The theme of the project is to analyse the trends before and after the cpdp went public. The questions are focussed towards finding out things that have been tried to be hidden in the official record. So, for every question mentioned below, findings will be based on before and after cpdb release i.e before and after 2015.

1) **What are the most common allegation categories for the allegations with arrests associated with them. How has this trend changed since the dataset has gone public?**

Number of arrests (All years)

	category character varying (255)	count bigint
1	First Amendment	11
2	Unknown	25
3	Racial Profiling	57
4	Excessive Force	82
5	Drug / Alcohol Abuse	372
6	Bribery / Official Corruption	566
7	Supervisory Responsibilities	1310
8	Criminal Misconduct	2399
9	Conduct Unbecoming (Off-Duty)	2552
10	Traffic	4931
11	Domestic	5641
12	Verbal Abuse	7150
13	Lockup Procedures	12795
14	False Arrest	15345
15	Illegal Search	41326
16	Use Of Force	44498
17	Operation/Personnel Violations	47302

The most common allegation category were Operation/Personnel Violations, use of force and Illegal search. These were the categories that on an average had more chances of being arrest linked to them.

Number of Arrests by category of allegation (After 2015)

	category character varying (255)	count bigint
1	First Amendment	11
2	Unknown	25
3	Racial Profiling	57
4	Excessive Force	82
5	Drug / Alcohol Abuse	372
6	Bribery / Official Corruption	566
7	Supervisory Responsibilities	1310
8	Criminal Misconduct	2399
9	Conduct Unbecoming (Off-Duty)	2552
10	Traffic	4931
11	Domestic	5641
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16	Use Of Force	44498
17	Operation/Personnel Violations	47302

One important point to note in this question is that zero records were found before 2015. This is because, the earlier data isn't structured correctly and we couldn't match the allegation category with the arrest record.

2) **What are the normalized settlement amount per rank. To check whether settlement amount has gone down, with the rank i.e to see if more amount was spent in settlements for higher ranked officers. For cases with officers with different ranks, the highest ranked officer in that settlement is responsible for that settlement. Has this trend changed since the data has gone public?**

Rank order:

	rank_name character varying (100)	count bigint	rank_order bigint
1	Director Of Caps	1	1
2	Assistant Superintendent	1	1
3	Superintendent'S Chief Of Staff	3	2
4	Superintendent Of Police	6	3
5	First Deputy Superintendent	8	4
6	Deputy Superintendent	23	5
7	Other	24	6
8	Assistant Deputy Superintend…	25	7
9	Chief	29	8
10	Deputy Chief	61	9
11	Commander	136	10
12	Captain	327	11
13	Field Training Officer	341	12
14	Lieutenant	960	13
15		2198	14
16	Detective	3067	15
17	Sergeant	3495	16
18	Police Officer	22966	17

Rank order based on number of officers for each rank: For this method of ordering, some ranks like Assistant Supritendent are ranked above Superintendent of Police, but since there are no allegations against these particular ranks, this ordering will work. The other option for ordering are by salary, but same ranked officer might have different salaries.

Overall average settlement amounts :

Data Output

	rank character varying (100)	settlementavg numeric
1	Chief	10000.0000000000000000
2	First Deputy Superintendent	45000.000000000000
3	Sergeant	100005.468503937008
4	Deputy Chief	103083.333333333333
5	Police Officer	129857.046625766871
6	Commander	157500.000000000000
7	Field Training Officer	230677.352941176471
8	Lieutenant	354890.352941176471
9	Captain	389287.037037037037
10	Detective	449517.218274111675
11	Superintendent Of Police	1722778.333333333333
12		3271428.571428571429

The Superintendent of Police has significantly higher settlement amount as compared to the other ranks.
Superintendent of Police (One of the highest ranked officers) and Police officers (lowest ranked) are outliers. Except these two, lower ranked officers have higher average settlement amounts.

