

# Spectacular Cranes

That time 'Absent without permission' was changed to....'Seatbelts'...

Fall 2019

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# Theme

While speaking with Rajiv after the seminar on Chicago Police Database, we learned that, the team at Invisible Institute receive case files from the Chicago Police Department and at times these case files may have updated information involving old cases and it was discovered during the discussions that more than often the data regarding the cases gets changed or manipulated over the period of time and we also learned that they don't have a system or process to track this. Our theme was inspired based on this information to **identify changes in allegation category over a period of time on the allegations.**

# Checkpoint 1 - Relational Analytics

- Theme: allegation categories changing over time
  - Serious allegation to something more minor
  - E.g. “Sexual Assault” => “Illegal Search”
- Were given old data: **08\_28\_2018\_case\_info**
- Integration challenges

# Checkpoint 1 - Relational Analytics

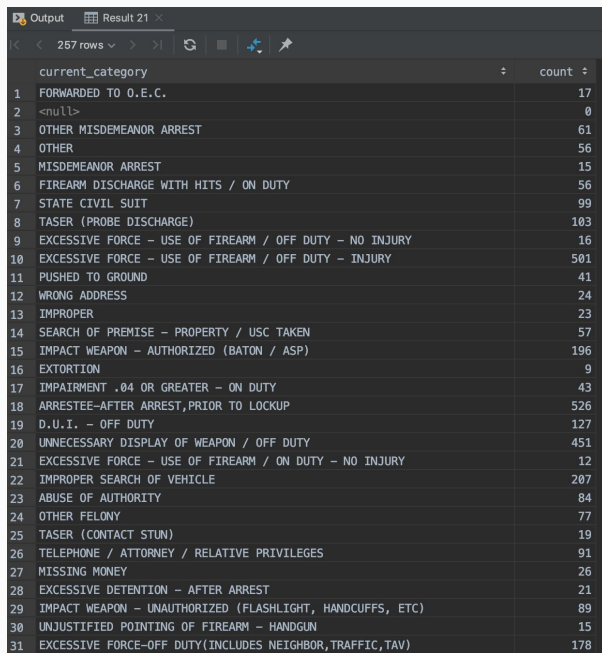
- Relational Analytics or Data Integration?
  - Connected **case\_info** table with CPDB
- Key: CRID == log\_no

