NYPD Shooting Incident Data Report

1. Importing Data

Obtain the NYPD Shooting Incident Data (historic) from Data.gov at the following url:

https://data.cityofnewyork.us/api/views/833y-fsy8/rows.csv?accessType=DOWNLOAD

Read using '<read_csv()>'...

```
library(tidyverse)
library(tidyr)
library(stringr)
library(dplyr)
url = "https://data.cityofnewyork.us/api/views/833y-fsy8/rows.csv?accessType=DOWNLOAD"
NYPD_shooting_data = read_csv(url)
```

```
NYPD_shooting_data
```

```
## # A tibble: 23,585 x 19
##    INCIDENT_KEY OCCUR_DATE OCCUR_TIME BORO     PRECINCT JURISDICTION_CODE
##           <dbl> <chr>      <time>     <chr>       <dbl>              <dbl>
##  1     24050482 08/27/2006 05:35      BRONX          52                  0
##  2     77673979 03/11/2011 12:03      QUEENS        106                  0
##  3    203350417 10/06/2019 01:09      BROOKLYN       77                  0
##  4     80584527 09/04/2011 03:35      BRONX          40                  0
##  5     90843766 05/27/2013 21:16      QUEENS        100                  0
##  6     92393427 09/01/2013 04:17      BROOKLYN       67                  0
##  7     73057167 06/05/2010 21:16      BROOKLYN       77                  0
##  8    211362213 03/20/2020 21:27      BROOKLYN       81                  0
##  9    137564752 07/04/2014 00:25      QUEENS        101                  0
## 10    147024011 10/18/2015 01:33      QUEENS        106                  0
## # ... with 23,575 more rows, and 13 more variables: LOCATION_DESC <chr>,
## #   STATISTICAL_MURDER_FLAG <lgl>, PERP_AGE_GROUP <chr>, PERP_SEX <chr>,
## #   PERP_RACE <chr>, VIC_AGE_GROUP <chr>, VIC_SEX <chr>, VIC_RACE <chr>,
## #   X_COORD_CD <dbl>, Y_COORD_CD <dbl>, Latitude <dbl>, Longitude <dbl>,
## #   Lon_Lat <chr>
```

2. Tidy Data

Time to tidy up the data and make it more "R" friendly. I will change the OCCUR_DATE into a "date" object and arrange the data by the following priorities OCCUR_DATE, OCCUR_TIME, BORO, PRECINCT, LOCATION_DESC, VIC_AGE_GROUP, VIC_SEX, VIC_RACE

Additionally, I will remove some columns with data we are not interested in (i.e. INCIDENT_KEY, JURISDICTION_CODE, STATISTICAL_MURDER_FLAG, X_COORD_CD, Y_COORD_CD, Latitude, Longitude, Lon_Lat). Looking at the location descriptions, there were a lot of observations that were missing this information. If I wanted to use this characteristic in my analysis, the "NA" entries would not serve

me much use so I would get rid of them by using the <na.omit()> function. For this analysis, I decided to focus on observations as they relate to the Victim's characteristics.

I started with cleaning up the Victim's age range column by splitting the column into numeric low and high end points. I also decided to further categorize the location description column since I noticed a common primary location description listed as "MULTI DWELL" and differing secondary location descriptions. This appeared to be a good opportunity to split up that data.

```
library(lubridate)
NYPD_shooting_data = mutate(NYPD_shooting_data, OCCUR_DATE = mdy(OCCUR_DATE)) %>%
  arrange(OCCUR_DATE,OCCUR_TIME,BORO,PRECINCT, LOCATION_DESC, VIC_AGE_GROUP, VIC_SEX, VIC_RACE) %>%
  select(-c(INCIDENT_KEY,JURISDICTION_CODE,STATISTICAL_MURDER_FLAG,X_COORD_CD,Y_COORD_CD, Latitude, Long
  separate(LOCATION_DESC, into = c("Primary_loc","Secondary_loc"), sep = "-")

NYPD_shooting_data$VIC_AGE_GROUP = sub("65\\+", "65-100", NYPD_shooting_data$VIC_AGE_GROUP)
NYPD_shooting_data$VIC_AGE_GROUP = sub("<", "0-", NYPD_shooting_data$VIC_AGE_GROUP )
NYPD_shooting_data = separate(NYPD_shooting_data, VIC_AGE_GROUP, into = c("VicLowAgeRange","VicHighAgeRa
NYPD_shooting_data$VicLowAgeRange = as.numeric(NYPD_shooting_data$VicLowAgeRange)
NYPD_shooting_data$VicHighAgeRange = as.numeric(NYPD_shooting_data$VicHighAgeRange)
```

```
NYPD_shooting_data
```

```
## # A tibble: 23,585 x 10
##    OCCUR_DATE OCCUR_TIME BORO  PRECINCT Primary_loc Secondary_loc VicLowAgeRange
##    <date>     <time>     <chr>    <dbl> <chr>       <chr>                 <dbl>
##  1 2006-01-01 02:00      BRONX       48 "NONE"       <NA>                      0
##  2 2006-01-01 02:22      MANH~       28 "NONE"       <NA>                     25
##  3 2006-01-01 02:34      QUEE~      114 "BAR/NIGHT~  <NA>                     25
##  4 2006-01-01 02:34      QUEE~      114 "BAR/NIGHT~  <NA>                     25
##  5 2006-01-01 03:30      BROO~       67  <NA>        <NA>                     18
##  6 2006-01-01 05:51      BRONX       44 "NONE"       <NA>                     18
##  7 2006-01-01 12:30      BROO~       77 "PVT HOUSE"  <NA>                     25
##  8 2006-01-01 19:00      QUEE~      106 "NONE"       <NA>                     18
##  9 2006-01-02 00:49      BROO~       90 "MULTI DWE~ " PUBLIC HOU~             25
## 10 2006-01-02 03:59      BROO~       70 "BAR/NIGHT~  <NA>                     18
## # ... with 23,575 more rows, and 3 more variables: VicHighAgeRange <dbl>,
## #   VIC_SEX <chr>, VIC_RACE <chr>
```

