



American Crime

Visualization of Multi-Dimensional Crime Data in America

James Deromedi, JR Kargbo, Ziyang She

Why is it Important?

Crime Statistics

9 million violent and property crimes reported in 2017

1 in 36 people in the US were victims

Police Statistics

On average 3.3 police officers per 1000 civilians

US spent \$100 Billion on Policing in 2017

Our Goal

Reduce amount of crime and excessive spending to prevent it

Make police departments more aware



Data

Where does the data come from?

- FBI
- US Gov
- Homeland Security
- Etc

Data Types

- Law enforcement Assault Data
- Citizens and violent crime Data
- Census data about wealth and education



Citizens and Crime Data

- Robbery, rape, homicide, property crime, burglary, larceny, etc.
- Summary Statistics
- Correlations between populations of each state and different crimes that are prevalent.

id	year	population	total_arrests	homicide	rape	robbery	burglary	larceny	property_crime	other_assault
1	2016	323127513	10662252	11788	23632	95754	207325	1050058	1353283	1078808
2	2015	320896618	10797088	11032	22863	95572	216010	1160390	1463213	1081019
3	2014	318907401	11205833	10571	21007	94403	237974	1238190	1553980	1093258

year	state_id	state_abbr	state_name	population	violent_crime	homicide	rape	robbery	aggravated_burglary	property_crime	burglary	larceny
2010	10	DC	District of Columbia	604912	8026	132	187	4325	3382	28802	4233	19514
2011	10	DC	District of Columbia	619020	7433	108	173	4094	3058	29654	3850	21347
2012	10	DC	District of Columbia	633427	7866	88	236	4037	3505	30757	3519	23575
2013	10	DC	District of Columbia	649111	8415	103	297	4082	3835	31097	3316	24547
2014	10	DC	District of Columbia	659836	8159	105	349	3497	4125	34147	3466	26898
2015	10	DC	District of Columbia	670377	8538	162	365	3746	4136	31444	2971	25208
2016	10	DC	District of Columbia	684336	8236	136	532	3500	4067	32377	2361	27089
2017	10	DC	District of Columbia	693972	6974	116	0	2623	3791	29729	1809	25333

Law Enforcement Assault Data

- Data is available for many different factors in determining what affects officer assaults, such as
 - Officer Sex, Race, and Age
 - Month and Day and Time

Law Enforcement Officers Assaulted

Race and Sex of Victim Officer, 2011–2015

Victim officer		Total	2011	2012	2013	2014	2015
Number of victim officers		532	110	105	126	106	85
Race	White	449	97	87	107	89	69
	Black/African American	48	11	11	8	10	8
	American Indian/Alaska Native	2	0	0	1	0	1
	Asian/Native Hawaiian/Other Pacific Islander	17	2	4	5	3	3
	Not reported	16	0	3	5	4	4
Sex	Male	502	103	99	117	100	83
	Female	26	6	6	8	5	1
	Not reported	4	1	0	1	1	1

Law Enforcement Officers Assaulted

Time of Incident, 2011–2015

Time	Total	2011	2012	2013	2014	2015
Number of victim officers	532	110	105	126	106	85
12:01 a.m.–2 a.m.	55	15	7	12	13	8
2:01 a.m.–4 a.m.	40	6	12	11	7	4
4:01 a.m.–6 a.m.	22	5	7	3	6	1
6:01 a.m.–8 a.m.	20	8	2	1	7	2
8:01 a.m.–10 a.m.	32	2	9	10	3	8
10:01 a.m.–Noon	41	9	5	8	5	14
12:01 p.m.–2 p.m.	41	9	11	9	10	2
2:01 p.m.–4 p.m.	53	10	4	18	11	10
4:01 p.m.–6 p.m.	51	17	9	8	8	9
6:01 p.m.–8 p.m.	51	7	12	14	9	9
8:01 p.m.–10 p.m.	57	12	14	12	12	7
10:01 p.m.–Midnight	65	10	11	18	15	11
Not reported	4	0	2	2	0	0

Features

Officer Assault Data Tables

- Data is available for a large amount of topics, such as
 - Type of weapon used
 - Date, Month, Time
 - Weather