Before 2015

Data Output

rank character varying (100)	settlementavg numeric
1	Chief	10000.0000000000000000
2	First Deputy Superintendent	45000.000000000000
3	Sergeant	106285.183035714286
4	Deputy Chief	114700.000000000000
5	Police Officer	144259.818820224719
6	Commander	157500.000000000000
7	Field Training Officer	187967.106382978723
8	Lieutenant	314417.400000000000
9	Captain	403875.000000000000
10	Detective	465569.301075268817
11	Superintendent Of Police	1722778.333333333333
12		3809166.666666666667

A similar trend is seen in data before 2015.

After 2015:

	rank character varying (100)	settlementavg numeric
1	Captain	10000.0000000000000000
2	Detective	24333.555555555556
3	Police Officer	30296.135922330097
4	Deputy Chief	45000.000000000000
5		45000.000000000000
6	Sergeant	53116.933333333333
7	Lieutenant	658437.500000000000
8	Field Training Officer	732522.750000000000

Since the data has gone public, the average settlement amounts have gone down. There is no notable trend in the orders.

3) **Average settlement amount in cases where the subject (victim) was armed. If a subject was armed, there should be less chances of settlement or lesser settlement amount offered as this could be a possible explanation for the officer using force of weapon.**

Average settlement amount spent on cases where firearm was involved(all year)

	avg numeric
1	196905.56790123456790123457

Average settlement amount spent on cases where firearm was not involved(all year)

	avg numeric
1	257344.65584763948497854077

As expected, for cases where the subject used firearm, the settlement amount was significantly lower. One possible explanation for this would be that in such cases the officer might have no choice but to use force.

Average settlement amount spent on cases where firearm was involved(Before 2015)

	avg numeric	🔒
1		202438.26068376068376068376

Average settlement amount spent on cases where firearm was not involved (Before 2015)

	avg numeric	🔒
1		259680.04896265560165975104

A similar trend was observed for cases before the dataset was released.

Average settlement amount spent on cases where firearm was involved(After 2015)

	avg numeric	🔒
1		56088.2352941176470588

Average settlement amount spent on cases where firearm was not involved(After 2015)

	avg numeric	🔒
1		49343.1372549019607843

In the last two screenshots, we can see that the settlement amount involved in cases where firearm was not used is lower than in cases where firearm was used. This is because there are very limited entries available after 2015. There are only 17 entries after 2015 where firearm was used and only 102 entries where firearm wasn't used. Hence, we can't make a conclusive analysis of the last two cases.

4) What is the average duration of the cases per rank of officers. Are the cases involving higher rank officer settled comparatively faster? Have the average numbers been affected by the data going public?

Average days for settlement by rank (overall):

	rank character varying (100) 🔒	settlementavg double precision 🔒
1	First Deputy Superintendent	245
2	Field Training Officer	616.745098039216
3	Sergeant	657.355731225296
4	Lieutenant	697.5
5	Police Officer	750.253117206983
6	Deputy Chief	899.666666666667
7	Chief	1011
8	Detective	1023.96315789474
9		1059.28571428571
10	Commander	1119.16666666667
11	Captain	1172.7037037037
12	Superintendent Of Police	1451

The superintendent of Police had the highest average number of days per case. Except that, in general lower ranked officer had higher average number of days. This could mean the cases for higher ranked officers were settled faster.

Before 2015:

	rank character varying (100)	settlementavg double precision
1	First Deputy Superintendent	245
2	Field Training Officer	649.723404255319
3	Sergeant	698.609865470852
4	Lieutenant	749.4
5	Police Officer	826.495007132668
6	Deputy Chief	995.8
7	Chief	1011
8	Detective	1057.35359116022
9	Commander	1119.16666666667
10		1196.66666666667
11	Captain	1208.69230769231
12	Superintendent Of Police	1451

A similar trend was seen in data before 2015

After 2015:

	rank character varying (100)	settlementavg double precision
1	Police Officer	221.089108910891
2	Field Training Officer	229.25
3		235
4	Captain	237
5	Lieutenant	308.25
6	Sergeant	350.7
7	Detective	352.444444444444
8	Deputy Chief	419

For data after 2015, there is no notable trend in the order, but the average number of days per case have gone down.