

Optimizing Ads to Decrease Crashes in Washington State

By: Thomas Cho, Jenna Han, Joshua Kang, Daniel Shin

Agenda



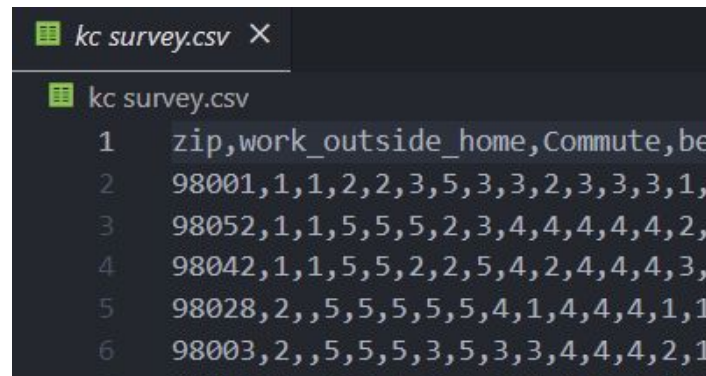
Car crash in Pierce County, WA (Jun. 21, 2022)

- The Dataset
 - Our Approach
 - Coding Methodology
 - Outside Datasets
 - Data Analysis & Visualization
 - Team Solution
 - Thank You!
-

The Dataset

How was the dataset presented?

- The dataset was presented as a collection of responses to a survey
 - Four types of files
- The challenge?
 - Observe significant changes over time with certain parameters
 - Pursuit of a broader objective



```
kc survey.csv
1 zip,work_outside_home,Commute,be
2 98001,1,1,2,2,3,5,3,3,2,3,3,3,1,
3 98052,1,1,5,5,5,2,3,4,4,4,4,4,2,
4 98042,1,1,5,5,2,2,5,4,2,4,4,4,3,
5 98028,2,,5,5,5,5,5,4,1,4,4,4,1,1
6 98003,2,,5,5,5,3,5,3,3,4,4,4,2,1
```

	B	C	D	E	F	G	H	I	J
Original Variable Name	RENAME								
county_code	drop								
zip									
Work_outside_the_home_	work_outside_home	Do you work outside of the home?	yn	1:Yes/2:No/3:Not Sure					
Commute		Do you commute to work most often ...?		1:Car/2:Carpool/3:Bus/4:Light Rail/5:Bicycle/6:Walk/7:Some Other Way					
		In the past 30 days, how often have you...	reg	1:Regularly/2:Fairly Often/3:Rarely/4:Just Once/5:Never/6:Not Sure					
Read_texts	beh_read	Read a text message or email while driving							
Typed	beh_type	Typed a text message or email while driving							
Talked_on_hand_held	beh_handheld	Talked on a hand-held cell phone while driving							
Talked_on_hands_free	beh_handfree	Talked on a hands-free cell phone while driving							
Used_app	beh_app	Used any app on your cell phone other than the GPS system while driving							

Our Approach

What do we want to solve? How will we do it?

- Solve:

- “What would stop people from using their cell phones while driving?”
- “What kind of advertisements would influence the people the most?”
- “How effective will these changes in advertisements be?”

- How we split our data up:

- Most problematic demographic.
- Factors that drivers respond positively to.
- Type of advertisements for different regions.



Coding Methodology

Coding Methodology & Discovery

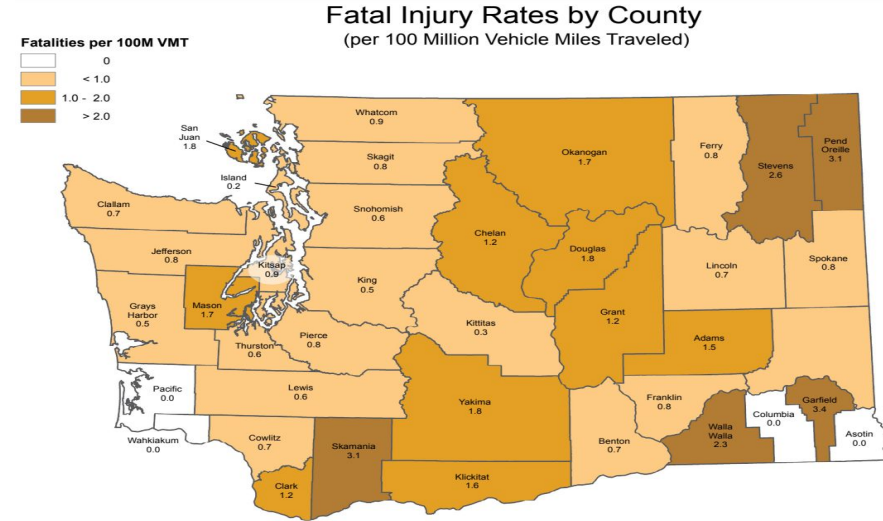
- Visual Studio Code (VS Code)
 - Shared directory via CHMOD
- Coding libraries that were used:
 - Plotly
 - Pandas
- Plotly
 - Created visualizations
- Pandas
 - Identify columns and most problematic age groups
 - Convert numerical values to words
 - Looped through each row and column of the cleaned dataset