Printing summary of data...

```
summary(NYPD_shooting_data)
```

```
##    OCCUR_DATE          OCCUR_TIME           BORO              PRECINCT
##  Min.   :2006-01-01   Length:23585      Length:23585       Min.   :  1.00
##  1st Qu.:2008-12-31   Class1:hms        Class :character   1st Qu.: 44.00
##  Median :2012-02-27   Class2:difftime   Mode  :character   Median : 69.00
##  Mean   :2012-10-05   Mode  :numeric                       Mean   : 66.21
##  3rd Qu.:2016-03-02                                        3rd Qu.: 81.00
##  Max.   :2020-12-31                                        Max.   :123.00
##
##  Primary_loc        Secondary_loc      VicLowAgeRange  VicHighAgeRange
##  Length:23585       Length:23585       Min.   : 0.00   Min.   : 18.00
##  Class :character   Class :character   1st Qu.:18.00   1st Qu.: 24.00
```

```
##  Mode  :character   Mode  :character   Median :25.00   Median : 44.00
##                                        Mean   :21.21   Mean   : 35.23
##                                        3rd Qu.:25.00   3rd Qu.: 44.00
##                                        Max.   :65.00   Max.   :100.00
##                                        NA's   :59      NA's   :59
##    VIC_SEX            VIC_RACE
##  Length:23585       Length:23585
##  Class :character   Class :character
##  Mode  :character   Mode  :character
##
##
##
##
```

As expected, the only numerical data produced from tidying up is the date, the precinct the shootings were reported to, and the victim's age ranges. We can see the data ranges from 2006 to 2020, indicating this data goes back ~14 years. A majority of the data falls under the character category and will require more analysis.

3. Visualizing Data

To start visualizing the data, I decided to group the data 3 different ways: by the boroughs, victim's race,the victim's sex. I was curious to see the count of victims of different races, sexes, and boroughs. I also took the average age low and high end points of the victims. Additionally, I grouped the data ordered by borough then by victim race.

```
total = nrow(NYPD_shooting_data)
NYPD_BORO_analyze = NYPD_shooting_data %>%
  group_by(BORO) %>%
  summarize(countB = n(), perc_shootingB = (countB/total)*100) %>%
  select(BORO, countB, perc_shootingB) %>%
  ungroup() %>%
  mutate_if(is.numeric, round, digits = 2)

NYPD_Race_analyze = NYPD_shooting_data %>%
  group_by(VIC_RACE)%>%
  summarize(countR = n(), perc_shootingR = (countR/total*100) , Avg_LowVicAge = mean(VicLowAgeRange), Av
  select(VIC_RACE, countR, perc_shootingR, Avg_LowVicAge, Avg_HighVicAge) %>%
  ungroup() %>%
  mutate_if(is.numeric, round, digits = 2)

NYPD_Sex_analyze = NYPD_shooting_data %>%
  group_by(VIC_SEX)%>%
  summarize(countS = n(), perc_shootingS = (countS/total*100) , Avg_LowVicAge = mean(VicLowAgeRange), Av
  select(VIC_SEX, countS, perc_shootingS, Avg_LowVicAge, Avg_HighVicAge) %>%
  ungroup() %>%
  mutate_if(is.numeric, round, digits = 2)

NYPD_BORO_VICRACE_analyze = NYPD_shooting_data %>%
  group_by(BORO,VIC_RACE) %>%
  summarize(countBV = n(), perc_shootingB = (countBV/total*100)) %>%
  select(BORO, VIC_RACE, countBV, perc_shootingB) %>%
```

```
  ungroup() %>%
  mutate_if(is.numeric, round, digits = 2)
```

```
NYPD_BORO_analyze
```

```
## # A tibble: 5 x 3
##   BORO          countB perc_shootingB
##   <chr>          <dbl>          <dbl>
## 1 BRONX           6701          28.4
## 2 BROOKLYN        9734          41.3
## 3 MANHATTAN       2922          12.4
## 4 QUEENS          3532          15.0
## 5 STATEN ISLAND    696           2.95
```

