

NYC PARKING CASE STUDY

SUBMISSION

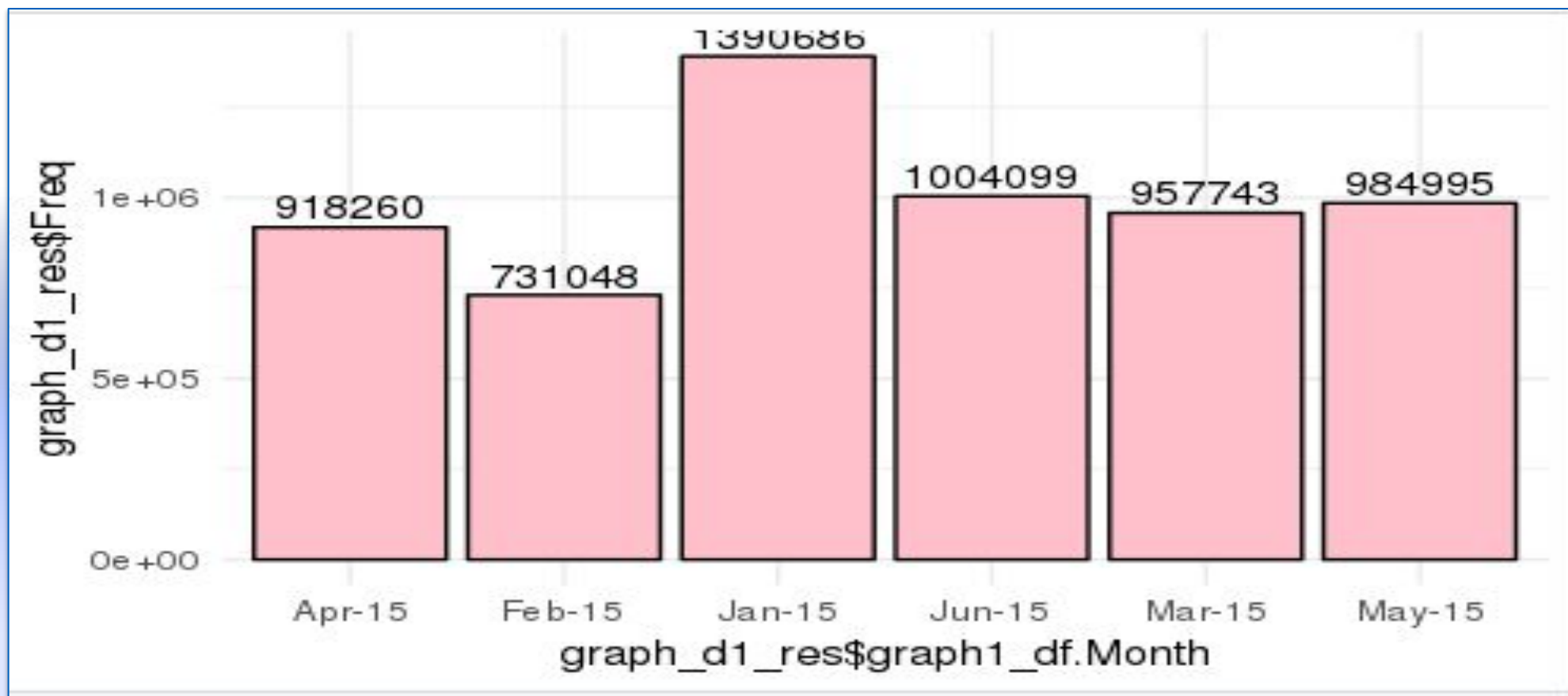
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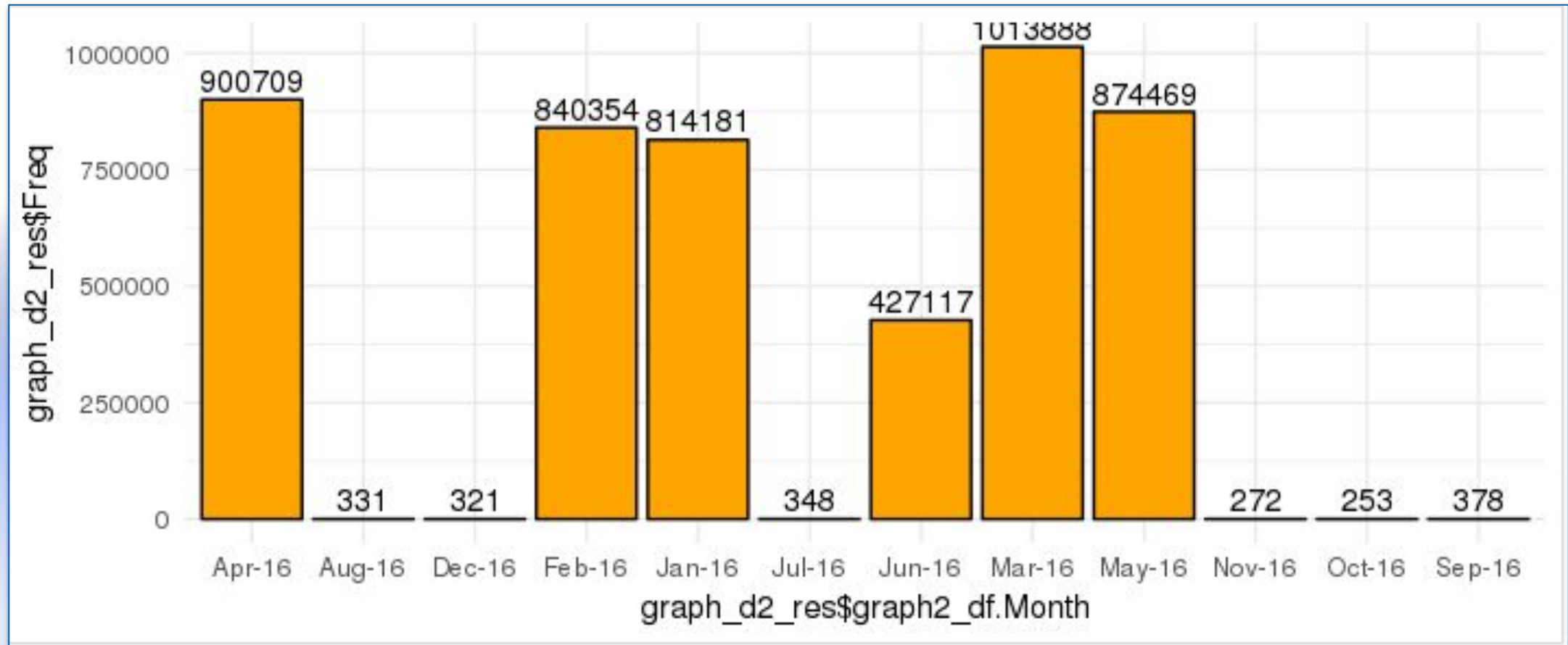
Examine Data ::Question 1 : Find total number of tickets for each year.

