M130 Explainatory Data Analysis-Fatal Police Shootings
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```
library(ggplot2)
library(dplyr)
```

```
##
## Attaching package: 'dplyr'
```

```
## The following objects are masked from 'package:stats':
##
##     filter, lag
```

```
## The following objects are masked from 'package:base':
##
##     intersect, setdiff, setequal, union
```

```
library(RColorBrewer)
library(readxl)
```

Introduction: The Fatal Police Shootings study was created to analyze the characteristics of individuals killed in police shootings between 2015 and 2019. This data set contains 3,960 observations and 14 variables. This project is going to focus on comparing race and if the victim was armed when shot. Examining these variables will determine if race had an impact on the victims compared to whether or not they were armed.

```
fatal_police_shootings_data<-read_excel("fatal-police-shootings-data.xlsx")
dim(fatal_police_shootings_data)
```

```
## [1] 3960   14
```

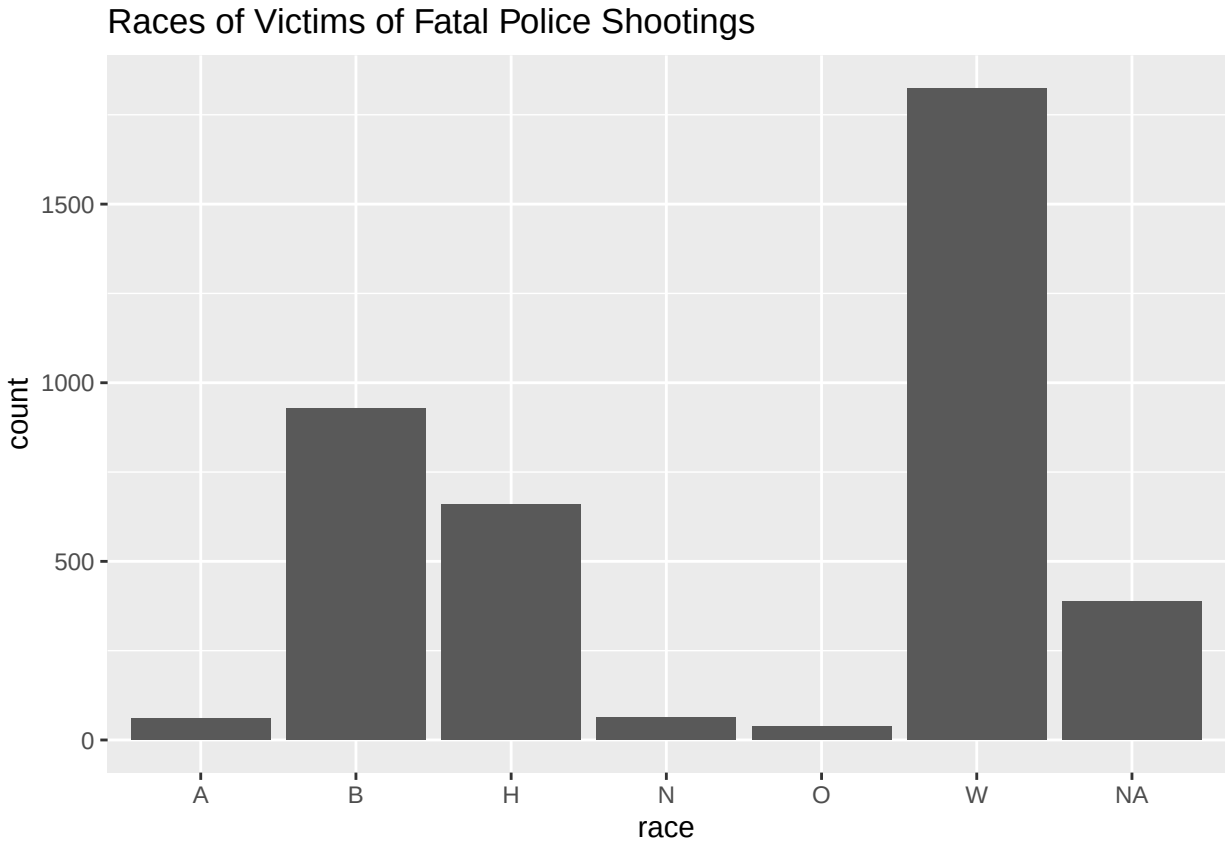
Univariate Exploration Race Variable