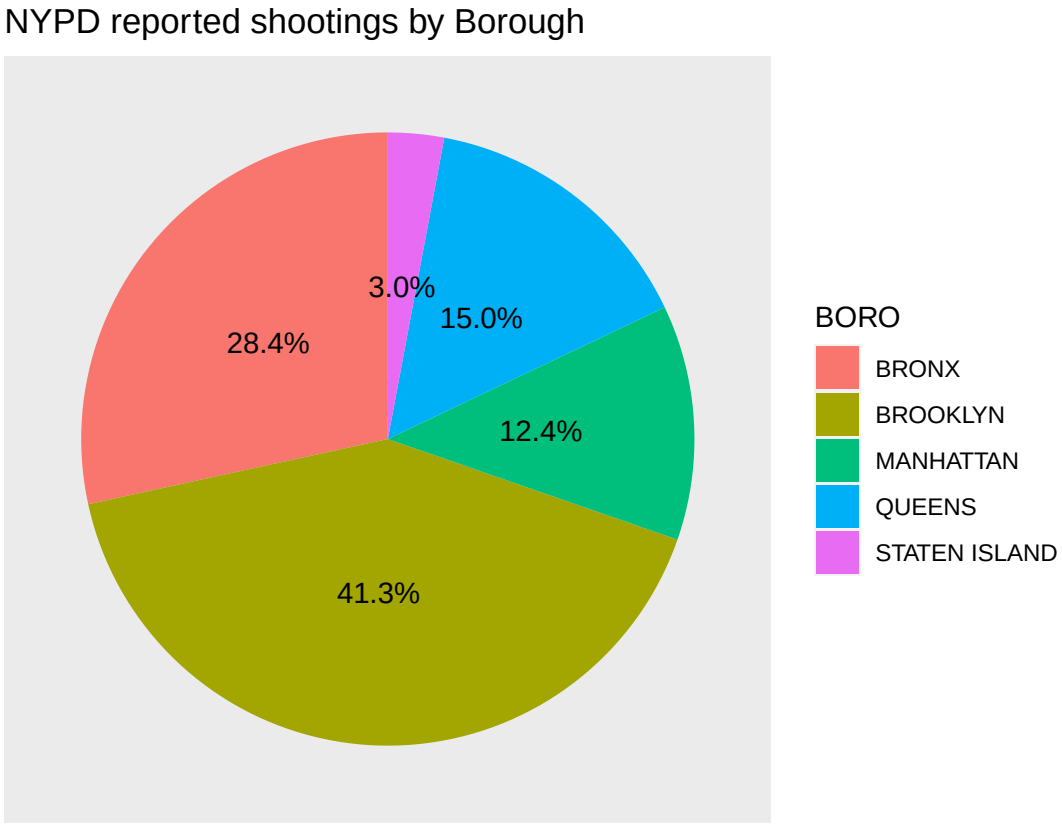
```
NYPD_Race_analyze
```

```
## # A tibble: 7 x 5
##   VIC_RACE                    countR perc_shootingR Avg_LowVicAge Avg_HighVicAge
##   <chr>                        <dbl>          <dbl>         <dbl>          <dbl>
## 1 AMERICAN INDIAN/ALASKAN NA~      9           0.04          16.3           29.3
## 2 ASIAN / PACIFIC ISLANDER       327           1.39          NA             NA
## 3 BLACK                        16869          71.5           NA             NA
## 4 BLACK HISPANIC                2245           9.52          NA             NA
## 5 UNKNOWN                         65           0.28          NA             NA
## 6 WHITE                          620           2.63          NA             NA
## 7 WHITE HISPANIC                3450          14.6           NA             NA
```