<u>Year</u>	<u>Number of Tickets Issued</u>
2015	10903411
2016	10241012
2017	5433018

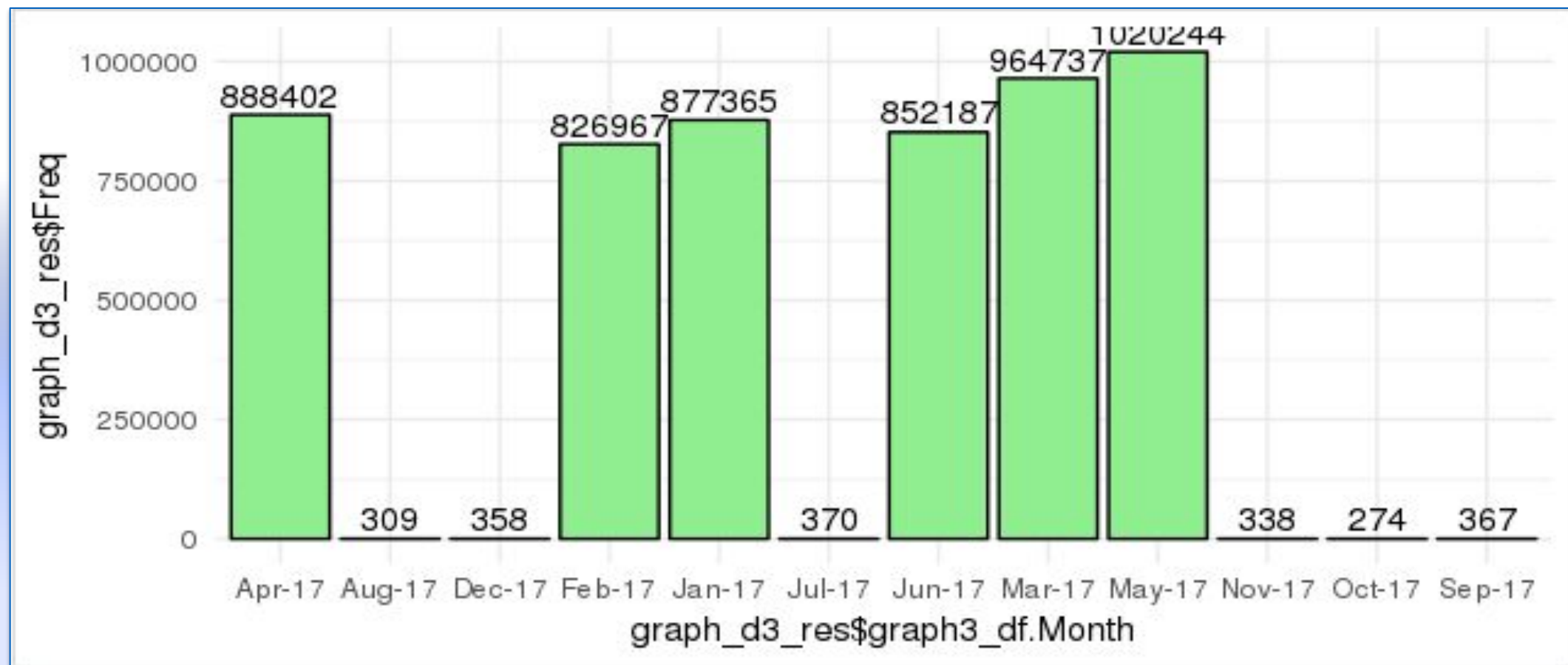
Frequency Distribution of Tickets Issued over the months in 2015



Frequency Distribution of Tickets Issued over the months in 2016



Frequency Distribution of Tickets Issued over the months in 2017





Examine Data :: Question 2 : Find out how many unique states the cars which got parking ticket came from?

