NYPD Shooting Incident Data Report

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The NYPD Shooting Incident Data (Historic) csv file is used in this data report. It is obtained from the data catalog of the U.S Government's open data initiative (data.gov).

```
#Start by using the Tidyverse library
library(tidyverse)
```

```
## -- Attaching packages --------------------------------------- tidyverse 1.3.1 --

## v ggplot2 3.3.4     v purrr   0.3.4
## v tibble  3.1.2     v dplyr   1.0.7
## v tidyr   1.1.3     v stringr 1.4.0
## v readr   1.4.0     v forcats 0.5.1

## -- Conflicts ------------------------------------------ tidyverse_conflicts() --
## x dplyr::filter() masks stats::filter()
## x dplyr::lag()    masks stats::lag()
```

```
#Obtain NYPD Shooting Incident CSV file from data.gov
url_link <- "https://data.cityofnewyork.us/api/views/833y-fsy8/rows.csv?accessType=DOWNLOAD"
```

The csv file that we will import contains a list of all shooting incidents that took place in NYC from 2006 to November 10, 2020. The event, location, and time of each shooting incident are also included along with demographic information pertaining to the suspects and victims.

```
#Read in CSV file
nypd_data <-read_csv(url_link)
```

We will first inspect and view the csv file.

```
#View the dataset
nypd_data
```

```
## # A tibble: 23,568 x 19
##    INCIDENT_KEY OCCUR_DATE OCCUR_TIME BORO          PRECINCT JURISDICTION_CODE
##           <dbl> <chr>      <time>     <chr>            <dbl>              <dbl>
##  1    201575314 08/23/2019 22:10      QUEENS             103                  0
##  2    205748546 11/27/2019 15:54      BRONX               40                  0
##  3    193118596 02/02/2019 19:40      MANHATTAN           23                  0
##  4    204192600 10/24/2019 00:52      STATEN ISLAND      121                  0
```

```
##  5    201483468 08/22/2019 18:03      BRONX               46                0
##  6    198255460 06/07/2019 17:50      BROOKLYN            73                0
##  7    194570529 03/11/2019 16:30      BROOKLYN            81                0
##  8    203211777 10/03/2019 01:45      BROOKLYN            67                0
##  9    193694863 02/17/2019 03:00      QUEENS             114                2
## 10    199582060 07/10/2019 02:56      BROOKLYN            69                0
## # ... with 23,558 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>
```

Then, we will obtain the summary statistics of the data.

```
summary(nypd_data)
```

```
##   INCIDENT_KEY        OCCUR_DATE         OCCUR_TIME           BORO
##  Min.   :  9953245   Length:23568       Length:23568       Length:23568
##  1st Qu.: 55317014   Class :character   Class1:hms         Class :character
##  Median : 83365370   Mode  :character   Class2:difftime    Mode  :character
##  Mean   :102218616                      Mode  :numeric
##  3rd Qu.:150772442
##  Max.   :222473262
##
##     PRECINCT      JURISDICTION_CODE LOCATION_DESC      STATISTICAL_MURDER_FLAG
##  Min.   :  1.00   Min.   :0.0000    Length:23568       Mode :logical
##  1st Qu.: 44.00   1st Qu.:0.0000    Class :character   FALSE:19080
##  Median : 69.00   Median :0.0000    Mode  :character   TRUE :4488
##  Mean   : 66.21   Mean   :0.3323
##  3rd Qu.: 81.00   3rd Qu.:0.0000
##  Max.   :123.00   Max.   :2.0000
##                   NA's   :2
##  PERP_AGE_GROUP       PERP_SEX          PERP_RACE         VIC_AGE_GROUP
##  Length:23568       Length:23568       Length:23568       Length:23568
##  Class :character   Class :character   Class :character   Class :character
##  Mode  :character   Mode  :character   Mode  :character   Mode  :character
##
##
##
##
##    VIC_SEX            VIC_RACE           X_COORD_CD        Y_COORD_CD
##  Length:23568       Length:23568       Min.   : 914928   Min.   :125757
##  Class :character   Class :character   1st Qu.: 999900   1st Qu.:182565
##  Mode  :character   Mode  :character   Median :1007645   Median :193482
##                                        Mean   :1009363   Mean   :207312
##                                        3rd Qu.:1016807   3rd Qu.:239163
##                                        Max.   :1066815   Max.   :271128
##
##     Latitude       Longitude        Lon_Lat
##  Min.   :40.51   Min.   :-74.25   Length:23568
##  1st Qu.:40.67   1st Qu.:-73.94   Class :character
##  Median :40.70   Median :-73.92   Mode  :character
##  Mean   :40.74   Mean   :-73.91
```

```
##  3rd Qu.:40.82   3rd Qu.:-73.88
##  Max.   :40.91   Max.   :-73.70
##
```

There are 19 variables in this data set. We would like to explore the relationships between the variables. More specifically, we will determine the frequency of the shooting incidents by location, analyze the demographics of both parties, and investigate whether the victim's death is dependent on the borough. To answer these questions, we would like to include all columns except INCIDENT_KEY, X_COORD_CD, Y_COORD_CD, Latitude, Longitude, and Lon_Lat. Since the OCCUR_DATE column has characters, we will transform those dates into a date type variable using the lubridate library.

```
#Use lubridate library
library(lubridate)
```

```
##
## Attaching package: 'lubridate'
```