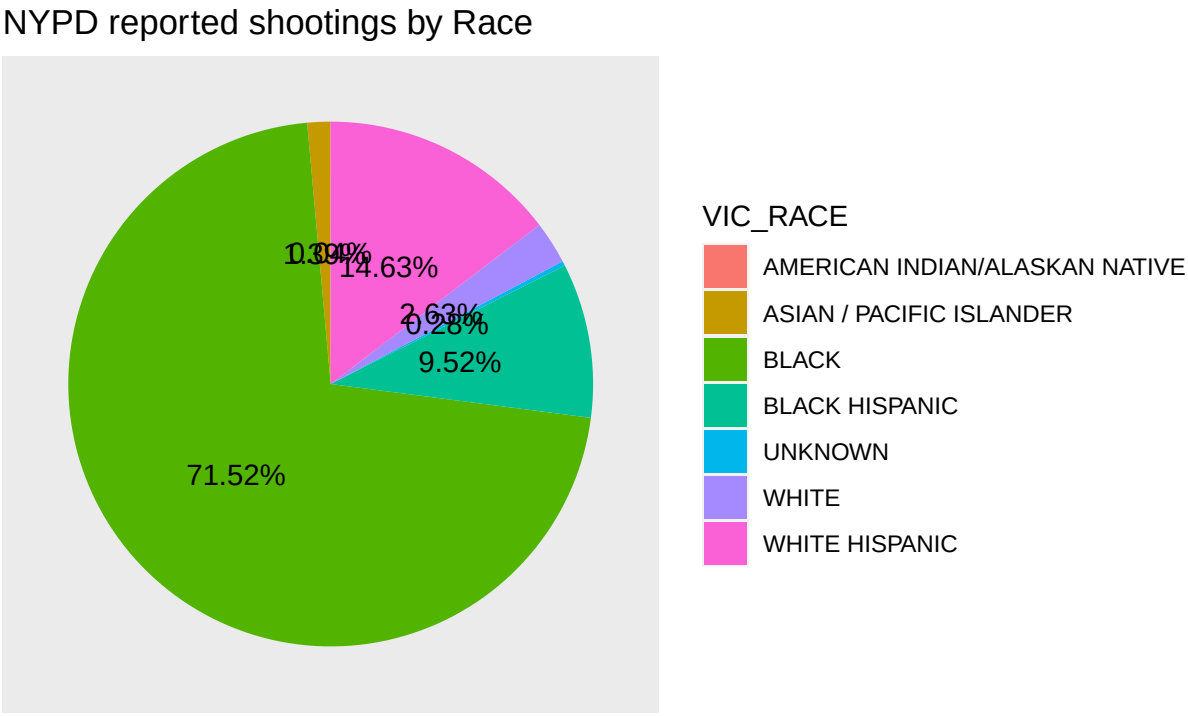
```
NYPD_Sex_analyze
```

```
## # A tibble: 3 x 5
##   VIC_SEX countS perc_shootingS Avg_LowVicAge Avg_HighVicAge
##   <chr>    <dbl>          <dbl>         <dbl>          <dbl>
## 1 F         2204           9.34            NA             NA
## 2 M        21370          90.6             NA             NA
## 3 U           11           0.05            NA             NA
```

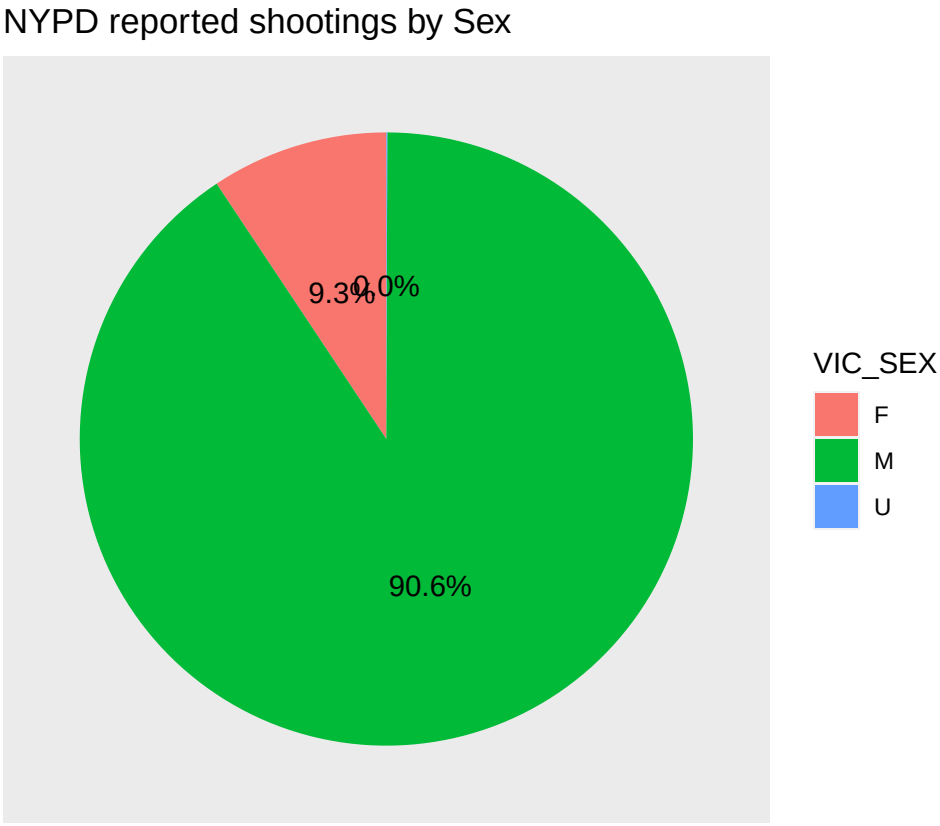
```
bpBoro = NYPD_BORO_analyze %>%
  ggplot(aes(x = "", y = perc_shootingB, fill = BORO))+geom_bar(width = 1, stat = "identity")
bpBoro + coord_polar("y", start = 0) + theme(axis.text = element_blank(),
        axis.ticks = element_blank(),
        panel.grid  = element_blank()) +ggtitle("NYPD reported shootings by Borough") +
  xlab(element_blank()) + ylab(element_blank()) + geom_text(aes(label = scales::percent(perc_shootingB/
```




```
bpRace = NYPD_Race_analyze %>%
  ggplot(aes(x = "", y = perc_shootingR, fill = VIC_RACE))+geom_bar(width = 1, stat = "identity")
bpRace + coord_polar("y", start = 0) +theme(axis.text = element_blank(),
        axis.ticks = element_blank(),
        panel.grid  = element_blank()) +ggtitle("NYPD reported shootings by Race") +
  xlab(element_blank()) + ylab(element_blank())+geom_text(aes(label = scales::percent(perc_shootingR/10
```




```
bpSex = NYPD_Sex_analyze %>%
  ggplot(aes(x = "", y = perc_shootingS, fill = VIC_SEX))+geom_bar(width = 1, stat = "identity")
bpSex + coord_polar("y", start = 0) +theme(axis.text = element_blank(),
        axis.ticks = element_blank(),
        panel.grid  = element_blank()) +ggtitle("NYPD reported shootings by Sex") +
  xlab(element_blank()) + ylab(element_blank()) + geom_text(aes(label = scales::percent(perc_shootingS/
```