```
table(fatal_police_shootings_data$race)
```

```
##
##    A    B    H    N    O    W
##   61  927  659   62   37 1825
```

This table is of the race of victims, Asian, Black, Hispanic, white and unknown, the majority of victims being white

```
ggplot(fatal_police_shootings_data, aes(x=race))+geom_bar()+ggtitle("Races of Victims of Fatal Police Sh
```



This graph is a visual representation of the frequency of races that were shot and killed by Police. Armed

```
table(fatal_police_shootings_data$armed)
```

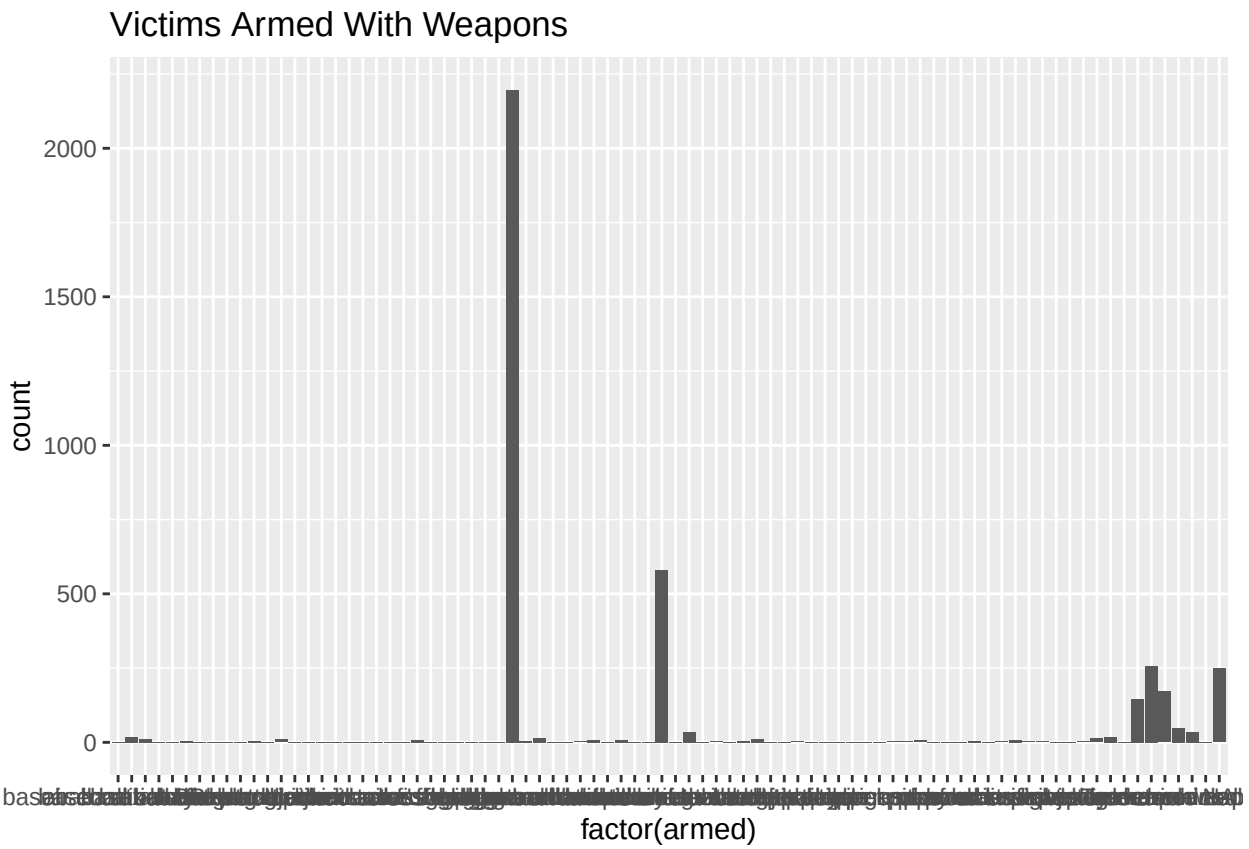
```
##
##                   air conditioner                               ax
##                                 1                               17
##                      baseball bat          baseball bat and bottle
##                                11                                1
## baseball bat and fireplace poker                            baton
##                                 1                                4
##                           bayonet                           BB gun
##                                 1                                2
##                      bean-bag gun                      beer bottle
##                                 1                                2
##                      blunt object                    bow and arrow
##                                 5                                1
##                        box cutter                            brick
##                                10                                2
##                           carjack                            chain
##                                 1                                2
##                         chain saw                         chainsaw
##                                 2                                1
##                             chair                claimed to be armed
##                                 2                                1
##                 contractor's level                    cordless drill
##                                 1                                1
```