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There are 69 unique states (Even though there are actually less number of States in US, we have been advised by TA on the Discussion Forum to use the data as it is.)

Examine Data :: Question 3 : Some parking tickets don't have address on them, which is a cause for concern. Find out how many such tickets are there?

A total of 5742031 parking tickets do not have address on them

Aggregation Task :: Question 1 : How often does each Violation Code occur (Top 5)?

Violation Code	Frequency : 2015	Violation Code	Frequency : 2016	Violation Code	Frequency : 2017
21	1630912	21	1531587	21	1528588
38	1418627	36	1253512	36	1400614
14	988469	38	1143696	38	1062304
36	839197	14	875614	14	893498
37	795918	37	686610	20	618593

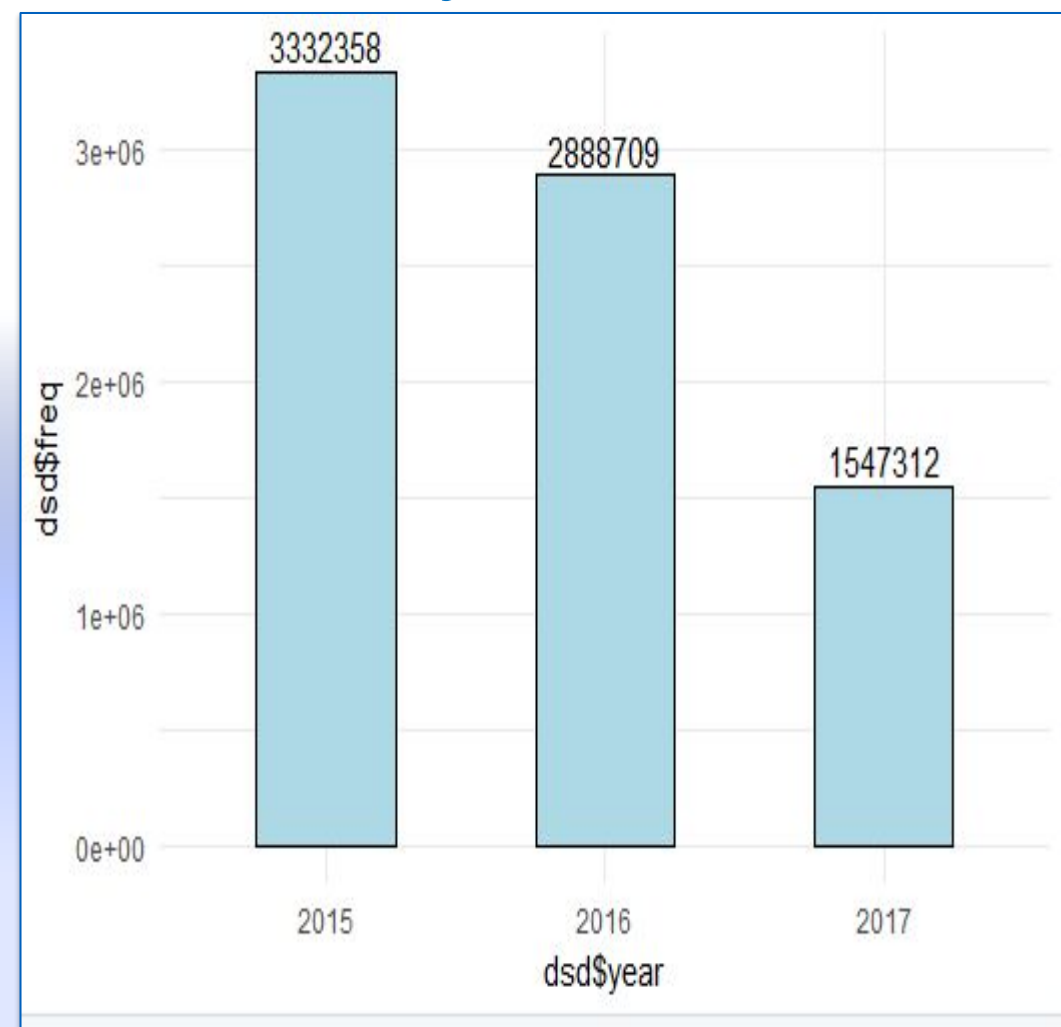
Aggregation Task :: Question 2 : How often does each Vehicle Body Type get a Parking Ticket? (Top 5)

Vehicle Body Type	Frequency : 2015	Vehicle Body Type	Frequency : 2016	Vehicle Body Type	Frequency : 2017
SUBN	3784405	SUBN	3431424	SUBN	1884284
4DSD	3332358	4DSD	2888709	4DSD	1547312
VAN	1675468	VAN	1409811	VAN	724159
DELV	861878	DELV	682457	DELV	359061
SDN	481328	SDN	421932	SDN	194643