Now that we have had a chance to see some preliminary visualizations, some questions arise about the different demographics and their relations. I was mainly interested in the relationship of the victim's race as it pertained to the borough in which the shootings occurred. How much did the race distribution of each borough reflect the demographic of the population of each borough or of New York? If they didn't match, does that mean that a particular race is being targeted more frequently in specific boroughs?

Filtering out the data to show one victim race's distribution throughout different boroughs in descending count order yields us...

```
NYPD_BORO_VICRACE_analyze %>% filter(VIC_RACE == "BLACK")%>% arrange(desc(countBV))
```

```
## # A tibble: 5 x 4
##   BORO          VIC_RACE countBV perc_shootingB
##   <chr>         <chr>      <dbl>          <dbl>
## 1 BROOKLYN      BLACK       8119          34.4
## 2 BRONX         BLACK       3832          16.2
## 3 QUEENS        BLACK       2568          10.9
## 4 MANHATTAN     BLACK       1857           7.87
## 5 STATEN ISLAND BLACK        493           2.09
```

```
NYPD_BORO_VICRACE_analyze %>% filter(VIC_RACE == "WHITE HISPANIC") %>% arrange(desc(countBV))
```

```
## # A tibble: 5 x 4
##   BORO          VIC_RACE       countBV perc_shootingB
##   <chr>         <chr>            <dbl>          <dbl>
## 1 BRONX         WHITE HISPANIC    1602           6.79
```

```
## 2 BROOKLYN      WHITE HISPANIC     749           3.18
## 3 MANHATTAN     WHITE HISPANIC     558           2.37
## 4 QUEENS        WHITE HISPANIC     454           1.92
## 5 STATEN ISLAND WHITE HISPANIC      87           0.37
```

```
NYPD_BORO_VICRACE_analyze %>% filter(VIC_RACE == "BLACK HISPANIC") %>% arrange(desc(countBV))
```

```
## # A tibble: 5 x 4
##   BORO          VIC_RACE       countBV perc_shootingB
##   <chr>         <chr>            <dbl>          <dbl>
## 1 BRONX         BLACK HISPANIC    1073           4.55
## 2 BROOKLYN      BLACK HISPANIC     501           2.12
## 3 MANHATTAN     BLACK HISPANIC     407           1.73
## 4 QUEENS        BLACK HISPANIC     225           0.95
## 5 STATEN ISLAND BLACK HISPANIC      39           0.17
```

```
NYPD_BORO_VICRACE_analyze %>% filter(VIC_RACE == "WHITE") %>% arrange(desc(countBV))
```

```
## # A tibble: 5 x 4
##   BORO          VIC_RACE countBV perc_shootingB
##   <chr>         <chr>      <dbl>          <dbl>
## 1 BROOKLYN      WHITE        228           0.97
## 2 QUEENS        WHITE        145           0.61
## 3 BRONX         WHITE        115           0.49
## 4 STATEN ISLAND WHITE         72           0.31
## 5 MANHATTAN     WHITE         60           0.25
```

```
NYPD_BORO_VICRACE_analyze %>% filter(VIC_RACE == "ASIAN / PACIFIC ISLANDER") %>% arrange(desc(countBV))
```

```
## # A tibble: 5 x 4
##   BORO          VIC_RACE                countBV perc_shootingB
##   <chr>         <chr>                     <dbl>          <dbl>
## 1 QUEENS        ASIAN / PACIFIC ISLANDER    125           0.53
## 2 BROOKLYN      ASIAN / PACIFIC ISLANDER    111           0.47
## 3 BRONX         ASIAN / PACIFIC ISLANDER     52           0.22
## 4 MANHATTAN     ASIAN / PACIFIC ISLANDER     36           0.15
## 5 STATEN ISLAND ASIAN / PACIFIC ISLANDER      3           0.01
```