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

```
#Clean up data by removing some columns and transform OCCUR_DATE column to contain date type values
nypd <- nypd_data %>%
  select(OCCUR_DATE:VIC_RACE) %>%
  mutate(OCCUR_DATE=mdy(OCCUR_DATE))

nypd
```

```
## # A tibble: 23,568 x 13
##    OCCUR_DATE OCCUR_TIME BORO      PRECINCT JURISDICTION_CODE LOCATION_DESC
##    <date>     <time>     <chr>        <dbl>             <dbl> <chr>
##  1 2019-08-23 22:10      QUEENS         103                 0 <NA>
##  2 2019-11-27 15:54      BRONX           40                 0 <NA>
##  3 2019-02-02 19:40      MANHATTAN       23                 0 <NA>
##  4 2019-10-24 00:52      STATEN I~      121                 0 PVT HOUSE
##  5 2019-08-22 18:03      BRONX           46                 0 <NA>
##  6 2019-06-07 17:50      BROOKLYN        73                 0 <NA>
##  7 2019-03-11 16:30      BROOKLYN        81                 0 <NA>
##  8 2019-10-03 01:45      BROOKLYN        67                 0 MULTI DWELL - APT~
##  9 2019-02-17 03:00      QUEENS         114                 2 MULTI DWELL - PUB~
## 10 2019-07-10 02:56      BROOKLYN        69                 0 <NA>
## # ... with 23,558 more rows, and 7 more variables:
## #   STATISTICAL_MURDER_FLAG <lgl>, PERP_AGE_GROUP <chr>, PERP_SEX <chr>,
## #   PERP_RACE <chr>, VIC_AGE_GROUP <chr>, VIC_SEX <chr>, VIC_RACE <chr>
```

The summary statistics of the transformed dataset is examined.

```
summary(nypd)
```

```
##    OCCUR_DATE          OCCUR_TIME           BORO              PRECINCT
##  Min.   :2006-01-01   Length:23568       Length:23568       Min.   :  1.00
```

```
##  1st Qu.:2008-12-30   Class1:hms        Class :character   1st Qu.: 44.00
##  Median :2012-02-26   Class2:difftime   Mode  :character   Median : 69.00
##  Mean   :2012-10-03   Mode  :numeric                       Mean   : 66.21
##  3rd Qu.:2016-02-28                                        3rd Qu.: 81.00
##  Max.   :2020-12-31                                        Max.   :123.00
##
##  JURISDICTION_CODE LOCATION_DESC      STATISTICAL_MURDER_FLAG
##  Min.   :0.0000    Length:23568       Mode :logical
##  1st Qu.:0.0000    Class :character   FALSE:19080
##  Median :0.0000    Mode  :character   TRUE :4488
##  Mean   :0.3323
##  3rd Qu.:0.0000
##  Max.   :2.0000
##  NA's   :2
##  PERP_AGE_GROUP       PERP_SEX          PERP_RACE         VIC_AGE_GROUP
##  Length:23568       Length:23568       Length:23568       Length:23568
##  Class :character   Class :character   Class :character   Class :character
##  Mode  :character   Mode  :character   Mode  :character   Mode  :character
##
##
##
##
##    VIC_SEX            VIC_RACE
##  Length:23568       Length:23568
##  Class :character   Class :character
##  Mode  :character   Mode  :character
##
##
##
##
```

We will now identify the class for all the column variables in the transformed dataset.

```
str(nypd)
```

```
## tibble [23,568 x 13] (S3: tbl_df/tbl/data.frame)
##  $ OCCUR_DATE             : Date[1:23568], format: "2019-08-23" "2019-11-27" ...
##  $ OCCUR_TIME             : 'hms' num [1:23568] 22:10:00 15:54:00 19:40:00 00:52:00 ...
##   ..- attr(*, "units")= chr "secs"
##  $ BORO                   : chr [1:23568] "QUEENS" "BRONX" "MANHATTAN" "STATEN ISLAND" ...
##  $ PRECINCT               : num [1:23568] 103 40 23 121 46 73 81 67 114 69 ...
##  $ JURISDICTION_CODE      : num [1:23568] 0 0 0 0 0 0 0 0 2 0 ...
##  $ LOCATION_DESC          : chr [1:23568] NA NA NA "PVT HOUSE" ...
##  $ STATISTICAL_MURDER_FLAG: logi [1:23568] FALSE FALSE FALSE TRUE FALSE FALSE ...
##  $ PERP_AGE_GROUP         : chr [1:23568] NA "<18" "18-24" "25-44" ...
##  $ PERP_SEX               : chr [1:23568] NA "M" "M" "M" ...
##  $ PERP_RACE              : chr [1:23568] NA "BLACK" "WHITE HISPANIC" "BLACK" ...
##  $ VIC_AGE_GROUP          : chr [1:23568] "25-44" "25-44" "18-24" "25-44" ...
##  $ VIC_SEX                : chr [1:23568] "M" "F" "M" "F" ...
##  $ VIC_RACE               : chr [1:23568] "BLACK" "BLACK" "BLACK HISPANIC" "BLACK" ...
```

Eight out of thirteen variables have characters as the class of the variables. We will convert those column variables with character class into factors.

```
nypd_c <- as.data.frame(unclass(nypd))
nypd_c[sapply(nypd_c, is.character)] <- lapply(nypd_c[sapply(nypd_c, is.character)],as.factor)
```

