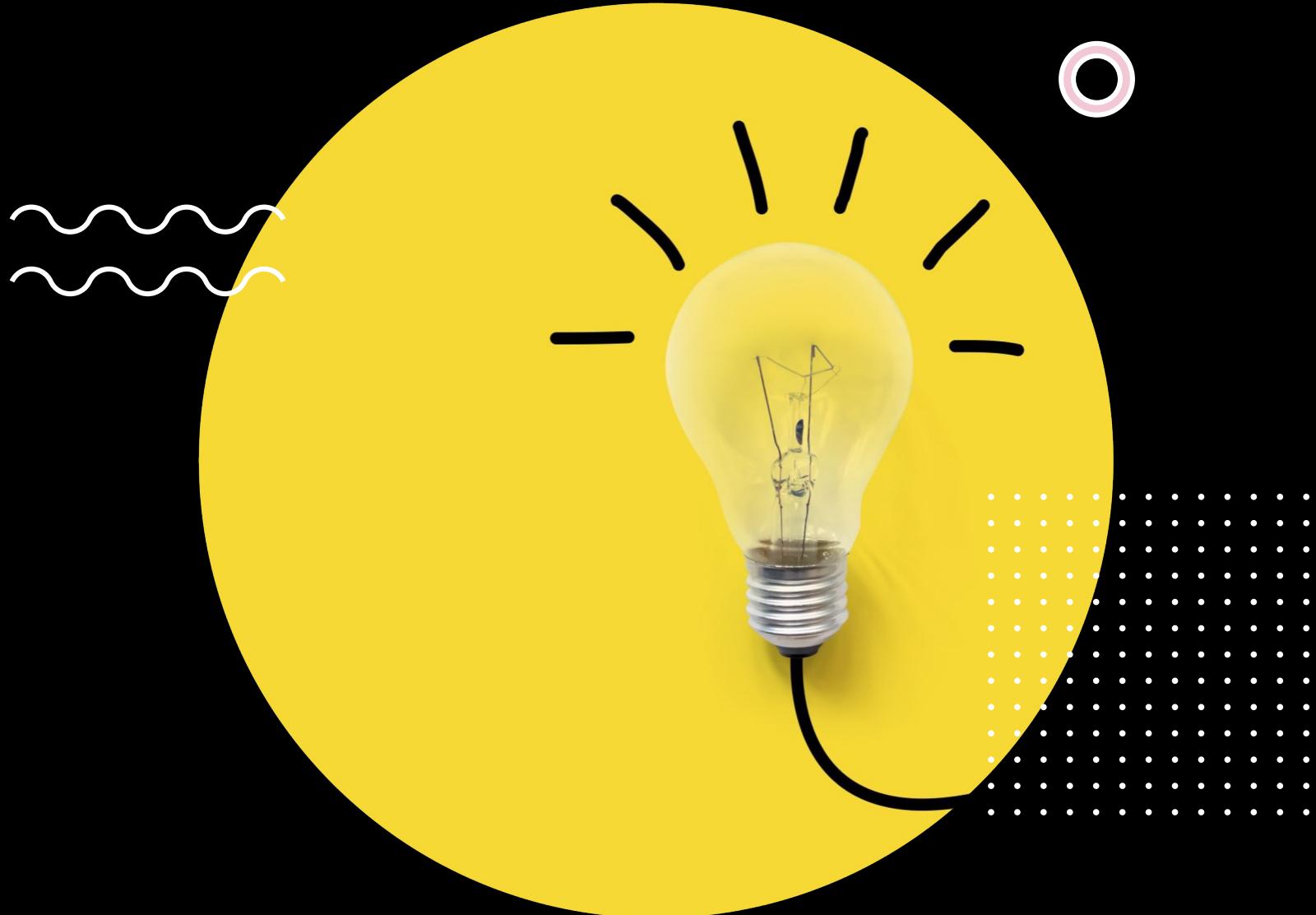




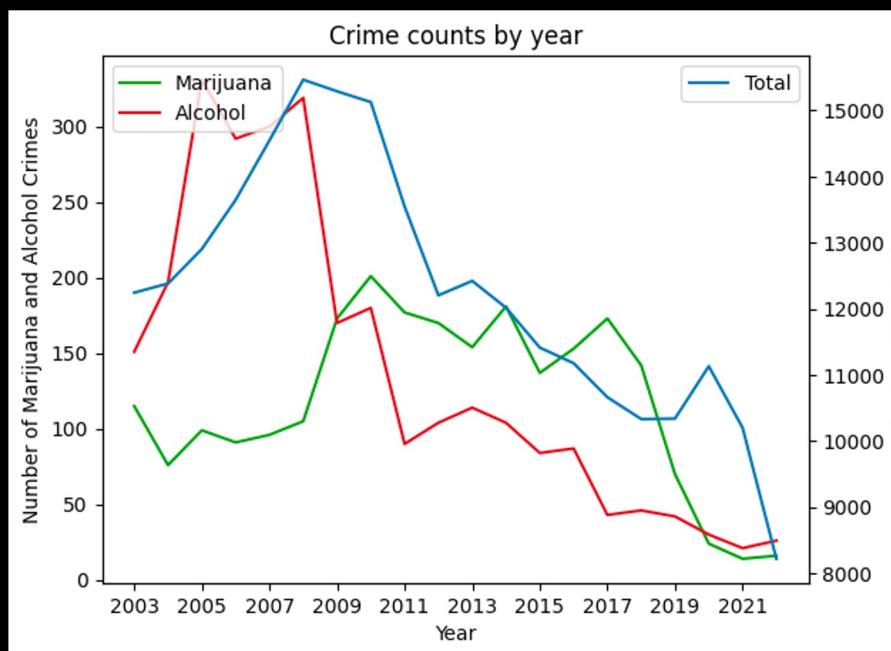
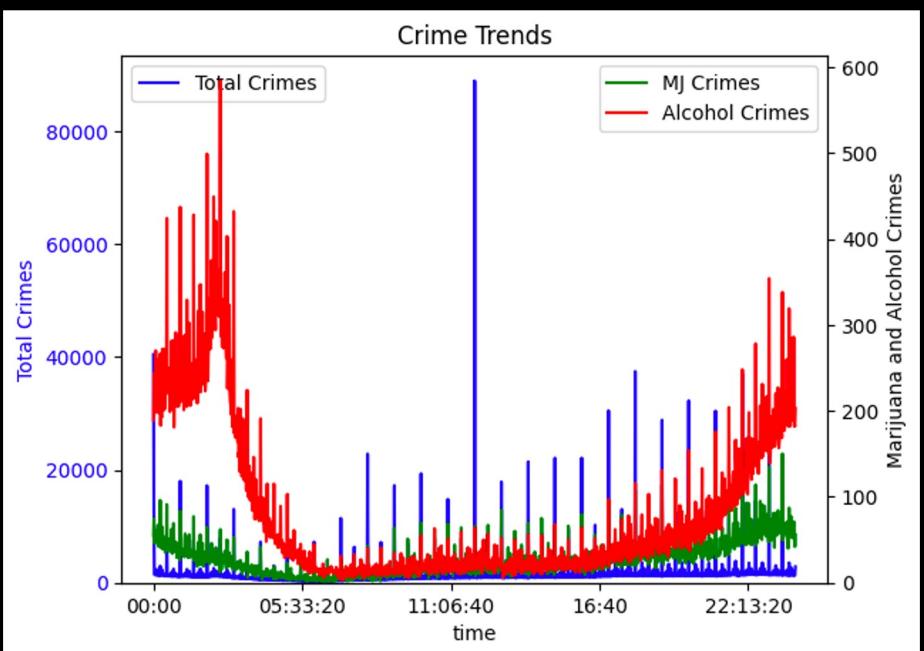