Filtering out the data to show one boroughs victim racial distribution in descending count order yields us...

```
NYPD_BORO_VICRACE_analyze %>% filter(BORO == "BROOKLYN") %>% arrange(desc(countBV))
```

```
## # A tibble: 7 x 4
##   BORO     VIC_RACE                       countBV perc_shootingB
##   <chr>    <chr>                            <dbl>          <dbl>
## 1 BROOKLYN BLACK                             8119          34.4
## 2 BROOKLYN WHITE HISPANIC                     749           3.18
## 3 BROOKLYN BLACK HISPANIC                     501           2.12
## 4 BROOKLYN WHITE                              228           0.97
## 5 BROOKLYN ASIAN / PACIFIC ISLANDER           111           0.47
## 6 BROOKLYN UNKNOWN                             23           0.1
## 7 BROOKLYN AMERICAN INDIAN/ALASKAN NATIVE       3           0.01
```

```
NYPD_BORO_VICRACE_analyze %>% filter(BORO == "BRONX") %>% arrange(desc(countBV))
```

```
## # A tibble: 7 x 4
##   BORO  VIC_RACE                          countBV perc_shootingB
##   <chr> <chr>                               <dbl>          <dbl>
## 1 BRONX BLACK                              3832          16.2
## 2 BRONX WHITE HISPANIC                     1602           6.79
## 3 BRONX BLACK HISPANIC                     1073           4.55
## 4 BRONX WHITE                               115           0.49
## 5 BRONX ASIAN / PACIFIC ISLANDER             52           0.22
## 6 BRONX UNKNOWN                              23           0.1
## 7 BRONX AMERICAN INDIAN/ALASKAN NATIVE        4           0.02
```

```
NYPD_BORO_VICRACE_analyze %>% filter(BORO == "MANHATTAN") %>% arrange(desc(countBV))
```

```
## # A tibble: 6 x 4
##   BORO      VIC_RACE                  countBV perc_shootingB
##   <chr>     <chr>                       <dbl>          <dbl>
## 1 MANHATTAN BLACK                        1857           7.87
## 2 MANHATTAN WHITE HISPANIC                558           2.37
## 3 MANHATTAN BLACK HISPANIC                407           1.73
## 4 MANHATTAN WHITE                          60           0.25
## 5 MANHATTAN ASIAN / PACIFIC ISLANDER       36           0.15
## 6 MANHATTAN UNKNOWN                         4           0.02
```

```
NYPD_BORO_VICRACE_analyze %>% filter(BORO == "QUEENS") %>% arrange(desc(countBV))
```

```
## # A tibble: 7 x 4
##   BORO   VIC_RACE                         countBV perc_shootingB
##   <chr>  <chr>                              <dbl>          <dbl>
## 1 QUEENS BLACK                             2568          10.9
## 2 QUEENS WHITE HISPANIC                     454           1.92
## 3 QUEENS BLACK HISPANIC                     225           0.95
## 4 QUEENS WHITE                              145           0.61
## 5 QUEENS ASIAN / PACIFIC ISLANDER           125           0.53
## 6 QUEENS UNKNOWN                             13           0.06
## 7 QUEENS AMERICAN INDIAN/ALASKAN NATIVE       2           0.01
```

```
NYPD_BORO_VICRACE_analyze %>% filter(BORO == "STATEN ISLAND") %>% arrange(desc(countBV))
```

```
## # A tibble: 6 x 4
##   BORO          VIC_RACE                  countBV perc_shootingB
##   <chr>         <chr>                       <dbl>          <dbl>
## 1 STATEN ISLAND BLACK                         493           2.09
## 2 STATEN ISLAND WHITE HISPANIC                 87           0.37
## 3 STATEN ISLAND WHITE                          72           0.31
## 4 STATEN ISLAND BLACK HISPANIC                 39           0.17
## 5 STATEN ISLAND ASIAN / PACIFIC ISLANDER        3           0.01
## 6 STATEN ISLAND UNKNOWN                         2           0.01
```