```
##                     crossbow                      crowbar
##                            9                            2
##                    fireworks                     flagpole
##                            1                            1
##                    flashlight                   garden tool
##                            1                            1
##                   glass shard                          gun
##                            2                         2195
##                   gun and car                gun and knife
##                            5                           15
##                 gun and sword                gun and vehicle
##                            1                            1
##           guns and explosives                       hammer
##                            3                            8
##                    hand torch                     hatchet
##                            1                            8
##                hatchet and gun              incendiary device
##                            2                            2
##                         knife                lawn mower blade
##                           581                            2
##                       machete                machete and gun
##                           36                             1
##                  meat cleaver                metal hand tool
##                            3                            1
##                  metal object                     metal pipe
##                            4                           11
##                    metal pole                     metal rake
##                            2                            1
##                   metal stick                     motorcycle
##                            3                            1
##                      nail gun                          oar
##                            1                            1
##                    pellet gun                          pen
##                            1                            1
##                   pepper spray                    pick-axe
##                            1                            3
##                  piece of wood                        pipe
##                            3                            6
##                      pitchfork                        pole
##                            2                            2
##                pole and knife                        rock
##                            2                            4
##                 samurai sword                    scissors
##                            1                            3
##                   screwdriver                 sharp object
##                            8                            3
##                         shovel                       spear
##                            3                            1
##                       stapler           straight edge razor
##                            1                            3
##                         sword                       Taser
##                           13                           17
##                     tire iron                   toy weapon
##                            1                          145
```

```
##                          unarmed                       undetermined
##                              256                                171
##                   unknown weapon                            vehicle
##                               48                                 35
##                  vehicle and gun
##                                1
```

This table displays the type of weapons a victim was armed with aswell as the number of victims with that particular weapon.

```
ggplot(fatal_police_shootings_data, aes(x=factor(armed)))+geom_bar()+ggtitle("Victims Armed With Weapons
```



The graph presents a crowded visual representation of the frequency of victims armed.

BIVARIATE EXPLORATION

```
table(fatal_police_shootings_data$race, fatal_police_shootings_data$armed) %>% prop.table(margin=1) %>%
```

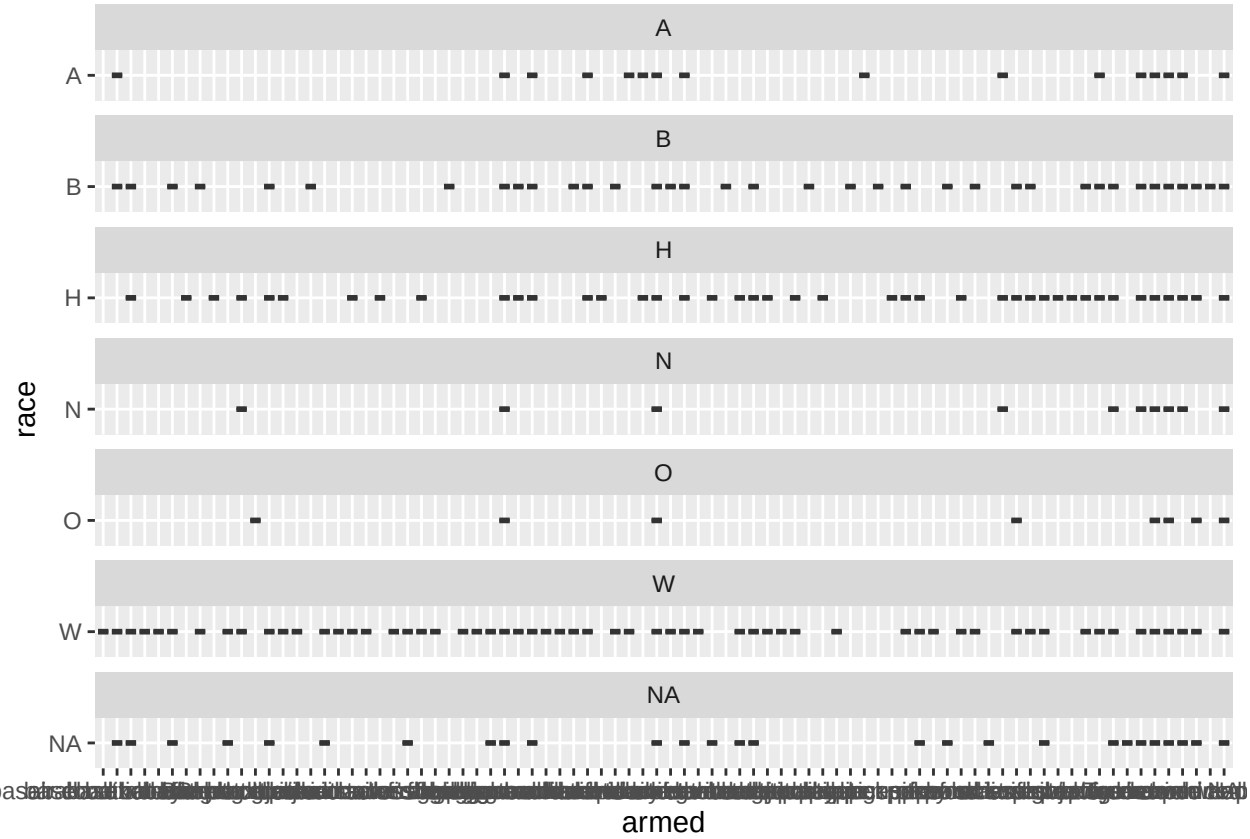
```
##
##     air conditioner    ax baseball bat baseball bat and bottle
##   A           0.000 0.034        0.000                   0.000
##   B           0.000 0.001        0.005                   0.000
##   H           0.000 0.000        0.003                   0.000
##   N           0.000 0.000        0.000                   0.000
##   O           0.000 0.000        0.000                   0.000
##   W           0.001 0.006        0.002                   0.001
##
```