SUBN - Across 3 years



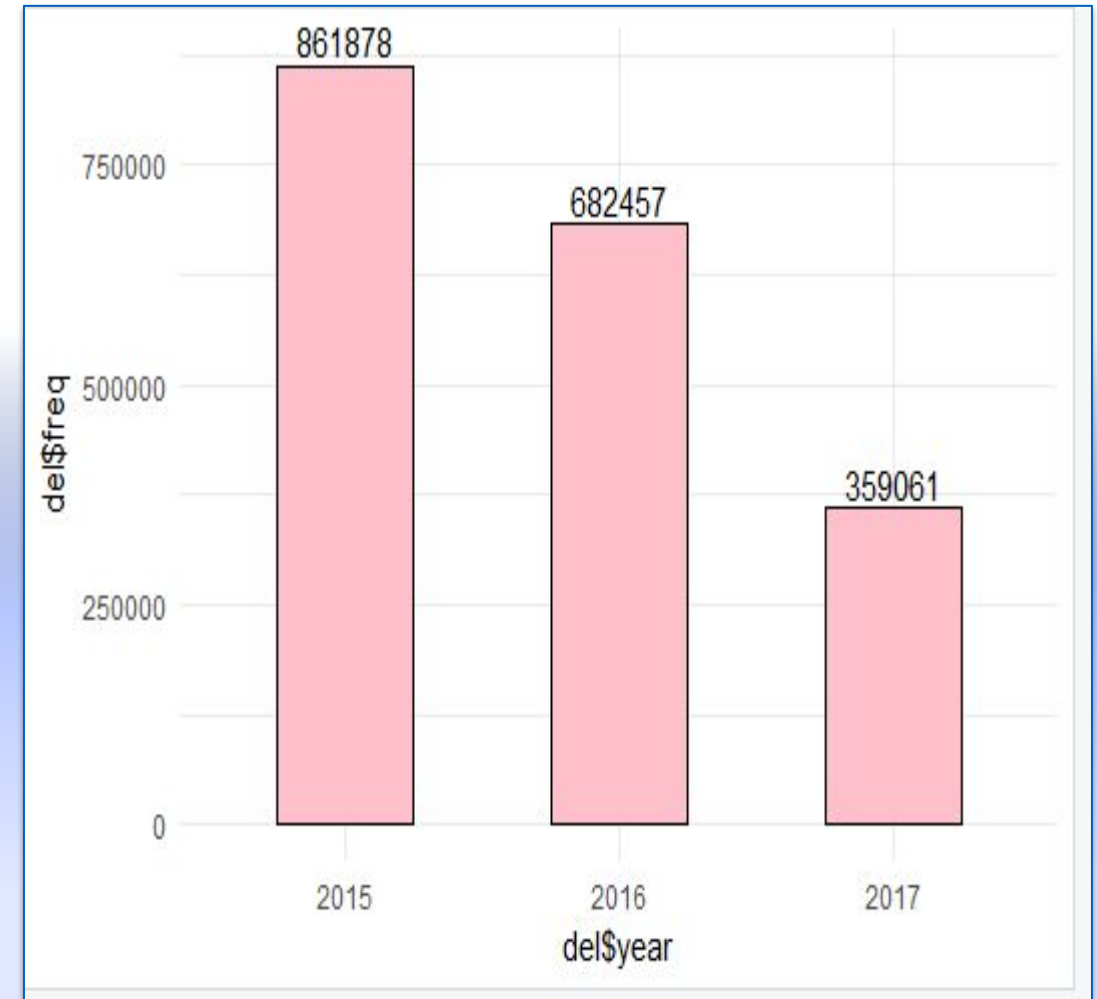
4DSD - Across 3 years



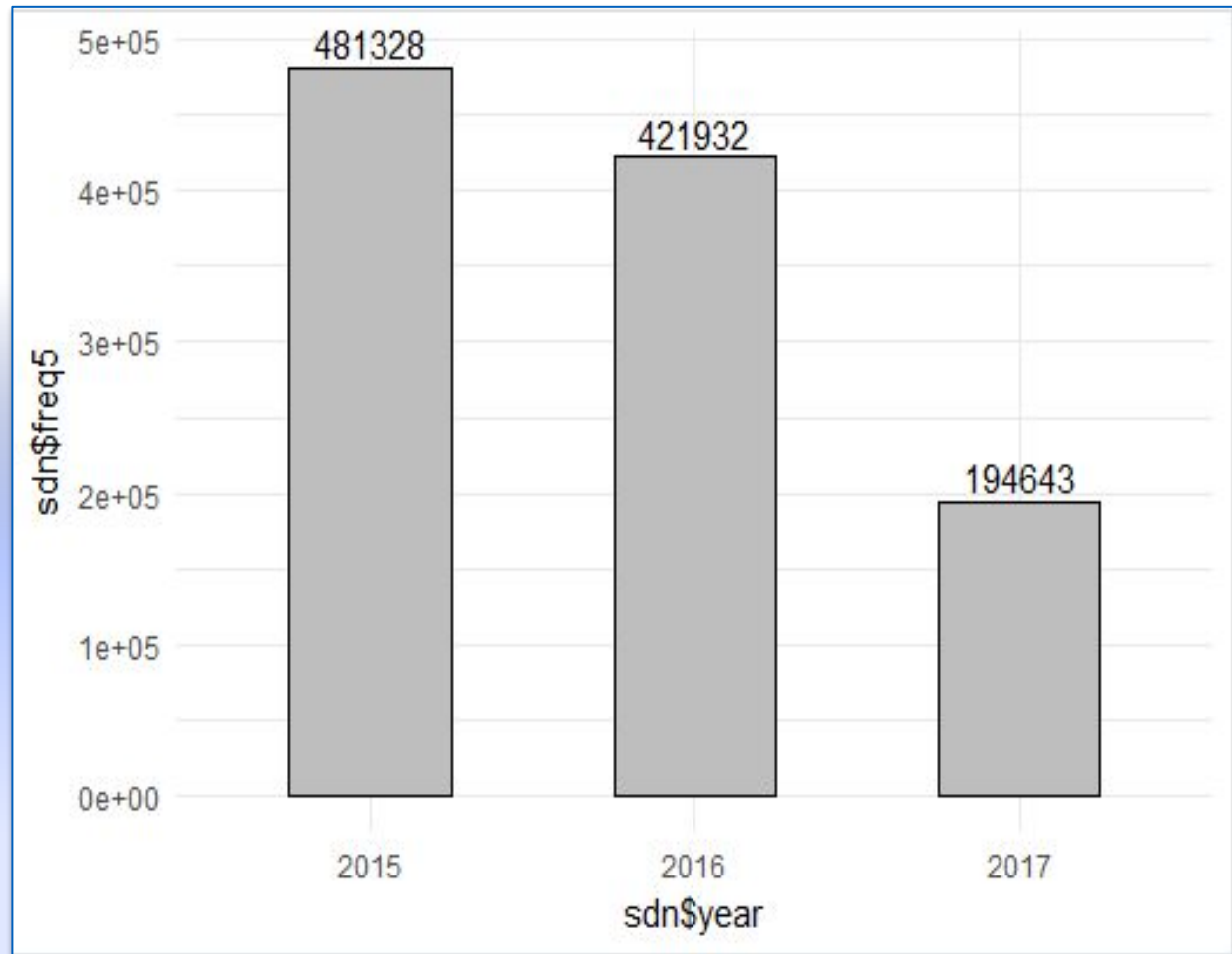
VAN - Across 3 years



DELV - Across 3 years



SDN – Across 3 years



Aggregation Task :: Question 2 : How often does each Vehicle Make get a Parking Ticket?(Top 5)

Vehicle Make	Frequency : 2015	Vehicle Make	Frequency : 2016	Vehicle Make	Frequency : 2017
FORD	1475312	FORD	1256114	FORD	636966
TOYOT	1244552	TOYOT	1134983	TOYOT	605398
HONDA	1111624	HONDA	999550	HONDA	539019
NISSA	912521	NISSA	838445	NISSA	462115
CHEVR	870136	CHEVR	697941	CHEVR	356103

Aggregation Task :: Question 3.1 : A precinct is a police station that has a certain zone of the city under its command. Find the Top 5 frequencies of Violating Precincts.

Violating Precinct	Frequency : 2015	Violating Precinct	Frequency : 2016	Violating Precinct	Frequency : 2017
0	1841922	0	1975109	0	925613
19	610323	19	525379	19	274467
18	398335	1	309286	14	203575
14	391344	14	299473	1	174716
114	328643	18	286534	18	169154

**Aggregation Task :: Question 3.2 : A precinct is a police station that has a certain zone of the city under its command.
Find the Top 5 frequencies of Issuing Precincts.**

Issuing Precinct	Frequency : 2015	Issuing Precinct	Frequency : 2016	Issuing Precinct	Frequency : 2017
0	2115263	0	2257892	0	1078663
19	593001	19	512496	19	266967
18	390617	1	299375	14	200503
14	379621	14	290600	1	168752
114	323190	18	278083	18	163008

Aggregation Task :: Question 4 : Find the Violation Code Frequency across 3 Precincts which have issued most number of tickets

In the year 2015 , the top 3 Issuing Precincts were 0 , 19 & 18

Violation Code(Issuing Precinct:0)	Frequency	Violation Code(Issuing Precinct:19)	Frequency	Violation Code(Issuing Precinct:18)	Frequency
36	1095582	38	91038	14	121659
7	603599	37	82932	69	58258
21	241105	14	67378	47	29975