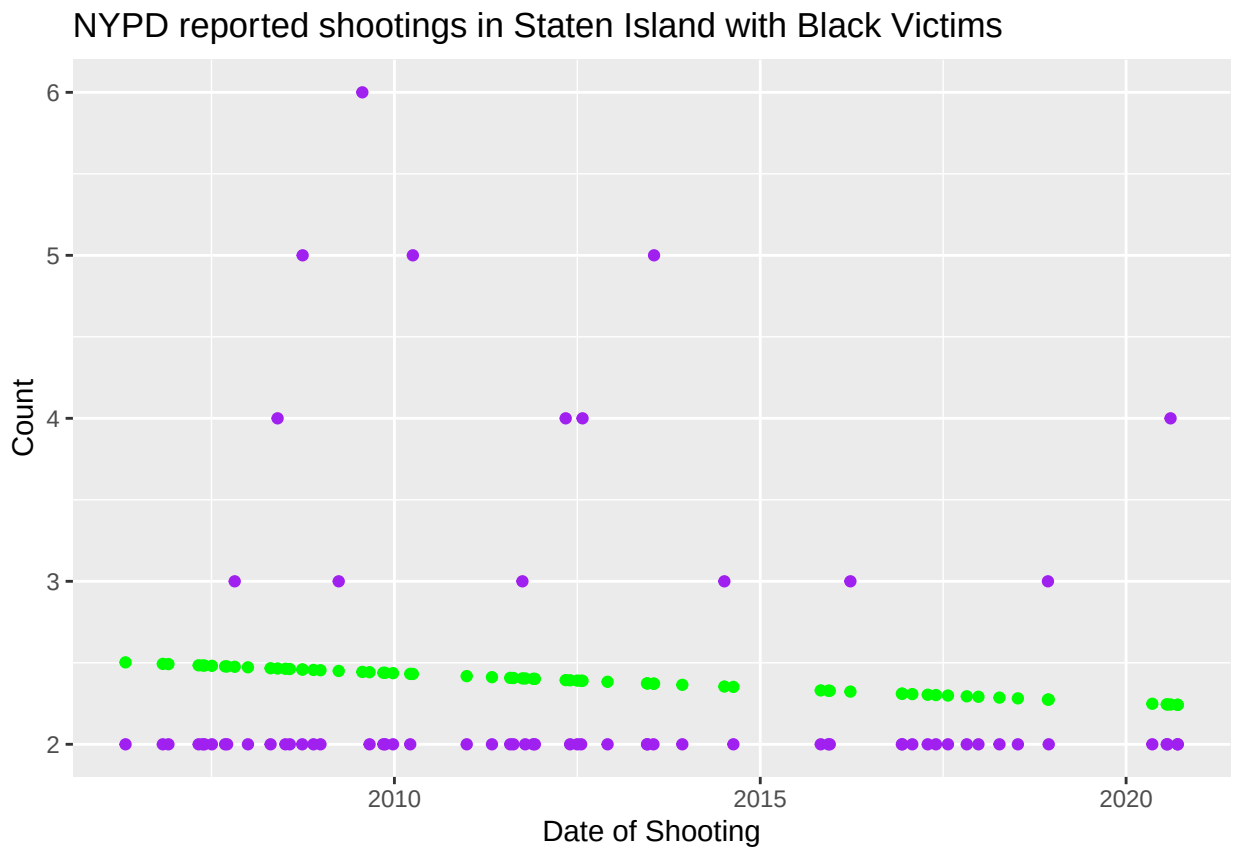
From this analysis, we can see each of the boroughs distribution of victim's races more or less resembles the population distribution, in terms of descending percentages of shootings.Since the shooting population distribution of race across each borough is consistent, it would not seem that any one race is being targeted in a particular borough. That being said, I cannot conclude that one particular race is not being targeted in general because looking across the board, the highest percentage of shootings falls under victims who are black.

Interestingly, when looking at one race across the different boroughs we can see each race has a different borough in which it has the most victims. This again led me to question whether this was reflective of the demographic population of each borough i.e. do more Asian/Pacific Islander people live in Queens vs other boroughs. Those questions would likely need additional New York population data to answer.

4. Model Data

Taking a different perspective, I decided to see if I could model a linear relationship between time and the shootings that occur in each borough. Additionally, since we have seen from our previous analysis that the highest number of victims generally are black individuals, I wanted to futher specify this model for shootings with black victims in Staten Island. For this example, I grouped the NYPD shooting data by "OCCUR_DATE", "BORO", and "VIC_RACE". I then filtered out the single boro of interest ("STATEN ISLAND") and the instances when there was more than one shooting to normalize the data set. From there, I calculated a linear model relating the shooting counts and the date and added that column as the "prediction" column to the data set. Finally, I plotted the Staten Island shootings over time with black victims (purple) with its predictive linear model(green).

```
NYPD_modelB = NYPD_shooting_data %>%
  group_by(OCCUR_DATE, BORO, VIC_RACE) %>%
  summarize(countDB = n()) %>%
  select(OCCUR_DATE, BORO,VIC_RACE, countDB) %>%
  ungroup()
NYPD_modelB_SI = NYPD_modelB %>%
  filter(BORO == "STATEN ISLAND") %>%
  filter(VIC_RACE == "BLACK") %>%
  filter(countDB >1)
mod = lm(countDB ~ OCCUR_DATE, data = NYPD_modelB_SI)
NYPD_modelB_SI = NYPD_modelB_SI %>% mutate(pred = predict(mod))
NYPD_modelB_SI %>% ggplot() + geom_point(aes(x = OCCUR_DATE, y = countDB), color = "purple") + geom_poi
  xlab("Date of Shooting") + ylab("Count")
```



From this model, there seems to be a downward trend which indicates that the shootings have been going down over time. Additional questions that come out of this analysis include: * Have new community actions been put in place that could be contributing to less shootings? * Have new laws restricting gun ownership been implemented in this time frame? * Is there a significantly larger police presence since earlier in this time frame? * How have the demographics of the borough changed over time? * How many of these shootings were police related?