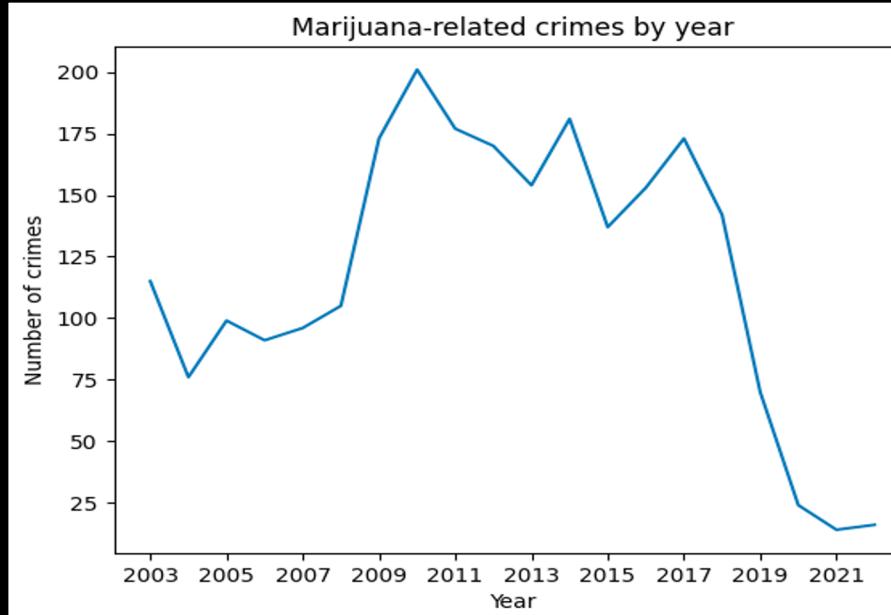
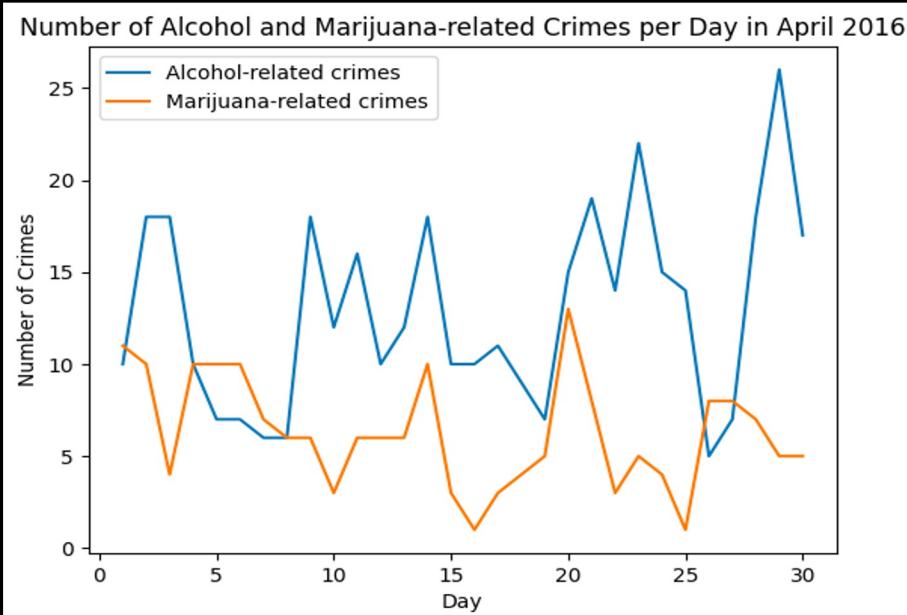