5	130251	46	65395	31	29808
66	6298	21	62322	42	20113

Aggregation Task :: Question 4 : Find the Violation Code Frequency across 3 Precincts which have issued most number of tickets

In the year 2016 , the top 3 Issuing Precincts were 0 , 19 & 1

Violation Code(Issuing Precinct:0)	Frequency	Violation Code(Issuing Precinct:19)	Frequency	Violation Code(Issuing Precinct:1)	Frequency
36	1353091	37	74431	14	69259
7	471325	46	74301	16	39638
21	246396	38	73813	20	25212
5	141033	14	56536	46	20023
66	8078	21	51873	38	16343

Aggregation Task :: Question 4 : Find the Violation Code Frequency across 3 Precincts which have issued most number of tickets

In the year 2017 , the top 3 Issuing Precincts were 0 , 19 & 14

Violation Code(Issuing Precinct:0)	Frequency	Violation Code(Issuing Precinct:19)	Frequency	Violation Code(Issuing Precinct:14)	Frequency
36	662765	46	48449	14	45038
7	210175	38	36386	69	30464
21	126269	37	36056	31	22556
5	48076	14	29797	47	18364
66	5259	21	28416	42	10027

Aggregation Task :: Question 5 : Time of the day analysis

Time : 12 AM to 4 AM

Violation Code	Frequency
21	142713
40	134211
7	99539

Time : 8 AM to 12 PM

Violation Code	Frequency
21	2822679
36	1850435
38	1362962

Time : 4 PM to 8 PM

Violation Code	Frequency
38	417677
7	356060
37	265841

Time : 4 AM to 8 AM

Violation Code	Frequency
21	1470236
14	619494
36	485997

Time : 12 PM to 4 PM

Violation Code	Frequency
38	1453078
37	1123997
36	1030903

Time : 8 PM to 12 AM

Violation Code	Frequency
7	140935
40	102056
14	100088



Aggregation Task :: Question 6 : Seasonality Analysis

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Seasons	Frequency : 2015	Seasons	Frequency : 2016	Seasons	Frequency : 2017
Autumn	2970840	Autumn	2830127	Autumn	2873489
Spring	2861695	Spring	2795548	Spring	1703713
Summer	2792018	Summer	2434874	Summer	853031
Winter	2277837	Winter	2180463	Winter	1159