Outside Datasets

Bringing in Outside Sources

- Washington State Department of Transportation
 - Annual Collision Reports
 - Collision Data Summaries
- <https://www.wsdot.wa.gov/mapsdata/crash/collisionannual.htm>
 - Contains datasets regarding EDUI's, injuries, fatalities, etc,. (2010-2015)

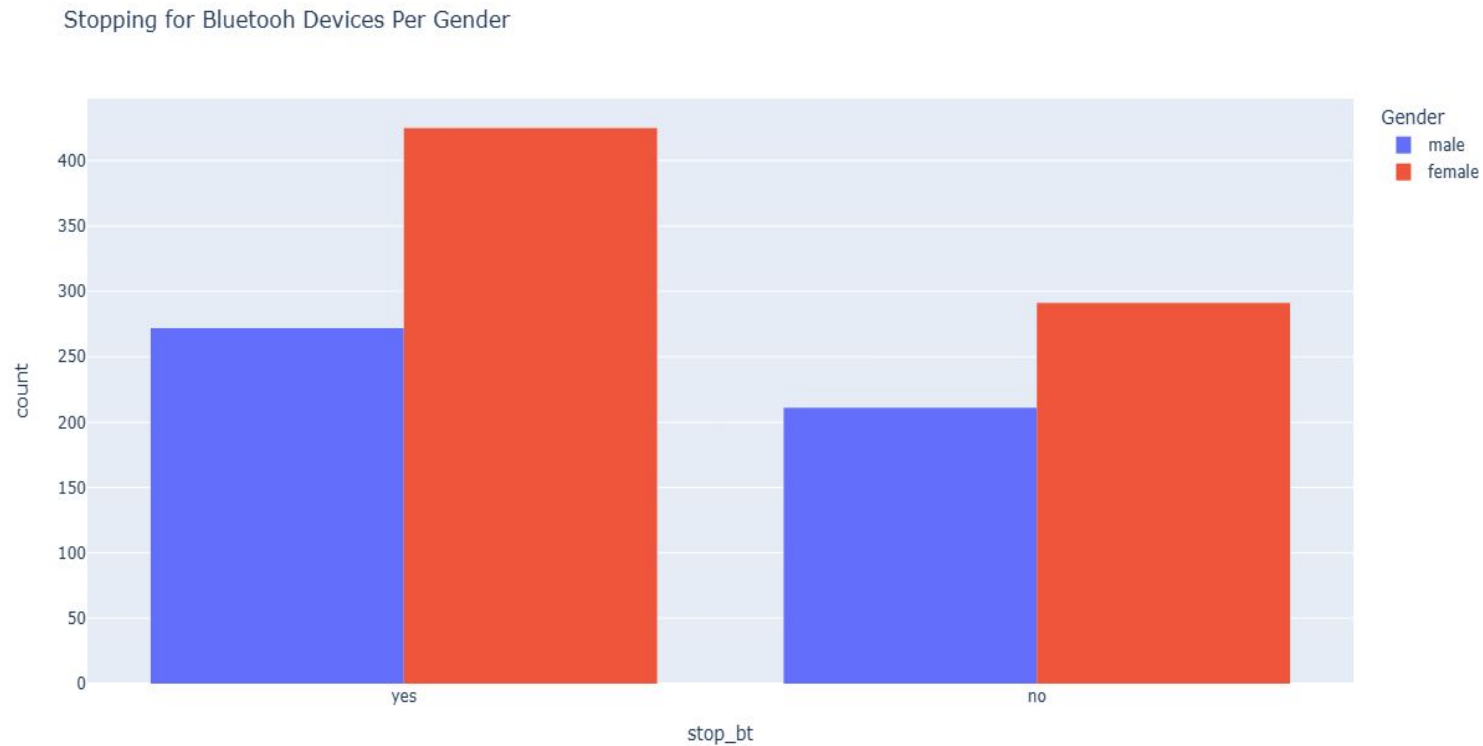


	DRIVERS	Total Involved Drivers	Drivers in Fatal Collisions	Drivers in Serious Injury Collisions	Drivers in Minor Injury Collisions	Drivers in Property Damage Only Collisions	Drivers in Unknown Injury Collisions
MALES	Total Males	114,297	541	1,751	35,374	75,742	889
	15 & Younger	162	3	8	47	102	2
	16 - 17	3,803	15	40	1,071	2,640	37
	18 - 20	9,189	31	133	2,751	6,206	68
	21 - 24	12,256	55	192	3,559	8,337	113
	25 - 34	25,611	113	389	7,787	17,131	191
	35 - 44	19,131	76	320	6,042	12,575	118
	45 - 54	17,936	87	264	5,682	11,784	119
	55 - 64	14,457	70	226	4,721	9,359	81
	65 - 74	7,241	40	113	2,358	4,691	39
	75 & Older	3,507	43	57	1,102	2,281	24
	Unknown Age	1,004	8	9	254	636	97
FEMALES	Total Females	81,924	226	790	27,901	52,425	582
	15 & Younger	123	1	1	44	74	3
	16 - 17	3,620	2	26	1,051	2,504	37
	18 - 20	7,143	19	56	2,250	4,763	55
	21 - 24	9,253	19	73	2,971	6,129	61
	25 - 34	18,290	48	168	6,225	11,722	127
	35 - 44	13,758	38	143	4,912	8,582	83
	45 - 54	12,044	36	123	4,336	7,466	83
	55 - 64	9,538	30	89	3,372	5,993	54
	65 - 74	5,131	18	65	1,771	3,245	32
	75 & Older	2,598	14	46	842	1,677	19
	Unknown Age	426	1	0	127	270	28