Alcohol & Marijuana Reported Crimes 2017 -2022

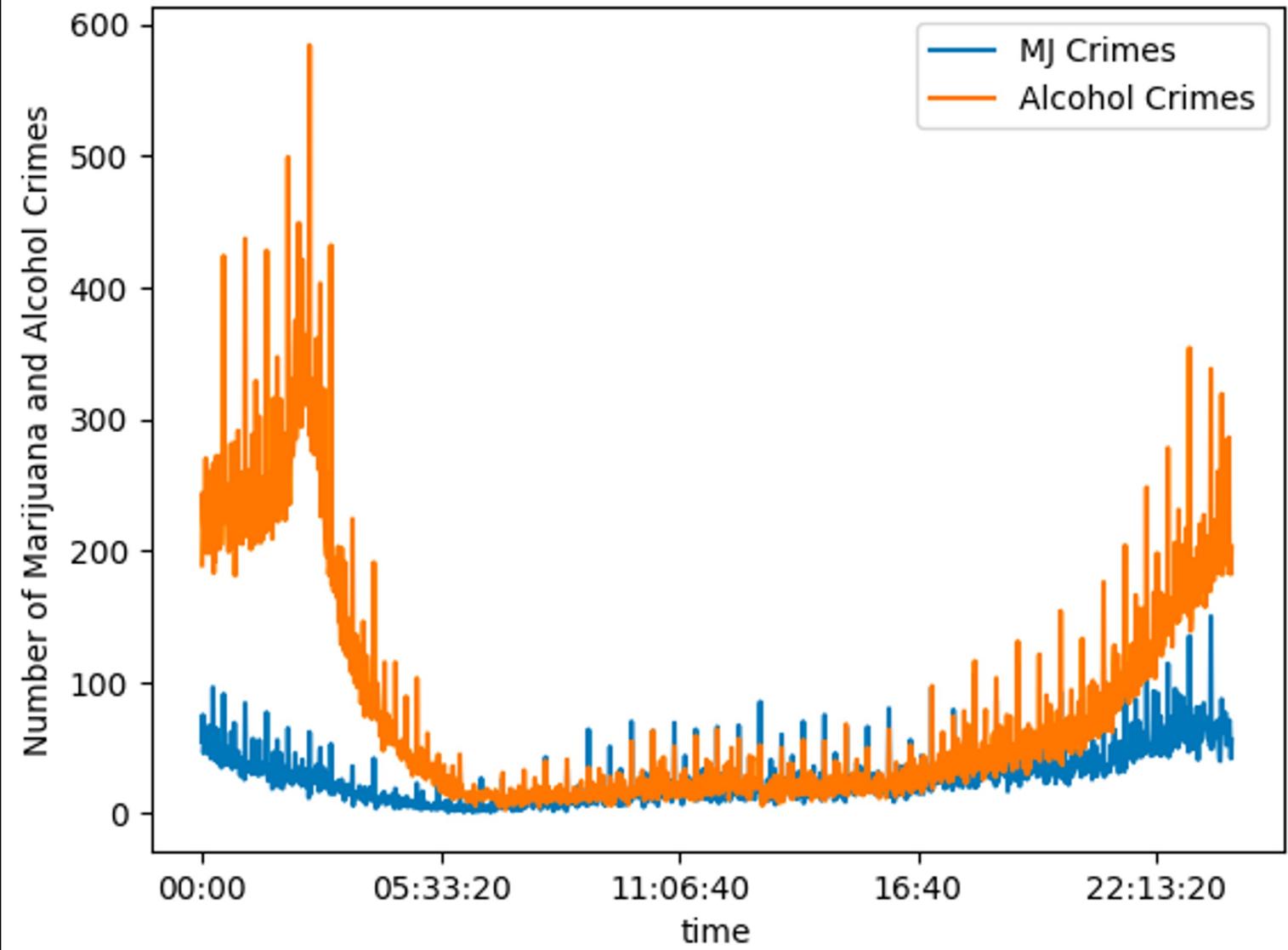
Major Findings



Some Conclusive Insights...



Marijuana and Alcohol Crimes 2003 - 2022



Alcohol & Marijuana Reported Crimes 2003 -2022