We verify that all column variables previously with the character class are now converted into the factor class.

```
str(nypd_c)
```

```
## 'data.frame':    23568 obs. of  13 variables:
##  $ OCCUR_DATE             : Date, format: "2019-08-23" "2019-11-27" ...
##  $ OCCUR_TIME             : 'hms' num  22:10:00 15:54:00 19:40:00 00:52:00 ...
##   ..- attr(*, "units")= chr "secs"
##  $ BORO                   : Factor w/ 5 levels "BRONX","BROOKLYN",..: 4 1 3 5 1 2 2 2 4 2 ...
##  $ PRECINCT               : num  103 40 23 121 46 73 81 67 114 69 ...
##  $ JURISDICTION_CODE      : num  0 0 0 0 0 0 0 0 2 0 ...
##  $ LOCATION_DESC          : Factor w/ 39 levels "ATM","BANK","BAR/NIGHT CLUB",..: NA NA NA 28 NA NA
##  $ STATISTICAL_MURDER_FLAG: logi  FALSE FALSE FALSE TRUE FALSE FALSE ...
##  $ PERP_AGE_GROUP         : Factor w/ 9 levels "<18","1020","18-24",..: NA 1 3 5 5 6 3 NA 3 5 ...
##  $ PERP_SEX               : Factor w/ 3 levels "F","M","U": NA 2 2 2 2 2 2 NA 2 2 ...
##  $ PERP_RACE              : Factor w/ 7 levels "AMERICAN INDIAN/ALASKAN NATIVE",..: NA 3 7 3 4 7 3 NA
##  $ VIC_AGE_GROUP          : Factor w/ 6 levels "<18","18-24",..: 3 3 2 3 2 3 3 3 3 3 ...
##  $ VIC_SEX                : Factor w/ 3 levels "F","M","U": 2 1 2 1 2 2 2 2 2 2 ...
##  $ VIC_RACE               : Factor w/ 7 levels "AMERICAN INDIAN/ALASKAN NATIVE",..: 3 3 4 3 3 3 3 3
```

The summary statistics of the new data frame is gathered once again.

```
summary(nypd_c)
```

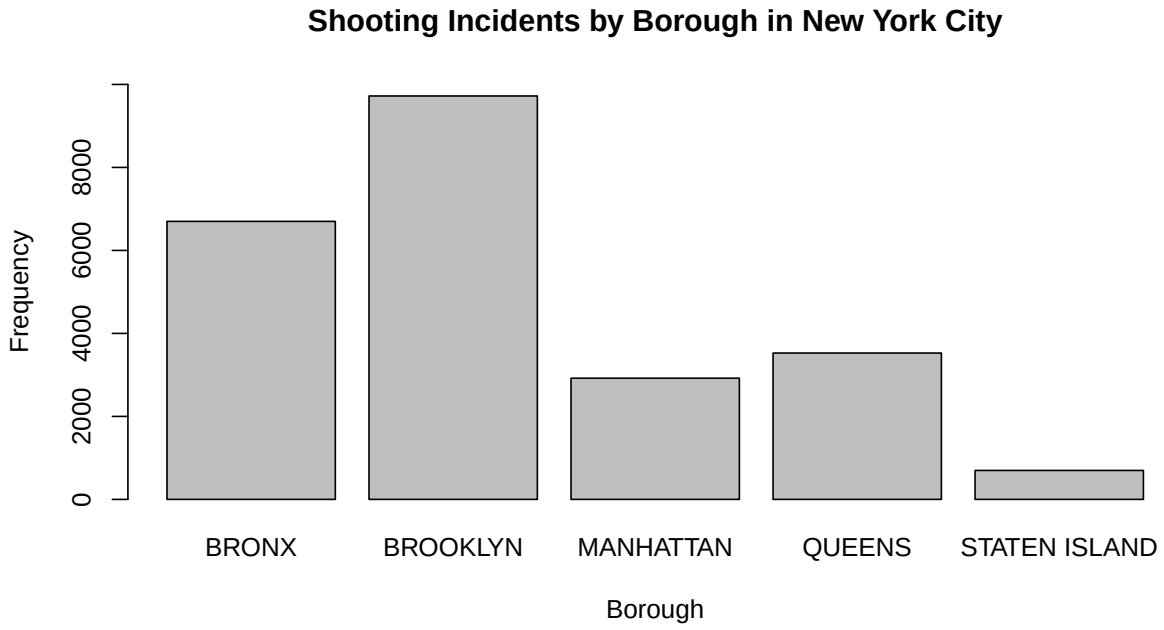
```
##    OCCUR_DATE          OCCUR_TIME                  BORO         PRECINCT
##  Min.   :2006-01-01   Length:23568      BRONX        :6700   Min.   :  1.00
##  1st Qu.:2008-12-30   Class1:hms        BROOKLYN     :9722   1st Qu.: 44.00
##  Median :2012-02-26   Class2:difftime   MANHATTAN    :2921   Median : 69.00
##  Mean   :2012-10-03   Mode  :numeric    QUEENS       :3527   Mean   : 66.21
##  3rd Qu.:2016-02-28                     STATEN ISLAND: 698   3rd Qu.: 81.00
##  Max.   :2020-12-31                                          Max.   :123.00
##
##  JURISDICTION_CODE                   LOCATION_DESC   STATISTICAL_MURDER_FLAG
##  Min.   :0.0000    MULTI DWELL - PUBLIC HOUS: 4230   Mode :logical
##  1st Qu.:0.0000    MULTI DWELL - APT BUILD  : 2551   FALSE:19080
##  Median :0.0000    PVT HOUSE                :  858   TRUE :4488
##  Mean   :0.3323    GROCERY/BODEGA           :  572
##  3rd Qu.:0.0000    BAR/NIGHT CLUB           :  558
##  Max.   :2.0000    (Other)                  : 1218
##  NA's   :2         NA's                     :13581
##  PERP_AGE_GROUP PERP_SEX              PERP_RACE    VIC_AGE_GROUP   VIC_SEX
##  18-24  :5448   F   :  334   BLACK         :9855   <18    : 2525   F: 2195
##  25-44  :4613   M   :13305   WHITE HISPANIC:1961   18-24  : 9000   M:21353
##  UNKNOWN:3156   U   : 1504   UNKNOWN       :1869   25-44  :10287   U:   20
##  <18    :1354   NA's: 8425   BLACK HISPANIC:1081   45-64  : 1536
##  45-64  : 481                WHITE         : 255   65+    :  155
##  (Other):  57                (Other)       : 122   UNKNOWN:   65
##  NA's   :8459                NA's          :8425
```

```
##                              VIC_RACE
##  AMERICAN INDIAN/ALASKAN NATIVE:    9
##  ASIAN / PACIFIC ISLANDER      :  320
##  BLACK                         :16846
##  BLACK HISPANIC                : 2244
##  UNKNOWN                       :  102
##  WHITE                         :  615
##  WHITE HISPANIC                : 3432
```