# Checkpoint 1 - Relational Analytics

1-500 of 501+				Tab-se...d (TSV)	
old_category_desc	old_category	current_category			
1 NO ARREST	GROUP 05 - OFFICE OF PROFESSIONAL STANDARDS INVESTIGATIONS	Use Of Force			
2 NO ARREST	GROUP 05 - OFFICE OF PROFESSIONAL STANDARDS INVESTIGATIONS	Use Of Force			
3 ARRESTEE-DURING ARREST	GROUP 05 - OFFICE OF PROFESSIONAL STANDARDS INVESTIGATIONS	Use Of Force			
4 UNNECESSARY PHYSICAL CONTACT -ON DUTY	GROUP 05 - OFFICE OF PROFESSIONAL STANDARDS INVESTIGATIONS	Domestic			
5 USE OF PROFANITY	GROUP 01 - VERBAL ABUSE	Verbal Abuse			
6 USE OF PROFANITY	GROUP 01 - VERBAL ABUSE	Verbal Abuse			
7 MISCELLANEOUS	GROUP 08 - CRIMINAL CONDUCT	Criminal Misconduct			
8 MISCELLANEOUS	GROUP 08 - CRIMINAL CONDUCT	Criminal Misconduct			
9 IMPROPER SEARCH OF PERSON	GROUP 03 - IMPROPER SEARCH	Illegal Search			
10 NO ARREST	GROUP 05 - OFFICE OF PROFESSIONAL STANDARDS INVESTIGATIONS	Use Of Force			
11 SEARCH OF PREMISE WITHOUT WARRANT	GROUP 03 - IMPROPER SEARCH	Illegal Search			
12 SEARCH OF PREMISE WITHOUT WARRANT	GROUP 03 - IMPROPER SEARCH	Illegal Search			
13 UNNECESSARY PHYSICAL CONTACT -ON DUTY	GROUP 05 - OFFICE OF PROFESSIONAL STANDARDS INVESTIGATIONS	Domestic			
14 UNNECESSARY PHYSICAL CONTACT -ON DUTY	GROUP 05 - OFFICE OF PROFESSIONAL STANDARDS INVESTIGATIONS	Domestic			
15 NEGLIGENCE OF DUTY	GROUP 10 - OPERATION/PERSONNEL VIOLATIONS (ON DUTY)	Operation/Personnel Violations			
16 NEGLIGENCE OF DUTY	GROUP 10 - OPERATION/PERSONNEL VIOLATIONS (ON DUTY)	Operation/Personnel Violations			
17 INVENTORY PROCEDURES	GROUP 10 - OPERATION/PERSONNEL VIOLATIONS (ON DUTY)	Operation/Personnel Violations			
18 INVENTORY PROCEDURES	GROUP 10 - OPERATION/PERSONNEL VIOLATIONS (ON DUTY)	Operation/Personnel Violations			
19 MISCONDUCT DURING ISSUANCE OF CITATION	GROUP 07 - TRAFFIC (NOT BRIBERY/EXCESSIVE FORCE)	Traffic			
20 REPORTS	GROUP 10 - OPERATION/PERSONNEL VIOLATIONS (ON DUTY)	Operation/Personnel Violations			
21 REPORTS	GROUP 10 - OPERATION/PERSONNEL VIOLATIONS (ON DUTY)	Operation/Personnel Violations			
22 ARRESTEE-DURING ARREST	GROUP 05 - OFFICE OF PROFESSIONAL STANDARDS INVESTIGATIONS	Use Of Force			
23 ARRESTEE-DURING ARREST	GROUP 05 - OFFICE OF PROFESSIONAL STANDARDS INVESTIGATIONS	Use Of Force			
24 SEARCH OF PREMISE WITHOUT WARRANT	GROUP 03 - IMPROPER SEARCH	Illegal Search			
25 SEARCH OF PREMISE WITHOUT WARRANT	GROUP 03 - IMPROPER SEARCH	Illegal Search			
26 DOMESTIC ALTERCATION/INCIDENT - OFF DUTY	GROUP 05 - OFFICE OF PROFESSIONAL STANDARDS INVESTIGATIONS	Domestic			
27 SEARCH OF PREMISE WITHOUT WARRANT	GROUP 03 - IMPROPER SEARCH	Illegal Search			
28 SEARCH OF PREMISE WITHOUT WARRANT	GROUP 03 - IMPROPER SEARCH	Illegal Search			
29 SEARCH OF PREMISE WITHOUT WARRANT	GROUP 03 - IMPROPER SEARCH	Illegal Search			
30 NEGLIGENCE OF DUTY	GROUP 10 - OPERATION/PERSONNEL VIOLATIONS (ON DUTY)	Operation/Personnel Violations			
31 NEGLIGENCE OF DUTY	GROUP 10 - OPERATION/PERSONNEL VIOLATIONS (ON DUTY)	Operation/Personnel Violations			
32 NEGLIGENCE OF DUTY	GROUP 10 - OPERATION/PERSONNEL VIOLATIONS (ON DUTY)	Operation/Personnel Violations			