```
##   baseball bat and fireplace poker baton bayonet BB gun bean-bag gun
## A                            0.000 0.000   0.000  0.000        0.000
## B                            0.000 0.002   0.000  0.001        0.000
## H                            0.000 0.000   0.002  0.000        0.002
## N                            0.000 0.000   0.000  0.000        0.000
## O                            0.000 0.000   0.000  0.000        0.000
## W                            0.001 0.001   0.000  0.001        0.000
##
##   beer bottle blunt object bow and arrow box cutter brick carjack chain
## A       0.000        0.000         0.000      0.000 0.000   0.000 0.000
## B       0.000        0.000         0.000      0.002 0.000   0.000 0.002
## H       0.000        0.002         0.000      0.002 0.002   0.000 0.000
## N       0.000        0.017         0.000      0.000 0.000   0.000 0.000
## O       0.000        0.000         0.029      0.000 0.000   0.000 0.000
## W       0.001        0.002         0.000      0.003 0.001   0.001 0.000
##
##   chain saw chainsaw chair claimed to be armed contractor's level
## A     0.000    0.000 0.000               0.000              0.000
## B     0.000    0.000 0.000               0.000              0.000
## H     0.000    0.000 0.002               0.000              0.002
## N     0.000    0.000 0.000               0.000              0.000
## O     0.000    0.000 0.000               0.000              0.000
## W     0.001    0.001 0.001               0.001              0.000
##
##   cordless drill crossbow crowbar fireworks flagpole flashlight garden tool
## A          0.000    0.000   0.000     0.000    0.000      0.000       0.000
## B          0.000    0.000   0.000     0.000    0.001      0.000       0.000
## H          0.000    0.000   0.002     0.000    0.000      0.000       0.000
## N          0.000    0.000   0.000     0.000    0.000      0.000       0.000
## O          0.000    0.000   0.000     0.000    0.000      0.000       0.000
## W          0.001    0.003   0.001     0.001    0.000      0.001       0.001
##
##   glass shard   gun gun and car gun and knife gun and sword gun and vehicle
## A       0.000 0.345       0.000         0.034         0.000           0.000
## B       0.000 0.613       0.001         0.003         0.000           0.000
## H       0.000 0.517       0.002         0.007         0.000           0.000
## N       0.000 0.593       0.000         0.000         0.000           0.000
## O       0.000 0.441       0.000         0.000         0.000           0.000
## W       0.001 0.617       0.002         0.002         0.001           0.001
##
##   guns and explosives hammer hand torch hatchet hatchet and gun
## A               0.000  0.017      0.000   0.000           0.017
## B               0.002  0.001      0.000   0.001           0.000
## H               0.000  0.003      0.002   0.000           0.000
## N               0.000  0.000      0.000   0.000           0.000
## O               0.000  0.000      0.000   0.000           0.000
## W               0.001  0.002      0.000   0.004           0.001
##
##   incendiary device knife lawn mower blade machete machete and gun
## A             0.017 0.362            0.000   0.017           0.000
## B             0.000 0.120            0.001   0.009           0.000
## H             0.002 0.193            0.000   0.018           0.000
## N             0.000 0.203            0.000   0.000           0.000
## O             0.000 0.294            0.000   0.000           0.000
```