From the summary, we discover that the JURISDICTION_CODE, LOCATION_DESC, PERP_AGE_GROUP, PERP_SEX, PERP_RACE all contain missing values or NAs. When we examine those variables, we will remove the missing data for our analysis. Similarly, "unknown" values are recorded in the PERP_AGE_GROUP, VIC_AGE_GROUP, VIC_SEX, and VIC_RACE column variables.

First, we want to visualize the frequency distribution of shooting incidents by borough with a bar chart.

```
freq_boro <- table(nypd_c$BORO)
barplot(freq_boro, xlab = "Borough", ylab = "Frequency", main = "Shooting Incidents by Borough in New Y
```



The bar chart shows that out of all the boroughs recorded in New York City, Brooklyn has the highest frequency of shooting incidents, followed by Bronx, Queens, Manhattan, and Staten Island. This may suggest that Brooklyn is less safe compared to other boroughs in New York City.

Next, we want to examine the demographic information for both the perpetrators and victims. We will subset the data set further by looking at the relevant columns pertaining to both parties and removing cases with missing values.

```
nypd_demog <- nypd_c%>%
  select(PERP_AGE_GROUP:VIC_RACE)
nypd_narm <- na.omit(nypd_demog)
```

The summary function is run on the new dataframe to ensure that all missing datas are removed before analysis.

```
summary(nypd_narm)
```

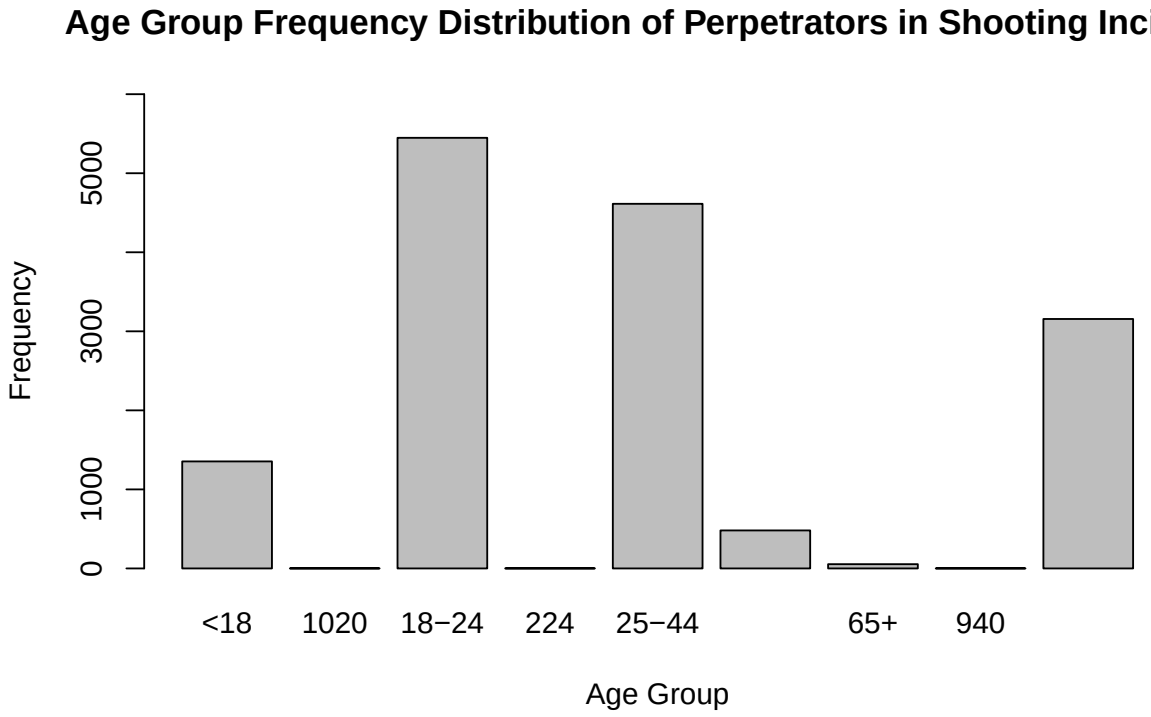
```
##  PERP_AGE_GROUP PERP_SEX                           PERP_RACE    VIC_AGE_GROUP
##  18-24  :5448   F:  334   AMERICAN INDIAN/ALASKAN NATIVE:   2   <18    :1788
##  25-44  :4613   M:13305   ASIAN / PACIFIC ISLANDER      : 120   18-24  :5714
##  UNKNOWN:3156   U: 1470   BLACK                         :9855   25-44  :6400
##  <18    :1354             BLACK HISPANIC                :1081   45-64  :1033
##  45-64  : 481             UNKNOWN                       :1835   65+    : 117
##  65+    :  54             WHITE                         : 255   UNKNOWN:  57
##  (Other):   3             WHITE HISPANIC                :1961
##  VIC_SEX                            VIC_RACE
##  F: 1576   AMERICAN INDIAN/ALASKAN NATIVE:    7
##  M:13521   ASIAN / PACIFIC ISLANDER      :  235
##  U:   12   BLACK                         :10325
##            BLACK HISPANIC                : 1490
##            UNKNOWN                       :   68
##            WHITE                         :  477
##            WHITE HISPANIC                : 2507
```