# Checkpoint 1 - Relational Analytics

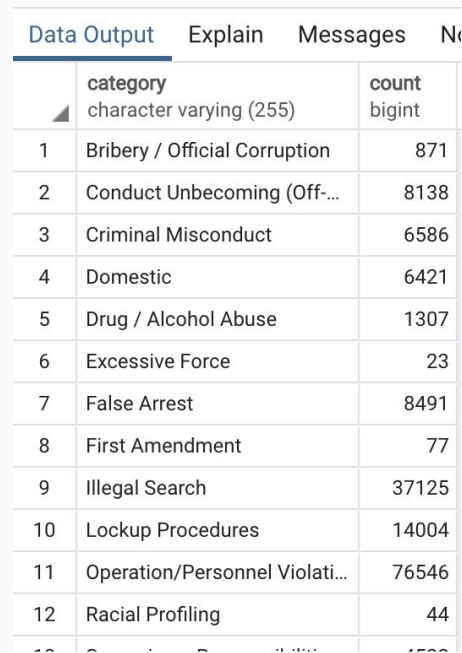
OLD



Output Result 21

257 rows

current_category	count
1 FORWARDED TO O.E.C.	17
2 <null>	0
3 OTHER MISDEMEANOR ARREST	61
4 OTHER	56
5 MISDEMEANOR ARREST	15
6 FIREARM DISCHARGE WITH HITS / ON DUTY	56
7 STATE CIVIL SUIT	99
8 TASER (PROBE DISCHARGE)	103
9 EXCESSIVE FORCE - USE OF FIREARM / OFF DUTY - NO INJURY	16
10 EXCESSIVE FORCE - USE OF FIREARM / OFF DUTY - INJURY	501
11 PUSHED TO GROUND	41
12 WRONG ADDRESS	24
13 IMPROPER	23
14 SEARCH OF PREMISE - PROPERTY / USC TAKEN	57
15 IMPACT WEAPON - AUTHORIZED (BATON / ASP)	196
16 EXTORTION	9
17 IMPAIRMENT .04 OR GREATER - ON DUTY	43
18 ARRESTEE-AFTER ARREST,PRIOR TO LOCKUP	526
19 D.U.I. - OFF DUTY	127
20 UNNECESSARY DISPLAY OF WEAPON / OFF DUTY	451
21 EXCESSIVE FORCE - USE OF FIREARM / ON DUTY - NO INJURY	12
22 IMPROPER SEARCH OF VEHICLE	207
23 ABUSE OF AUTHORITY	84
24 OTHER FELONY	77
25 TASER (CONTACT STUN)	19
26 TELEPHONE / ATTORNEY / RELATIVE PRIVILEGES	91
27 MISSING MONEY	26
28 EXCESSIVE DETENTION - AFTER ARREST	21
29 IMPACT WEAPON - UNAUTHORIZED (FLASHLIGHT, HANDCUFFS, ETC)	89
30 UNJUSTIFIED POINTING OF FIREARM - HANDGUN	15
31 EXCESSIVE FORCE-OFF DUTY(INCLUDES NEIGHBOR,TRAFFIC,TAV)	178



Data Output Explain Messages No

	category	count
	character varying (255)	bigint
1	Bribery / Official Corruption	871
2	Conduct Unbecoming (Off-...	8138
3	Criminal Misconduct	6586
4	Domestic	6421
5	Drug / Alcohol Abuse	1307
6	Excessive Force	23
7	False Arrest	8491
8	First Amendment	77
9	Illegal Search	37125
10	Lockup Procedures	14004
11	Operation/Personnel Violati...	76546
12	Racial Profiling	44

NEW

# Checkpoint 1 - Relational Analytics

Data Output	Explain	Messages	Notifications
	<b>disciplined_count</b> bigint	<b>total_count</b> bigint	<b>category</b> character varying (255)
1	153	871	Bribery / Official Corruption
2	1969	8138	Conduct Unbecoming (Off...
3	678	6586	Criminal Misconduct
4	392	6421	Domestic
5	704	1307	Drug / Alcohol Abuse
6	5	23	Excessive Force
7	29	8491	False Arrest
8	1	77	First Amendment
9	146	37125	Illegal Search
10	1518	14004	Lockup Procedures
11	9725	76546	Operation/Personnel Violati...