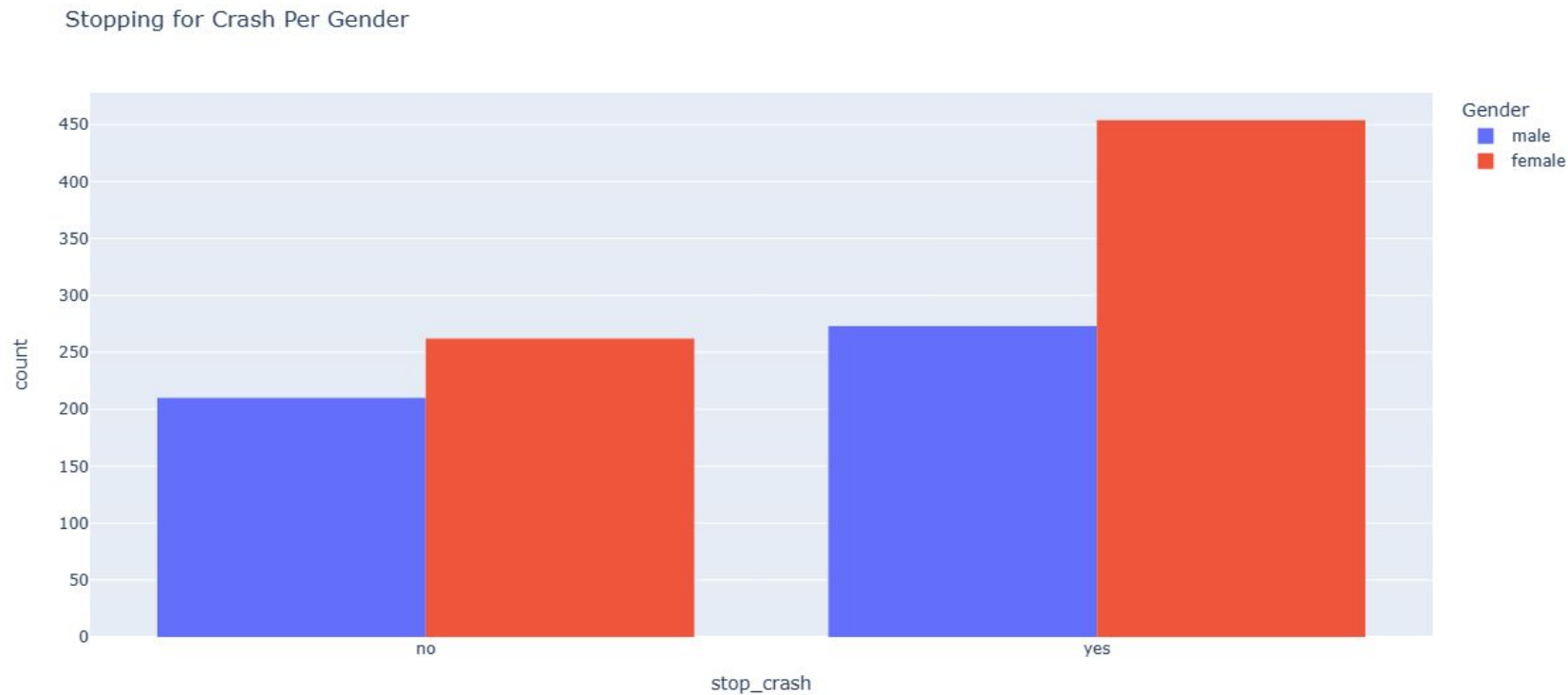


Data Analysis & Visualization

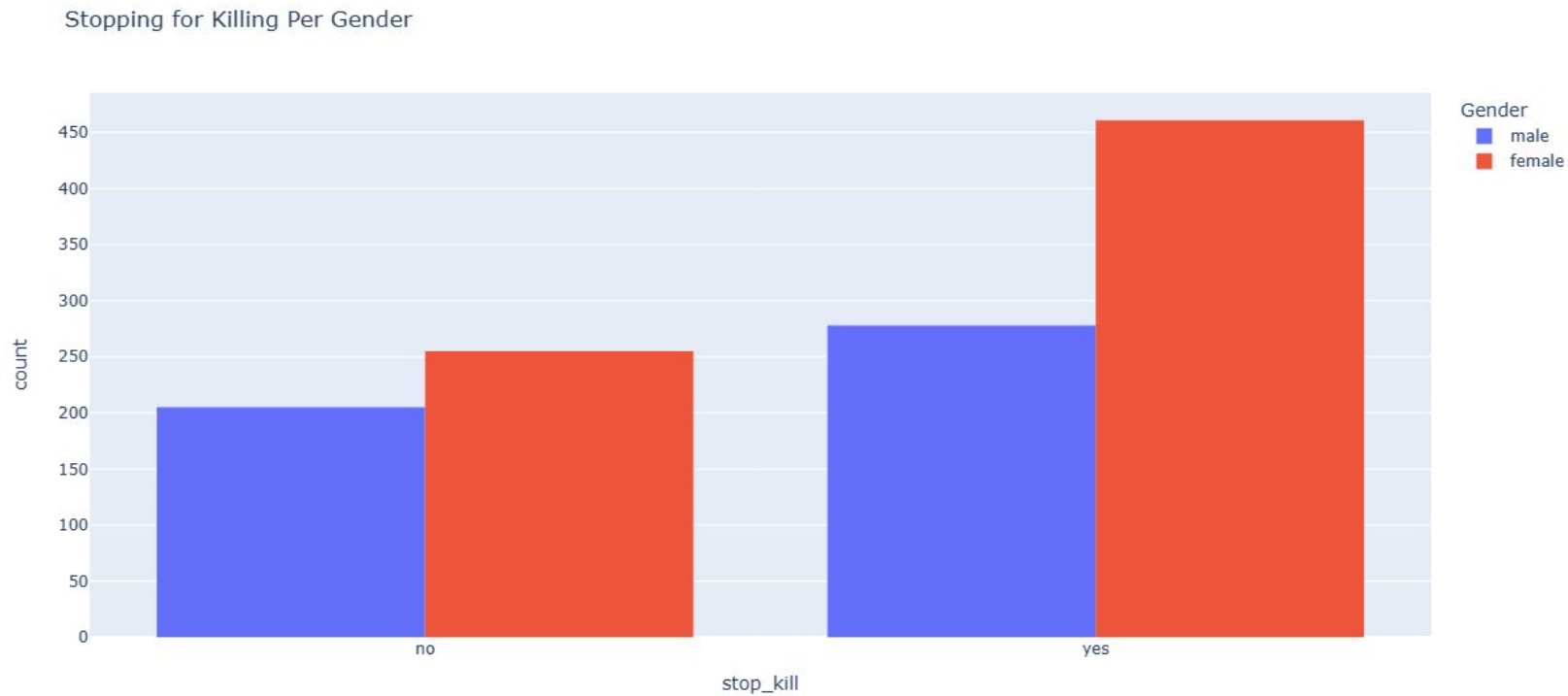
Bluetooth Devices



Crashing



Killing



Team Solution

Course of Action

- Target EDUI demographic
 - Males aged 18-34
- Encourage use of bluetooth capabilities
 - Inform car dealerships
 - Advertising importance of “hands-free” cell phone use
 - Insurance requirement
- Emphasize the consequences of distracted driving
 - Add testimonials of tragedy to driver courses
 - Focus on repercussions of distracted driving



Rollover crash. Mother DOA and child in ER.
Easton County, WA. (May 23, 2022)

The background is a solid pink color. In the top right corner, there is a decorative pattern of overlapping geometric shapes, including triangles and squares, in various shades of pink and magenta.

Thanks for Watching