Now that the missing values are removed, we can proceed with obtaining the demographic information for the perpetrators as well as victims starting with age.

```
p_age <- table(nypd_narm$PERP_AGE_GROUP)
p_age
```

```
##
##     <18    1020   18-24     224   25-44   45-64     65+     940 UNKNOWN
##    1354       1    5448       1    4613     481      54       1    3156
```

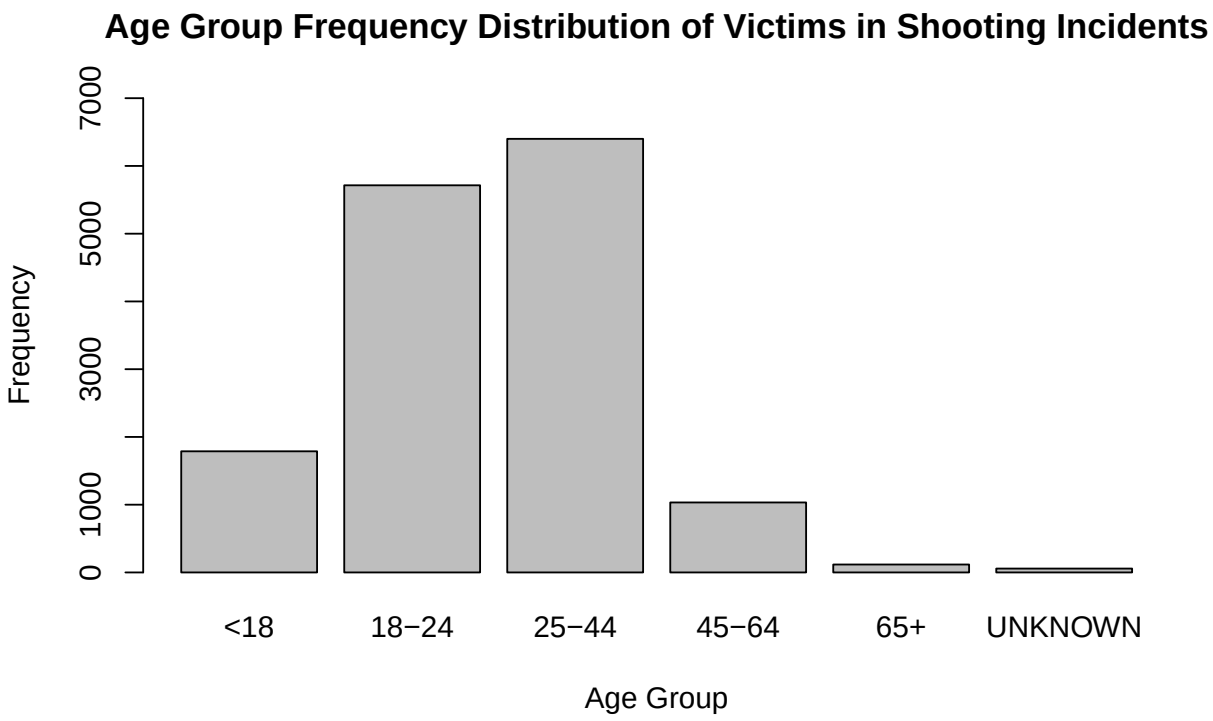
```
barplot(p_age, xlab = "Age Group", ylab = "Frequency", main = "Age Group Frequency Distribution of Perp
```




```
v_age <- table(nypd_narm$VIC_AGE_GROUP)
v_age
```

```
##
##      <18    18-24    25-44    45-64      65+ UNKNOWN
##     1788     5714     6400     1033      117       57
```

```
barplot(v_age, xlab = "Age Group", ylab = "Frequency", main = "Age Group Frequency Distribution of Victi
```