# Checkpoint 2 - Visualization

## Allegation Mapping

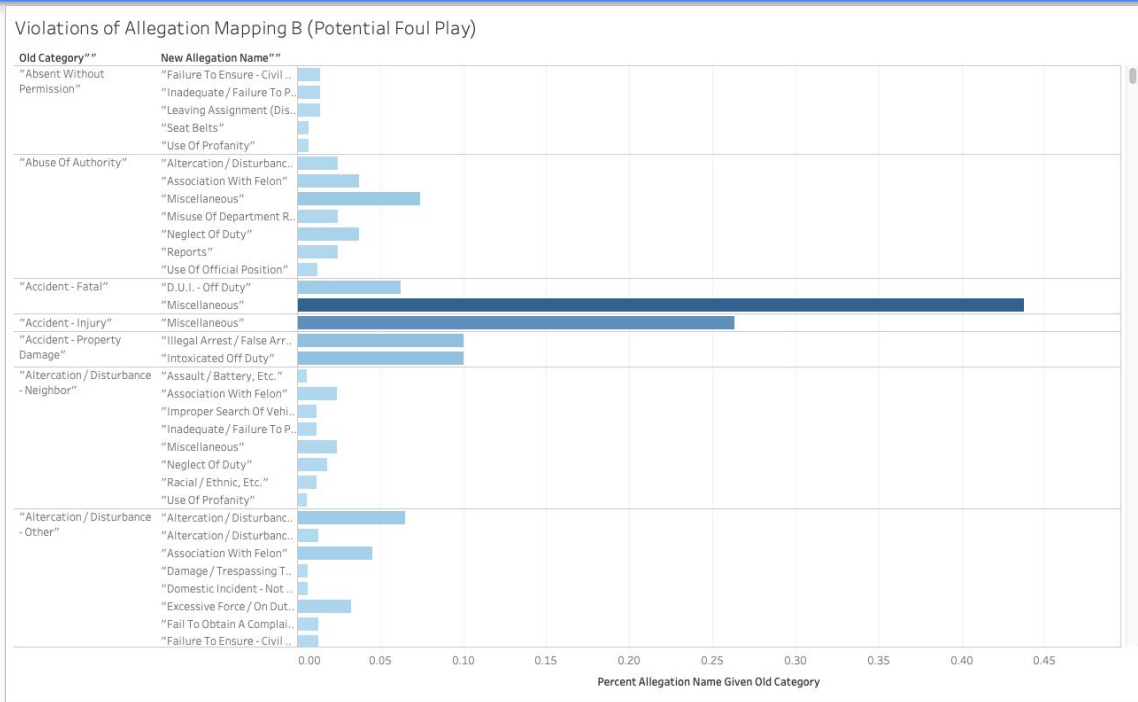
Old Category""	Allegation Mapping
"Accident - Injury"	"D.U.I. - Off Duty"
"Accident - No Injury"	"D.U.I. - Off Duty"
"Accident - Property Damage"	"D.U.I. - Off Duty"
"Ageism"	"Eeo Investigations"
"Altercation / Disturbance - Neighbor"	"Altercation / Disturbance - Neighbor"
"Altercation / Disturbance - Other"	"Altercation / Disturbance - Other"
"Altercation / Disturbance - Traffic"	"Altercation / Disturbance - Traffic"
"Altering Medical Documents"	"Misuse Of Department Records"
"Amphetamines"	"Positive Drug Screen - Originated From"
"An Act To Circumvent Criminal Prosecution"	"Association With Felon"
"Arrest, Improper Procedures"	"Court Attendance Irregularities"
"Arrestee-After Arrest, Prior To Lockup"	"Excessive Force / On Duty - No Injury"
"Arrestee-During Arrest"	"Excessive Force / On Duty - Injury"
"Arrestee-Lockup/Deletion"	"Excessive Force / Off Duty - Injury"
"Arson"	"Arson"
"Assault / Battery, Etc."	"Assault / Battery, Etc."
"Association With Felon"	"Association With Felon"
"Auto Theft"	"Damage / Trespassing To Property"
"Bonding/Booking/Processing"	"Bonding/Booking/Processing"
"Bribe, Failure To Report"	"Bribe, Failure To Report"
"Burglary"	"Burglary"
"Choked"	"Excessive Force / On Duty - Injury"
"Citation"	"Improper Processing / Reporting / Filing"
"Civil Suits - Third Party"	"Unnecessary Display Of Weapon / Car"
"Closed Hand Strike (Punch)"	"Excessive Force / On Duty - Injury"
"Cocaine"	"Positive Drug Screen - Other Physical"
"Coercion - Miscellaneous"	"Gang Affiliation"
"Coercion - Threat Of Arrest/Charges"	"Improper Search Of Vehicle"
"Coercion - Violence"	"Gang Affiliation"
"Compensatory Time"	"Compensatory Time"
"Conduct An Improper / Inadequate Investigation"	"Conduct An Improper / Inadequate Investigation"
"Conduct Unbecoming"	"Neglect Of Duty"
"Court Attendance Irregularities"	"Court Attendance Irregularities"
"Criminal Sexual Assault"	"Criminal Sexual Assault"