Three most commonly occurring violations across Seasons in 2015 are 21, 36, 38, 14

Three most commonly occurring violations across Seasons in 2016 are 21, 36, 38, 14

Three most commonly occurring violations across Seasons in 2017 are 21, 36, 38, 14

Aggregation Task :: Question 7.1 : Revenue Analysis - Commonly Occurring Violations

Violation Codes	Frequency : 2015	Violation Codes	Frequency : 2016	Violation Codes	Frequency : 2017
21	1553938	21	1424878	21	767895
38	1243640	36	1353091	36	662765
36	1023959	38	1067278	38	541901

Q 7.2 Average Fine for the above Violations:

Code 21 - \$ 55
 Code 38 - \$ 50
 Code 14 - \$ 115
 Code 36 - \$ 50

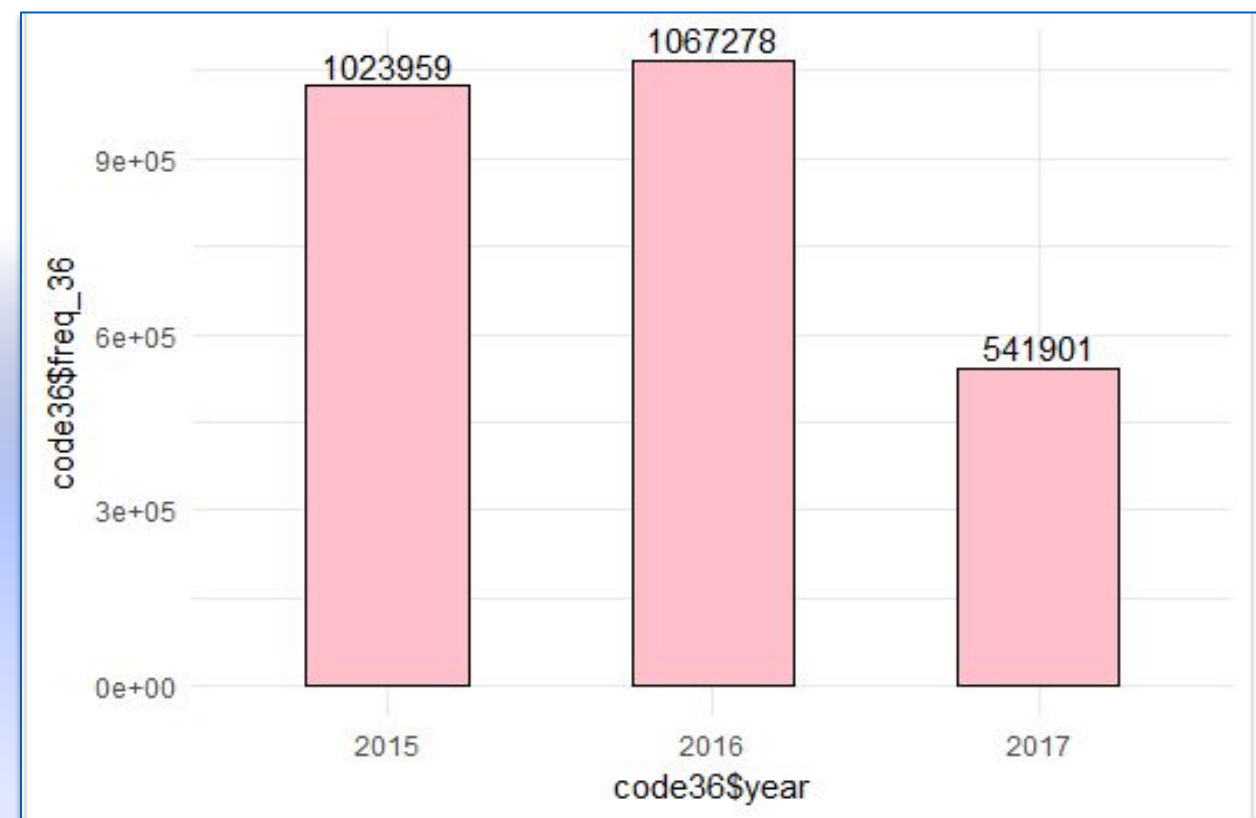
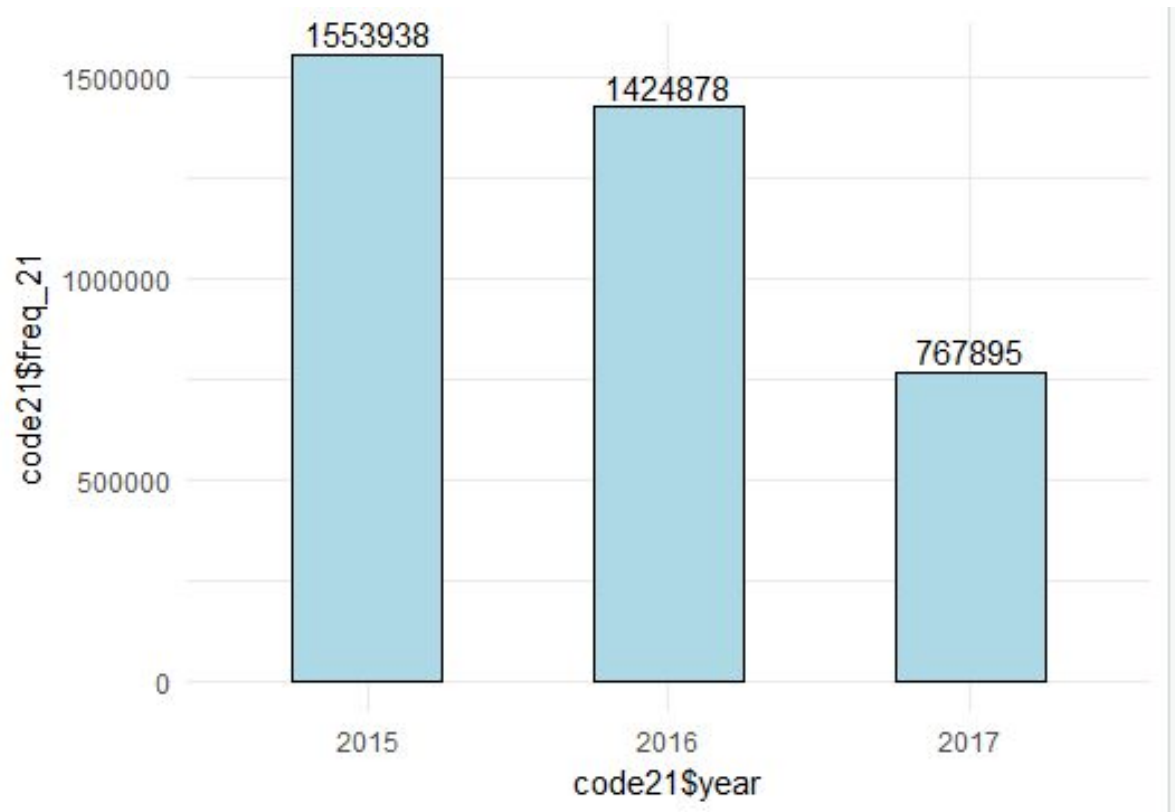
Q 7.3 Highest Fine Collected