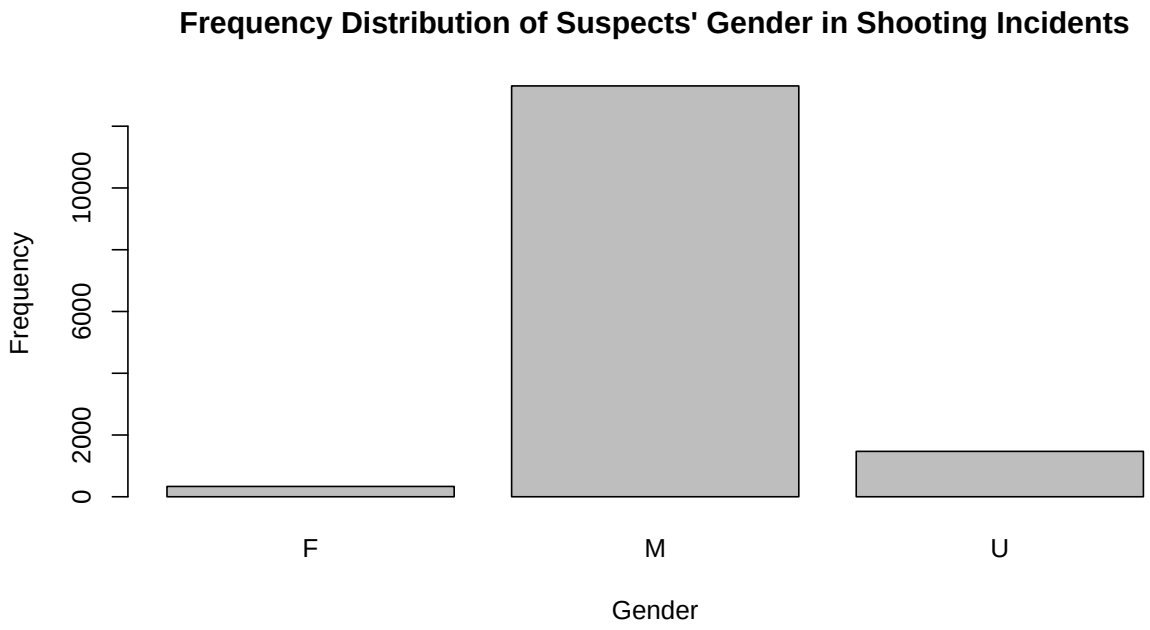
For perpetrators in the shooting incidents, there are almost 5500 that belong in the 18-24 age group. On the other hand, the majority of victims are from the 25-44 age group. There is a drop in counts in the lower end (below 18) and higher end (65+) of the age groups for both parties. More analysis is needed to determine the cause in the disproportion. There are also 3 outliers in the variable coding the perpetrators' age. Since they are beyond the normal lifespan, it is likely these are typos in data entry.

Next, we will compare the frequency distribution of gender for both the suspects and victims.

```
p_sex <- table(nypd_narm$PERP_SEX)
p_sex
```

```
##
##     F     M     U
##   334 13305  1470
```

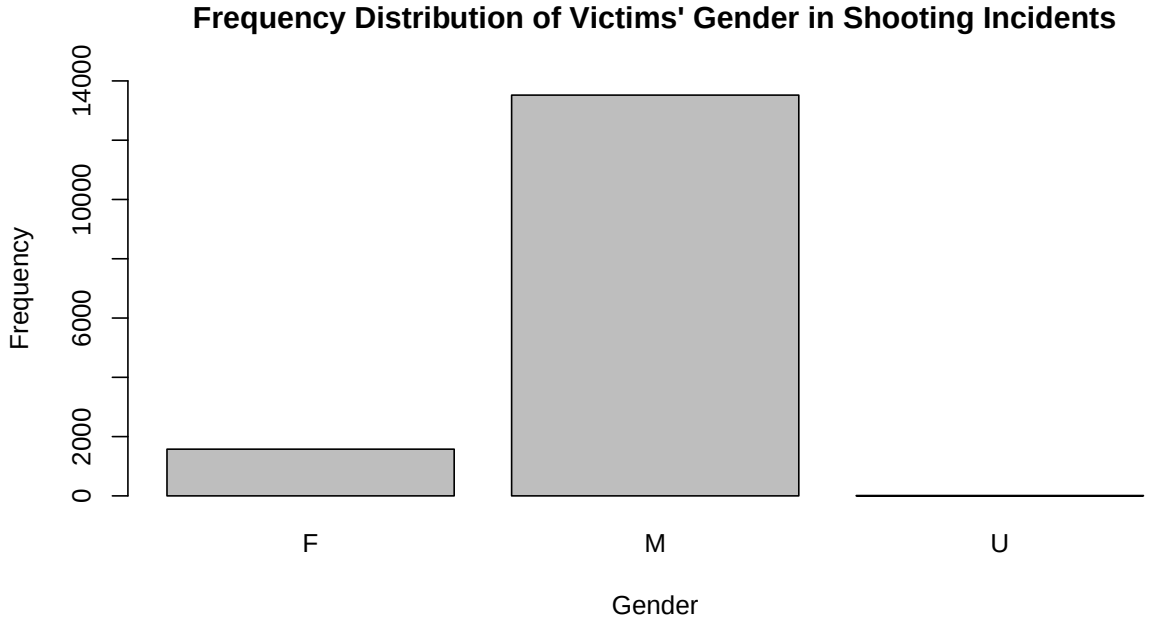
```
barplot(p_sex,xlab = "Gender", ylab = "Frequency", main = "Frequency Distribution of Suspects' Gender i
```




```
v_sex <- table(nypd_narm$VIC_SEX)
v_sex
```

```
##
##     F     M     U
##  1576 13521    12
```

```
barplot(v_sex,xlab = "Gender", ylab = "Frequency", main = "Frequency Distribution of Victims' Gender in
```