Visualized Graphs

- Several graphs that have data for all 50 states, showing
 - Crime across the US
 - Police and Corrections Spending



Carto

Free software for students

Secure storage of data

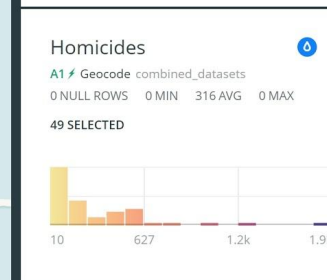
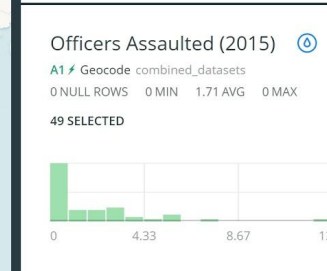
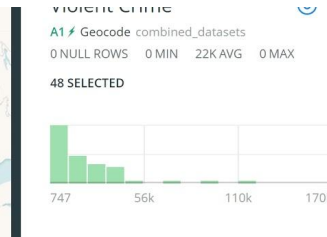
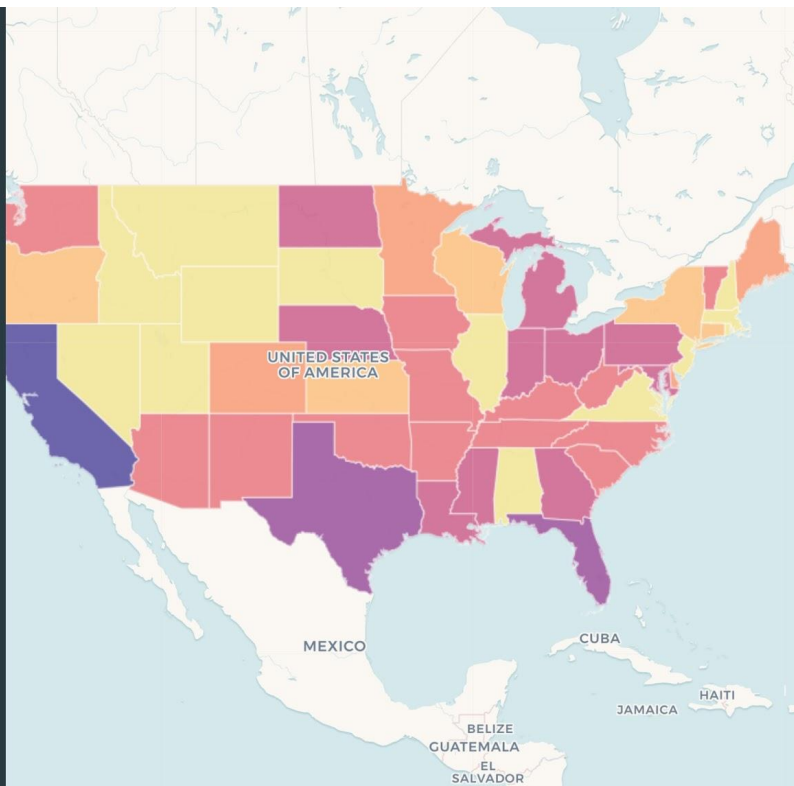
Able to customize how the data is shown

```
combined_datasets
combined_datasets

DATA ANALYSIS STYLE POP-UP LEGEND

1 #layer {
2   polygon-fill: ramp([homicide],
3   cartocolor(Sunset, 15), jenks);
4   polygon-opacity: 0.9;
5 }
6 #layer::outline {
7   line-width: 1;
8   line-color: #FFFFFF;
9   line-opacity: 0.5;
10 }
```

Cmd + S to apply your styles.



What's Next

- Include data about state/county/city
 - Able to give users a much more detailed experience
- Update in real time as data comes out
 - Will allow the user to keep up to date without waiting for the authors to update
- Create a more detailed map
 - Allows even more customization for the user

Conclusion

- High crime statistics in America, calls for a need to better understand the problem
- Big data taken from multiple government sites
- Improving dynamic updating and user friendliness

The Visualization

Thank You for Listening

Any Questions?