2015 : Code 36 - \$ 117,755,285
 2016 : Code 21 - \$ 78,368,290
 2017 : Code 21 - \$ 42,217,560

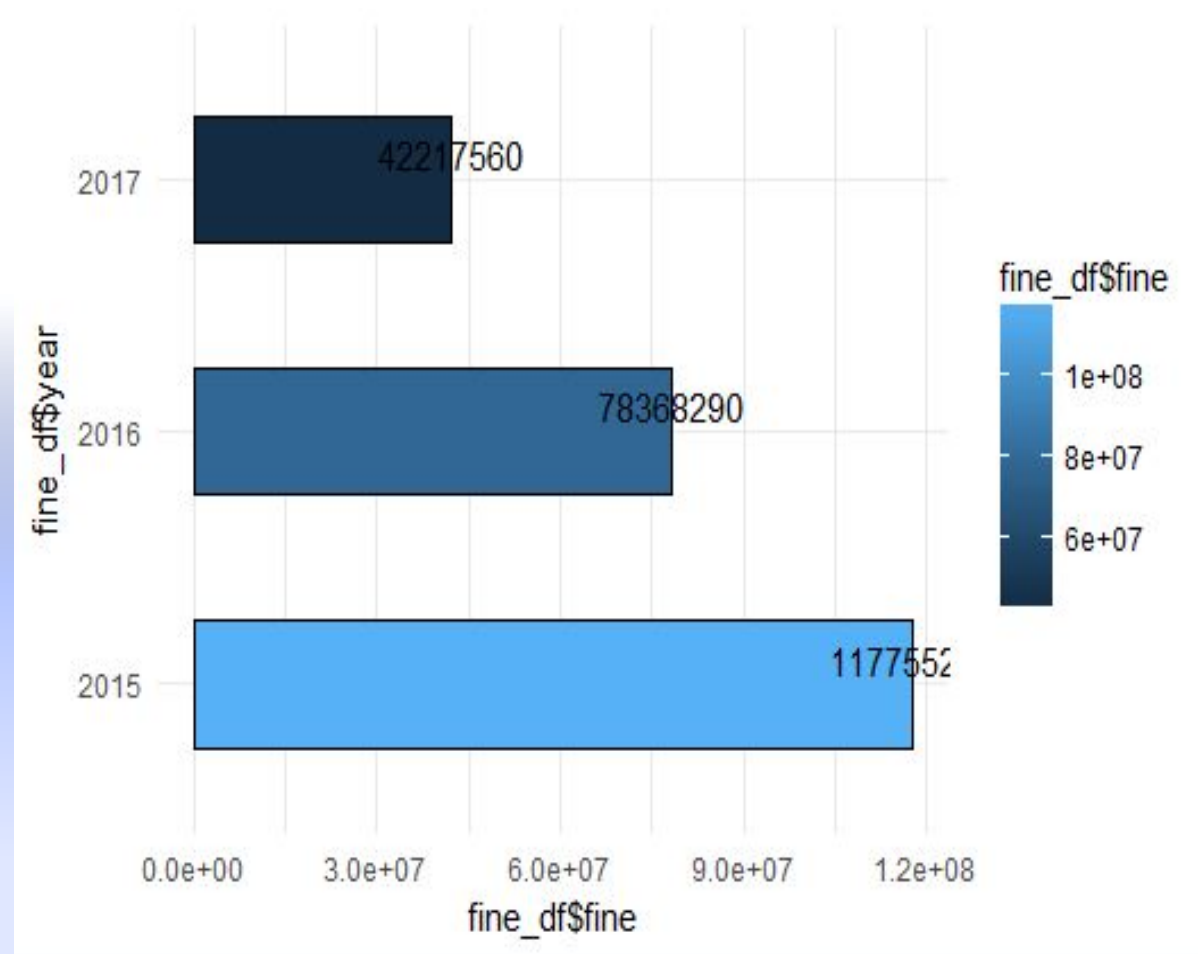
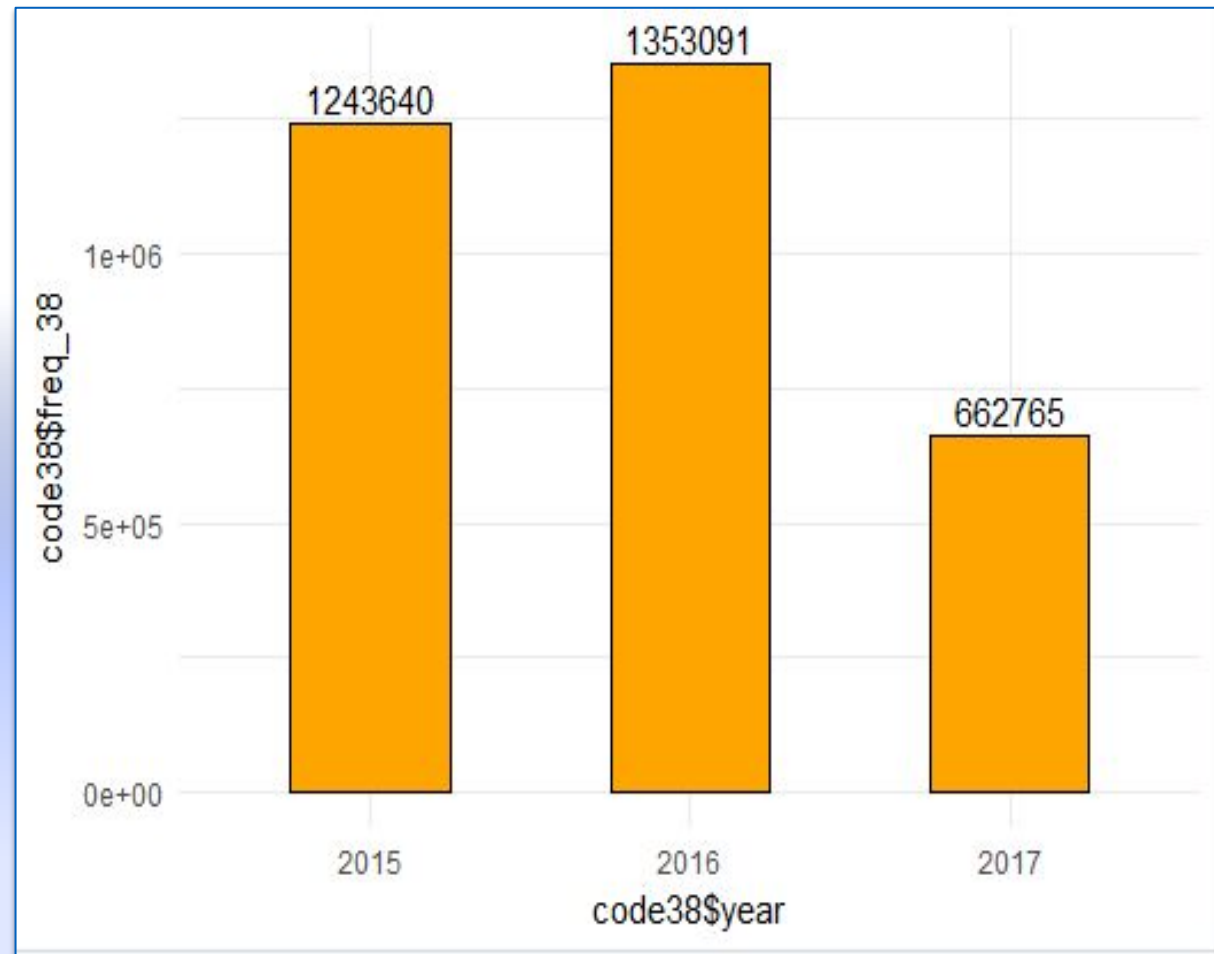
Q 7.4 Insights ?

Exceeding Speed Limit and Parking where it is not allowed are the most commonly occurring violations.

Comparison of most commonly occurring Traffic Violations across 3 years



Fine Collected for the 3 years



Comments / Inferences / Assumptions

Note -

Frequency or Number of tickets in certain cases appearing different.
Every time we execute the code, frequency of tickets for various categories like issuing
_precinct, vehcile make ,
vehicle body takes different values.This issue was discussed on Upgrad forum and we are asked
to report this issue
in our code file.

URL Reference of this issue is as follows -

<https://learn.upgrad.com/v/course/113/question/84776/answer/348442>