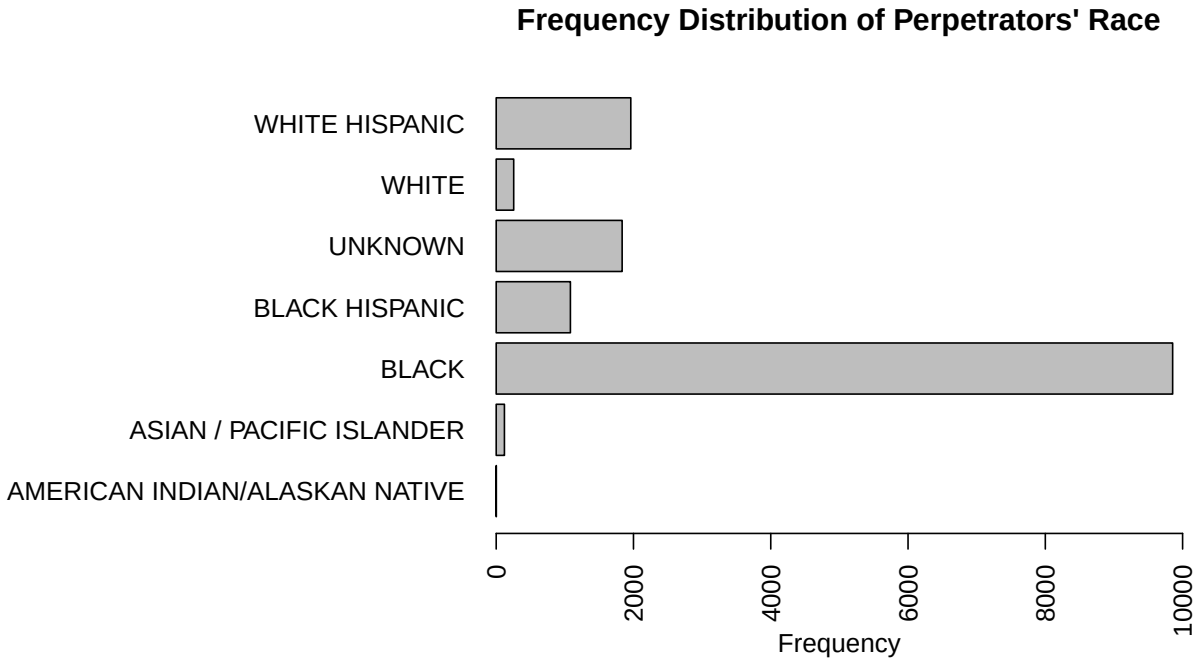
For both suspects and victims, more than half are male. This seems to suggest that males are more likely to be involved in shooting incidents in New York City.

The last category of demographic information we want to explore from the data set is race for both parties.

```
p_race <- table(nypd_narm$PERP_RACE)
p_race
```

```
##
## AMERICAN INDIAN/ALASKAN NATIVE       ASIAN / PACIFIC ISLANDER
##                              2                            120
##                          BLACK                  BLACK HISPANIC
##                           9855                           1081
##                        UNKNOWN                          WHITE
##                           1835                            255
##                 WHITE HISPANIC
##                           1961
```

```
par(mar = c(4,16,4,2))
barplot(p_race,xlab = "Frequency", main = "Frequency Distribution of Perpetrators' Race", xlim = c(0,10
```

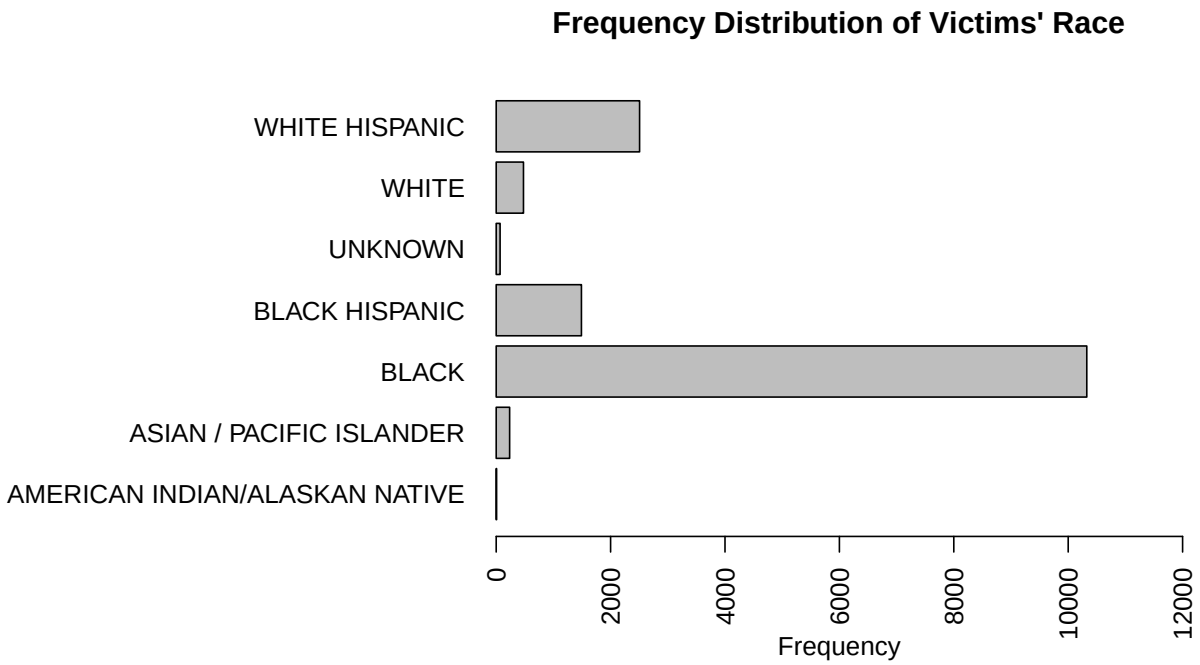



```
v_race <- table(nypd_narm$VIC_RACE)
v_race
```

```
##
## AMERICAN INDIAN/ALASKAN NATIVE       ASIAN / PACIFIC ISLANDER
##                              7                            235
##                          BLACK                  BLACK HISPANIC
##                          10325                           1490
##                        UNKNOWN                          WHITE
```

```
##                              68                              477
##                  WHITE HISPANIC
##                            2507
```

```
par(mar = c(4,16,4,2))
barplot(v_race,xlab = "Frequency", main = "Frequency Distribution of Victims' Race", xlim = c(0,12000),
```