## Location Mapping

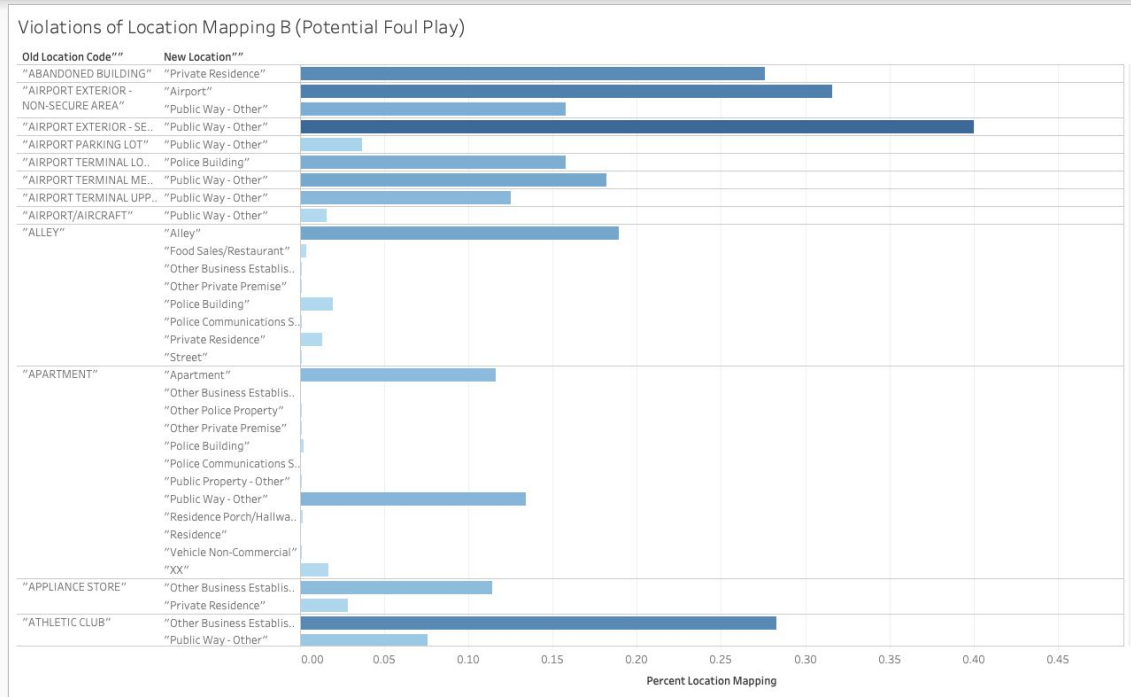
Old Location Code""	Location Mapping
"ABANDONED BUILDING"	"Public Way - Other"
"AIRCRAFT"	"Airport"
"AIRPORT BUILDING NON-TERMINAL - NON-SECURE AREA"	"Airport"
"AIRPORT BUILDING NON-TERMINAL - SECURE AREA"	"Public Way - Other"
"AIRPORT EXTERIOR - NON-SECURE AREA"	"Airport"
"AIRPORT EXTERIOR - SECURE AREA"	"Airport Exterior - Non-Secure Area"
"AIRPORT PARKING LOT"	"Airport"
"AIRPORT TERMINAL LOWER LEVEL - NON-SECURE AREA"	"Airport"
"AIRPORT TERMINAL LOWER LEVEL - SECURE AREA"	"Airport"
"AIRPORT TERMINAL MEZZANINE - NON-SECURE AREA"	"Airport"
"AIRPORT TERMINAL MEZZANINE - SECURE AREA"	"Airport"
"AIRPORT TERMINAL UPPER LEVEL - NON-SECURE AREA"	"Airport"
"AIRPORT TERMINAL UPPER LEVEL - SECURE AREA"	"Airport"
"AIRPORT/AIRCRAFT"	"Airport"
"ALLEY"	"Public Way - Other"
"APARTMENT"	"Private Residence"
"APPLIANCE STORE"	"Public Way - Other"
"ATHLETIC CLUB"	"Public Property - Other"
"BANK"	"Public Way - Other"
"BAR OR TAVERN"	"Tavern/Liquor Store"
"BARBERSHOP"	"Public Way - Other"
"BOAT/WATERCRAFT"	"Public Property - Other"
"BOWLING ALLEY"	"Other Business Establishment"
"BUS STOP"	"Public Way - Other"
"CAR WASH"	"Public Way - Other"
"CEMETARY"	"Other Private Premise"
"CHA APARTMENT"	"Public Way - Other"
"CHA HALLWAY/STAIRWELL/ELEVATOR"	"Public Way - Other"
"CHA PARKING LOT/GROUNDS"	"Public Way - Other"
"CHURCH/SYNAGOGUE/PLACE OF WORSHIP"	"Public Way - Other"
"CLEANING STORE"	"Other Business Establishment"
"COLLEGE/UNIVERSITY GROUNDS"	"Public Way - Other"
"COMMERCIAL / BUSINESS OFFICE"	"Other Business Establishment"
"CONVENIENCE STORE"	"Other Business Establishment"



