

Optimizing Ads to Decrease Crashes in Washington State

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Agenda



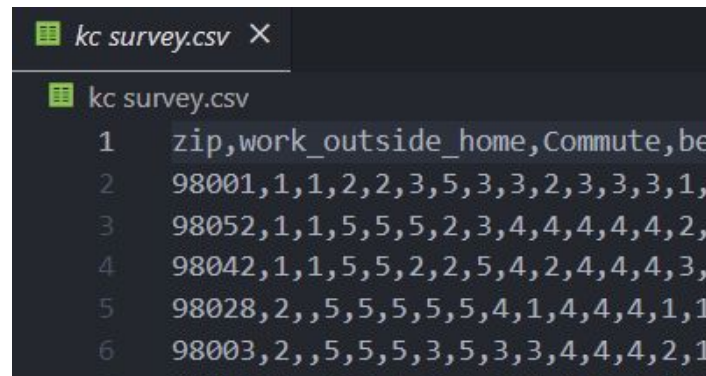
Car crash in Pierce County, WA (Jun. 21, 2022)

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

- Looked at data from WSDOT to see which age demographics was most problematic in terms of car crashes
- Used this data to identify which pieces of data we actually needed to carry out our analysis
- <https://www.wsdot.wa.gov/mapsdata/crash/collisionannual.htm>
 - Contains datasets regarding EDUI's, injuries, fatalities, etc,. (2010-2015)





Data Analysis & Visualization

Bluetooth Devices

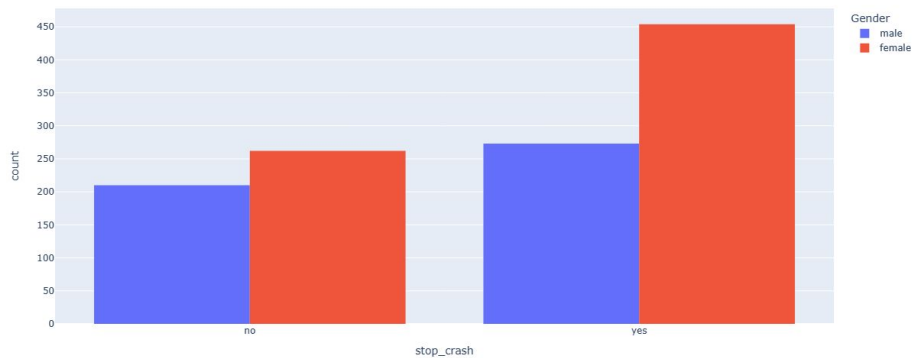
- Majority of people would stop using cell phone if they had access to bluetooth capabilities
- Females are more likely to stop than males



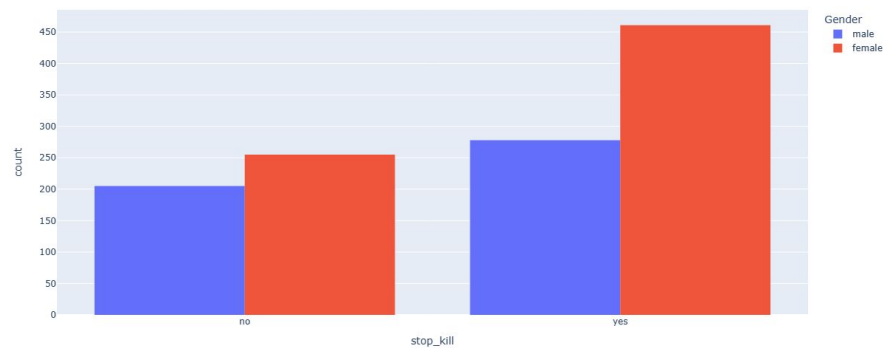
Crashing/Killing

- Significantly more “yes” responses for serious implications
- Males less responsive than females

Stopping for Crash Per Gender



Stopping for Killing Per Gender



Team Solution

Course of Action

- Emphasize on EDUI exposure/danger to males aged 18-34
- Encourage drivers to use devices that have bluetooth capabilities
 - Maybe encourage car dealers to also mention this
- Have insurance companies require those who are in the age group to drive a vehicle with modern bluetooth capabilities
- Heavy focus on the fatality/seriousness of distracted driving
 - Require drivers to watch testimonies of individuals who lost family members due to distracted driving (appeal to pathos)