```
##   W             0.000 0.150            0.001   0.007           0.001
##
##     meat cleaver metal hand tool metal object metal pipe metal pole metal rake
##   A        0.000           0.000        0.000      0.000      0.000      0.000
##   B        0.000           0.001        0.000      0.002      0.000      0.000
##   H        0.003           0.000        0.002      0.007      0.002      0.000
##   N        0.000           0.000        0.000      0.000      0.000      0.000
##   O        0.000           0.000        0.000      0.000      0.000      0.000
##   W        0.000           0.000        0.001      0.002      0.001      0.001
##
##     metal stick motorcycle nail gun   oar pellet gun   pen pepper spray
##   A       0.000      0.000    0.000 0.000      0.000 0.017        0.000
##   B       0.000      0.001    0.000 0.000      0.001 0.000        0.001
##   H       0.002      0.000    0.002 0.000      0.000 0.000        0.000
##   N       0.000      0.000    0.000 0.000      0.000 0.000        0.000
##   O       0.000      0.000    0.000 0.000      0.000 0.000        0.000
##   W       0.001      0.000    0.000 0.001      0.000 0.000        0.000
##
##     pick-axe piece of wood  pipe pitchfork  pole pole and knife  rock
##   A    0.000         0.000 0.000     0.000 0.000          0.000 0.000
##   B    0.000         0.001 0.000     0.000 0.001          0.000 0.001
##   H    0.005         0.002 0.007     0.000 0.000          0.002 0.000
##   N    0.000         0.000 0.000     0.000 0.000          0.000 0.000
##   O    0.000         0.000 0.000     0.000 0.000          0.000 0.000
##   W    0.000         0.001 0.001     0.001 0.000          0.001 0.002
##
##     samurai sword scissors screwdriver sharp object shovel spear stapler
##   A         0.000    0.017       0.000        0.000  0.000 0.000   0.000
##   B         0.000    0.000       0.003        0.001  0.000 0.000   0.000
##   H         0.000    0.002       0.002        0.002  0.002 0.002   0.002
##   N         0.000    0.017       0.000        0.000  0.000 0.000   0.000
##   O         0.000    0.000       0.029        0.000  0.000 0.000   0.000
##   W         0.000    0.000       0.002        0.001  0.001 0.000   0.000
##
##     straight edge razor sword Taser tire iron toy weapon unarmed undetermined
##   A               0.000 0.017 0.000     0.000      0.017   0.017        0.034
##   B               0.001 0.002 0.005     0.000      0.035   0.109        0.038
##   H               0.002 0.005 0.003     0.000      0.039   0.074        0.056
##   N               0.000 0.000 0.017     0.000      0.017   0.051        0.068
##   O               0.000 0.000 0.000     0.000      0.000   0.147        0.029
##   W               0.001 0.004 0.005     0.000      0.047   0.062        0.037
##
##     unknown weapon vehicle vehicle and gun
##   A          0.034   0.000           0.000
##   B          0.012   0.014           0.001
##   H          0.016   0.005           0.000
##   N          0.017   0.000           0.000
##   O          0.000   0.029           0.000
##   W          0.010   0.005           0.000
```

Comparing these variables we can see the frequency of each race being armed as well as what they were armed with. B and O had the highest frequencies of being unarmed at O-14.7% and B-10.9%

```
ggplot(fatal_police_shootings_data, aes(x=armed, y=race)) + geom_boxplot()+ facet_wrap(~race, scales="fi
```



Again a fairly crowded display of frequency of being armed with a particular weapon for a race.

CONCLUSION

The variables examined and compared above showed no correlation to each other. One race was not considerably more likely to be armed. We did see in the table comparison of weapons and race that 10.9% of Blacks and 6.2% Whites were shot and killed unarmed. There is not a significant enough difference here to suggest that race impacted the likeliness of a singular person being killed in a police shooting.