# Checkpoint 2 - Visualization

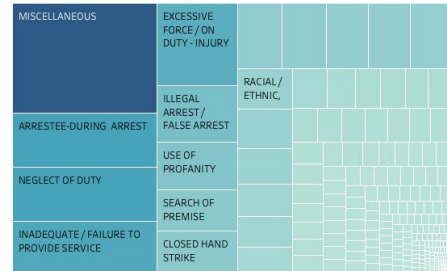


# Checkpoint 2 - Visualization



# Checkpoint 2 - Visualization

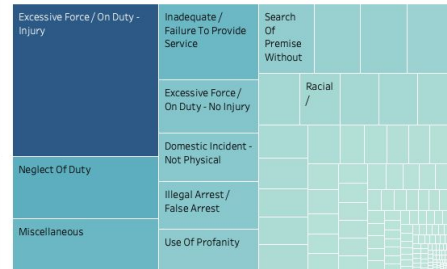
Distribution of Old Allegation Categories



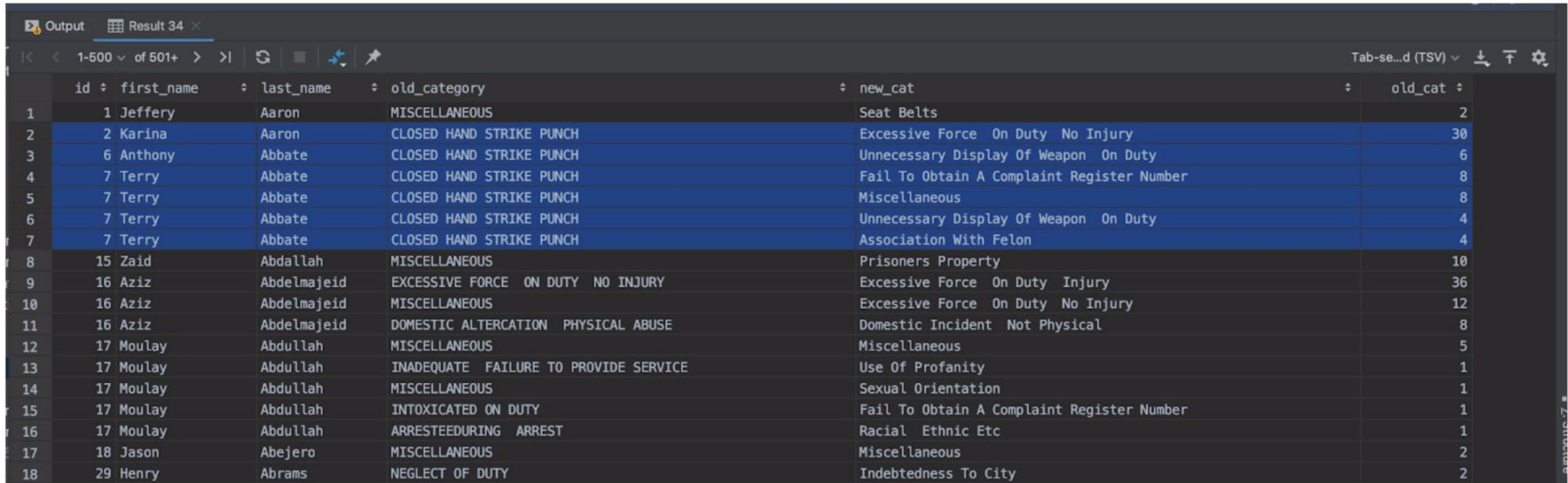
% of Total Count of Log No  
0.00% 13.51%