Out of the shooting incidents that we analyzed, both victims and perpetrators tend to be blacks. It is not evident the underlying causes for the disproportion in race.

Finally, we want to determine if the occasions of murder defined by a victim's death is dependent on the borough in New York City. We can perform the chi-square test of independence to examine whether the two categorical variables are dependent. The counts are assumed to be independent representing each separate shooting incident. We will construct a contingency table to further examine our remaining condition prior to conducting the chi-square test of independence.

```
boro_murder <- table(nypd_c$STATISTICAL_MURDER_FLAG, nypd_c$BORO)
boro_murder
```

```
##
##         BRONX BROOKLYN MANHATTAN QUEENS STATEN ISLAND
##   FALSE  5456     7830      2409   2830           555
##   TRUE   1244     1892       512    697           143
```

Since the expected frequencies for each cell is greater than 5, all conditions are satisfied for us to conduct a chi-square test with an alpha level of 0.05.

```
chisq.test(boro_murder)
```

```
##
```

```
##  Pearson's Chi-squared test
##
## data:  boro_murder
## X-squared = 8.5598, df = 4, p-value = 0.0731
```

With 4 degrees of freedom, the test statistic for the chi-square test of independence is 8.5598 with a p-value of 0.0731. Since the p-value is greater than our alpha level, we fail to reject our null hypothesis. Therefore, the two variables are independent.

We conclude that Brooklyn is the most dangerous borough in New York City with the highest frequency of shooting incidents. It is likely that the suspects and victims are similar in age who belong to the 18-24 as well as 25-44 age groups. Black males are the predominant group that are involved in these shooting incidents. However, the location as categorized by boroughs are independent from the instances of shooting incidents resulting in murder.

Possible sources of bias may stem from the fact that the analyst is not from the United States. It is hard for the analyst to determine external factors such as cultural, political, sociological that can explain the frequency distribution of the shooting incidents. Even though black males are identified to be most likely to be linked to shooting incidents in New York City, population density data is not examined in this report and can be further explored to further ascertain the relationships between the variables.

Please find below the session info for this document:

```
sessionInfo()
```

```
## R version 4.1.0 (2021-05-18)
## Platform: x86_64-w64-mingw32/x64 (64-bit)
## Running under: Windows 10 x64 (build 19042)
##
## Matrix products: default
##
## locale:
## [1] LC_COLLATE=English_Canada.1252  LC_CTYPE=English_Canada.1252
## [3] LC_MONETARY=English_Canada.1252 LC_NUMERIC=C
## [5] LC_TIME=English_Canada.1252
##
## attached base packages:
## [1] stats     graphics  grDevices utils     datasets  methods   base
##
## other attached packages:
##  [1] lubridate_1.7.10 forcats_0.5.1    stringr_1.4.0    dplyr_1.0.7
##  [5] purrr_0.3.4      readr_1.4.0      tidyr_1.1.3      tibble_3.1.2
##  [9] ggplot2_3.3.4    tidyverse_1.3.1
##
## loaded via a namespace (and not attached):
##  [1] tidyselect_1.1.1  xfun_0.23         haven_2.4.1       colorspace_2.0-1
##  [5] vctrs_0.3.8       generics_0.1.0    htmltools_0.5.1.1 yaml_2.2.1
##  [9] utf8_1.2.1        rlang_0.4.11      pillar_1.6.1      glue_1.4.2
## [13] withr_2.4.2       DBI_1.1.1         dbplyr_2.1.1      modelr_0.1.8
## [17] readxl_1.3.1      lifecycle_1.0.0   munsell_0.5.0     gtable_0.3.0
## [21] cellranger_1.1.0  rvest_1.0.0       evaluate_0.14     knitr_1.33
## [25] curl_4.3.1        fansi_0.5.0       highr_0.9         broom_0.7.7
## [29] Rcpp_1.0.6        scales_1.1.1      backports_1.2.1   jsonlite_1.7.2
## [33] fs_1.5.0          hms_1.1.0         digest_0.6.27     stringi_1.6.1
## [37] grid_4.1.0        cli_2.5.0         tools_4.1.0       magrittr_2.0.1
```

```
## [41] crayon_1.4.1      pkgconfig_2.0.3   ellipsis_0.3.2    xml2_1.3.2
## [45] reprex_2.0.0      assertthat_0.2.1  rmarkdown_2.9     httr_1.4.2
## [49] rstudioapi_0.13   R6_2.5.0          compiler_4.1.0
```