This modeling frame work can be applied to all the other boroughs to see if the trend is consistent throughout NYC.

5. Conclusions

Although there are many additional directions of analysis that one could go with this data set, some conclusions can be drawn with the ones performed. Based on the initial single variable analysis, the highest amount of shootings occur in Brooklyn with black male victims. Breaking down the data set by boroughs, the borough population distribution of victims based on race is consistent with the over all population distribution of victims which would suggest that there isn't a novel targeted race in a particular borough. However, when the data set is broken down by each race and it's distribution throughout the different boroughs, this does not always match the over all population distribution. This could be indicative of the overall demographic of the boroughs (i.e higher percentage of one race reside in a particular borough and therefore have a higher shooting distribution in comparison to the over all population distribution). Additionally, the linear modelling performed on the amount of shootings with black victims over time indicated possible decrease over time in Staten Island, but remained relatively constant when applying that model to any other borough, any other race, or to the general data set. This indicates the number of shootings has remained pretty consistent over the years.

Some biases could have come straight away from the beginning in what variables I chose to analyze, most

notably the victim's race. Especially in the political climate of today, race is a very heavy topic to speak on but I also think that analyzing data knowing this allows us to shed light and give concrete evidence to speak to these topics. Additional biases could have come from the outside influence of the recent media coverage of shooting victims who are black justifying the acceptance of the shooting percentage breakdown by race. This was mitigated by doing multiple modes of analysis to confirm the percentage breakdown by race was consistent and accurate throughout each mode.

```
## R version 4.1.1 (2021-08-10)
## Platform: x86_64-apple-darwin20.4.0 (64-bit)
## Running under: macOS Big Sur 11.4
##
## Matrix products: default
## BLAS:   /usr/local/Cellar/openblas/0.3.17/lib/libopenblasp-r0.3.17.dylib
## LAPACK: /usr/local/Cellar/r/4.1.1/lib/R/lib/libRlapack.dylib
##
## locale:
## [1] en_US.UTF-8/en_US.UTF-8/en_US.UTF-8/C/en_US.UTF-8/en_US.UTF-8
##
## attached base packages:
## [1] stats     graphics  grDevices utils     datasets  methods   base
##
## other attached packages:
##  [1] lubridate_1.8.0 forcats_0.5.1   stringr_1.4.0   dplyr_1.0.7
##  [5] purrr_0.3.4     readr_2.1.0     tidyr_1.1.4     tibble_3.1.6
##  [9] ggplot2_3.3.5   tidyverse_1.3.1
##
## loaded via a namespace (and not attached):
##  [1] Rcpp_1.0.7       assertthat_0.2.1 digest_0.6.28    utf8_1.2.2
##  [5] R6_2.5.1         cellranger_1.1.0 backports_1.4.0  reprex_2.0.1
##  [9] evaluate_0.14    highr_0.9        httr_1.4.2       pillar_1.6.4
## [13] rlang_0.4.12     curl_4.3.2       readxl_1.3.1     rstudioapi_0.13
## [17] rmarkdown_2.11   labeling_0.4.2   bit_4.0.4        munsell_0.5.0
## [21] broom_0.7.10     compiler_4.1.1   modelr_0.1.8     xfun_0.28
## [25] pkgconfig_2.0.3  htmltools_0.5.2  tidyselect_1.1.1 fansi_0.5.0
## [29] crayon_1.4.2     tzdb_0.2.0       dbplyr_2.1.1     withr_2.4.2
## [33] grid_4.1.1       jsonlite_1.7.2   gtable_0.3.0     lifecycle_1.0.1
## [37] DBI_1.1.1        magrittr_2.0.1   scales_1.1.1     cli_3.1.0
## [41] stringi_1.7.5    vroom_1.5.6      farver_2.1.0     fs_1.5.0
## [45] xml2_1.3.2       ellipsis_0.3.2   generics_0.1.1   vctrs_0.3.8
## [49] tools_4.1.1      bit64_4.0.5      glue_1.5.0       hms_1.1.1
## [53] parallel_4.1.1   fastmap_1.1.0    yaml_2.2.1       colorspace_2.0-2
## [57] rvest_1.0.2      knitr_1.36       haven_2.4.3
```