Count of Id (Data Allegationcategory..  
5 74,789

Distribution of New Allegation Categories



# Checkpoint 3 - Data Cleaning/Integration



The screenshot shows a data table with 18 rows and 6 columns. The columns are: id, first\_name, last\_name, old\_category, new\_cat, and old\_cat. The data represents a mapping of old categories to new categories. The interface includes a search bar at the top with '1-500 of 501+' and various icons for filtering and sorting. The table is titled 'Tab-se...d (TSV)'.

	id	first_name	last_name	old_category	new_cat	old_cat
1	1	Jeffery	Aaron	MISCELLANEOUS	Seat Belts	2
2	2	Karina	Aaron	CLOSED HAND STRIKE PUNCH	Excessive Force On Duty No Injury	30
3	6	Anthony	Abbate	CLOSED HAND STRIKE PUNCH	Unnecessary Display Of Weapon On Duty	6
4	7	Terry	Abbate	CLOSED HAND STRIKE PUNCH	Fail To Obtain A Complaint Register Number	8
5	7	Terry	Abbate	CLOSED HAND STRIKE PUNCH	Miscellaneous	8
6	7	Terry	Abbate	CLOSED HAND STRIKE PUNCH	Unnecessary Display Of Weapon On Duty	4
7	7	Terry	Abbate	CLOSED HAND STRIKE PUNCH	Association With Felon	4
8	15	Zaid	Abdallah	MISCELLANEOUS	Prisoners Property	10
9	16	Aziz	Abdelmajeid	EXCESSIVE FORCE ON DUTY NO INJURY	Excessive Force On Duty Injury	36
10	16	Aziz	Abdelmajeid	MISCELLANEOUS	Excessive Force On Duty No Injury	12
11	16	Aziz	Abdelmajeid	DOMESTIC ALTERCATION PHYSICAL ABUSE	Domestic Incident Not Physical	8
12	17	Moulay	Abdullah	MISCELLANEOUS	Miscellaneous	5
13	17	Moulay	Abdullah	INADEQUATE FAILURE TO PROVIDE SERVICE	Use Of Profanity	1
14	17	Moulay	Abdullah	MISCELLANEOUS	Sexual Orientation	1
15	17	Moulay	Abdullah	INTOXICATED ON DUTY	Fail To Obtain A Complaint Register Number	1
16	17	Moulay	Abdullah	ARRESTED DURING ARREST	Racial Ethnic Etc	1
17	18	Jason	Abejero	MISCELLANEOUS	Miscellaneous	2
18	29	Henry	Abrams	NEGLECT OF DUTY	Indebtedness To City	2

# Checkpoint 3 - Data Cleaning/Integration

ain	Data Output	Messages	Notifications
officer_id integer	officer_fname character varying	officer_lname character varying	num_allegation_category_changes bigint
3764	Brian	Thompson	19
8138	Eric	Johnson	16
29841	Gilbert	Roberts	15
4233	William	Brannigan	15
2957	Zoran	Miucin	14
650	Ernesto	Garcia	14
14442	Alfred	Tague	13
3605	Robert	Novak	13
13788	Kevin	Drumgoole	13
25898	Patrick	Hackett	13

# Checkpoint 3 - Data Cleaning/Integration

ain Data Output Messages Notifications

new_investigator_id integer	first_name character varying (255)	last_name character varying (255)	num_allegation_category_changes bigint
3182	Maria	Olvera	689
3281	George	Roberts	540
3228	Bruce	Dean	535
3283	Lorenzo	Davis	425
3260	Patrick	Querfurth	392
3289	Andrea	Stoutenborough	325
3303	Paula	Tillman	321
3274	Alexis	Serio	306
3163	Sherry	Daun	303
3301	Joseph	Fakuade	287

# Checkpoint 3 - Data Cleaning/Integration

- Roughly **32%** of allegations had their category changed
- About  $\frac{1}{3}$  of allegations violated the **mapping**
- Cover charges?
  - We looked at top 3 most common statute descriptions for allegations that had their category changed
  - **Cocaine Possession < 15 grams**
  - **Disorderly Conduct**
  - **Criminal Trespass to State Land**

# Checkpoint 4 - Graph Analytics (Graph Def)

- **Vertex:** (`officer_id`, `officer_fname`, `officer_lname`, `complaint_percentile`)
- **Edge:** (`src`, `dst`, `crid`, `old_category`, `new_category`)

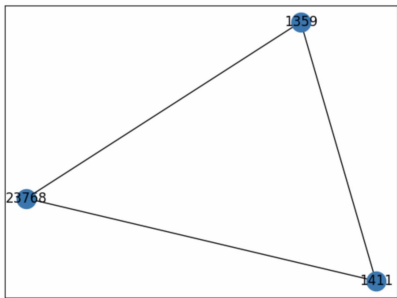


# Checkpoint 4 - Graph Analytics

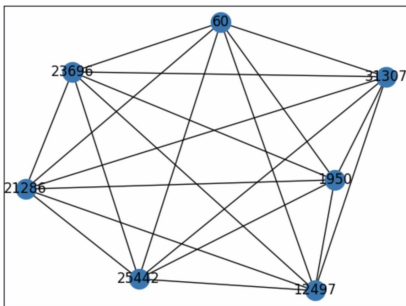
id	officer_fname	officer_lname	complaint_percentile	pagerank
21309	Eric	Olson	94.46720123291016	14.6843363535723
28758	Jesse	Torres	43.90639877319336	14.484175385091378
17176	Ricardo	Mancha	83.57720184326172	14.033271002320387
27725	Mark	Struke	82.25520324707031	13.656611151876517
25980	Roberto	Sena	88.70120239257812	12.517037105678986
21941	Daniel	Passarelli	89.08329772949219	12.004761240422239
32086	Shane	Jones	97.64240264892578	11.045369399725754
11686	Timothy	Hawkins	87.7688980102539	10.949908884745193
31997	Emerico	Gonzalez	92.91960144042969	10.855702489793506
20177	Nathaniel	Myles	93.80229949951172	10.103644595649541
18384	Kathleen	Mc Lean	94.97540283203125	10.018741684885711
12440	Terrance	Hollis	27.52669906616211	9.624971127388415
32159	Jorge	Martinez	99.81659698486328	9.515512072442359
29379	Artemio	Vargas	74.81559753417969	9.110292972755232
15273	Karl	Kruger	88.70120239257812	9.067880632233914
29612	Frank	Villareal	99.2876968383789	8.949792463004878
13903	Julie	Joyce	71.59449768066406	8.797037105983549
27962	John	Swarbrick	77.83419799804688	8.618667197571575
3998	Justin	Carrillo	75.12129974365234	8.440248247900932
7273	Daniel	Dowling	84.99870300292969	8.247455360497561

only showing top 20 rows

# Checkpoint 4 - Graph Analytics



src	dst	crid	old_category	new_category
23768	1359	1039765	RACIAL ETHNIC ETC	Illegal Arrest False Arrest
23768	1411	1039765	RACIAL ETHNIC ETC	Illegal Arrest False Arrest
1359	1411	1039765	RACIAL ETHNIC ETC	Illegal Arrest False Arrest
23768	1359	1039765	RACIAL ETHNIC ETC	Gang Affiliation
23768	1411	1039765	RACIAL ETHNIC ETC	Gang Affiliation
1359	1411	1039765	RACIAL ETHNIC ETC	Gang Affiliation



src	dst	crid	old_category	new_category
60	1950	1039676	UNNECESSARY DISPLAY OF WEAPON ON DUTY	Search Of Premise Without Warrant
60	21286	1039676	UNNECESSARY DISPLAY OF WEAPON ON DUTY	Search Of Premise Without Warrant
60	23696	1039676	UNNECESSARY DISPLAY OF WEAPON ON DUTY	Search Of Premise Without Warrant
60	12497	1039676	UNNECESSARY DISPLAY OF WEAPON ON DUTY	Search Of Premise Without Warrant
31307	1950	1039676	UNNECESSARY DISPLAY OF WEAPON ON DUTY	Search Of Premise Without Warrant
31307	21286	1039676	UNNECESSARY DISPLAY OF WEAPON ON DUTY	Search Of Premise Without Warrant
31307	23696	1039676	UNNECESSARY DISPLAY OF WEAPON ON DUTY	Search Of Premise Without Warrant
31307	12497	1039676	UNNECESSARY DISPLAY OF WEAPON ON DUTY	Search Of Premise Without Warrant

# Thank you!

## The Spectacular Cranes

