assignment

student

2/24/2022

Read data from web url

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

nypd_data <- read_csv(nypd_url)
```

```
## Rows: 25596 Columns: 19
## -- Column specification --------------------------------------------------------
## Delimiter: ","
## chr  (10): OCCUR_DATE, BORO, LOCATION_DESC, PERP_AGE_GROUP, PERP_SEX, PERP_R...
## dbl   (7): INCIDENT_KEY, PRECINCT, JURISDICTION_CODE, X_COORD_CD, Y_COORD_CD...
## lgl   (1): STATISTICAL_MURDER_FLAG
## time  (1): OCCUR_TIME
##
## i Use `spec()` to retrieve the full column specification for this data.
## i Specify the column types or set `show_col_types = FALSE` to quiet this message.
```

Tidy data

```
### get rid of
### INCIDENT_KEY,X_COORD_CD,X_COORD_CD,Latitude,Longitude,Lon_Lat
nypd_data <- nypd_data %>% select(-c(INCIDENT_KEY,X_COORD_CD,X_COORD_CD,Latitude,Longitude,Lon_Lat))

summary(nypd_data)
```

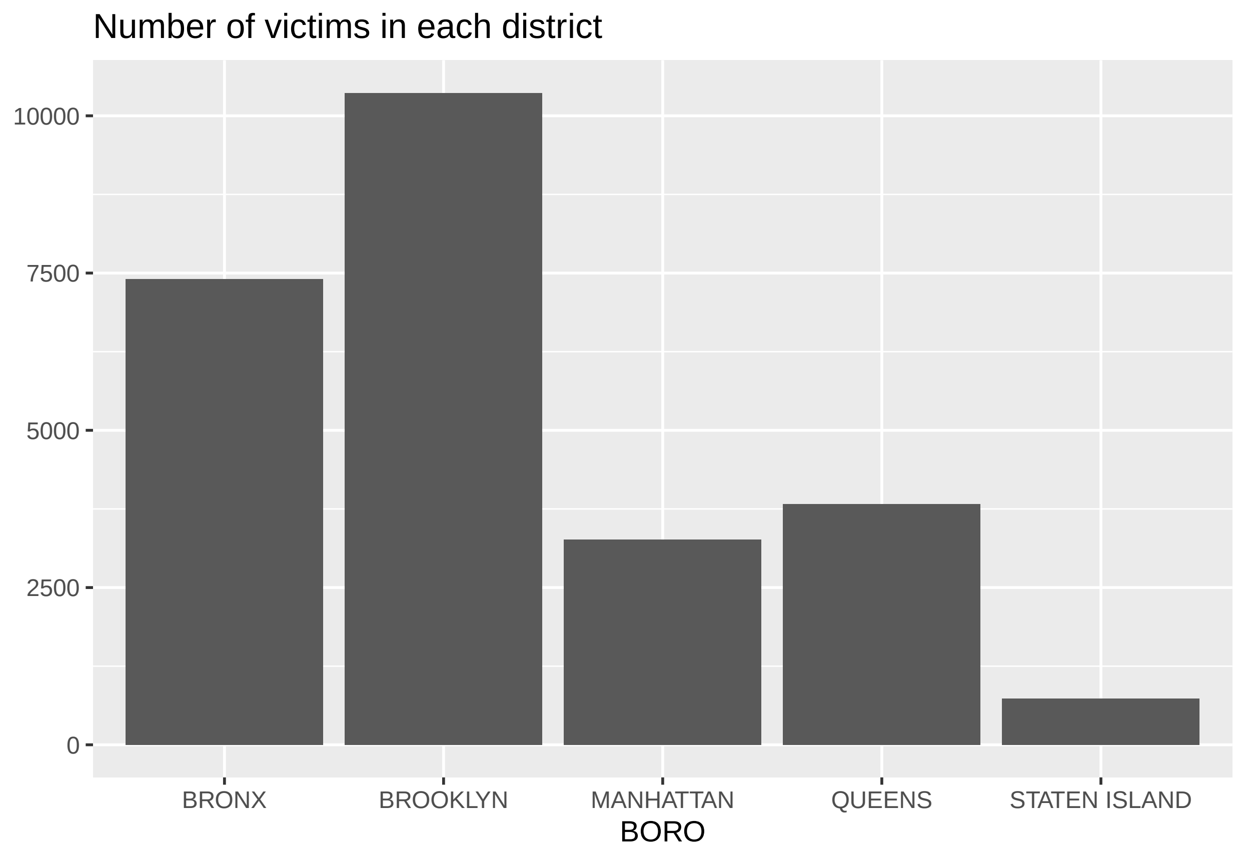
```
##   OCCUR_DATE          OCCUR_TIME          BORO              PRECINCT
##  Length:25596       Length:25596      Length:25596       Min.   :  1.00
##  Class :character   Class1:hms        Class :character   1st Qu.: 44.00
##  Mode  :character   Class2:difftime   Mode  :character   Median : 69.00
##                     Mode  :numeric                       Mean   : 65.87
##                                                          3rd Qu.: 81.00
##                                                          Max.   :123.00
##
##  JURISDICTION_CODE LOCATION_DESC      STATISTICAL_MURDER_FLAG
##  Min.   :0.0000    Length:25596       Mode :logical
##  1st Qu.:0.0000    Class :character   FALSE:20668
##  Median :0.0000    Mode  :character   TRUE :4928
##  Mean   :0.3316
##  3rd Qu.:0.0000
##  Max.   :2.0000
##  NA's   :2
##  PERP_AGE_GROUP       PERP_SEX           PERP_RACE          VIC_AGE_GROUP
##  Length:25596       Length:25596       Length:25596       Length:25596
##  Class :character   Class :character   Class :character   Class :character
##  Mode  :character   Mode  :character   Mode  :character   Mode  :character
##
##
##
##
##    VIC_SEX            VIC_RACE            Y_COORD_CD
##  Length:25596       Length:25596       Min.   :125757
##  Class :character   Class :character   1st Qu.:182782
##  Mode  :character   Mode  :character   Median :194038
##                                        Mean   :207894
##                                        3rd Qu.:239429
##                                        Max.   :271128
##
```

Analysis

```
### see the number of shooting incident each district

district_incident <- nypd_data %>% group_by(BORO) %>% summarise(count=n())

### see the max number
max(district_incident$count)
```

```
## [1] 10365
```

```
### plot the data
### Number of victims in each district,Brooklyn has the most number of victims.
ggplot(data = district_incident)+geom_bar(mapping = aes(x=BORO,y=count),stat="identity") + labs(title =
```



```
### see how many victims are female?
vic_female <- nypd_data %>% filter(VIC_SEX=="F") %>% select(c(VIC_RACE,VIC_AGE_GROUP))

summary(vic_female)
```

```
##    VIC_RACE          VIC_AGE_GROUP     
##  Length:2403        Length:2403       
##  Class :character   Class :character  
##  Mode  :character   Mode  :character  
```

```
### see how many victims are male?
vic_male <- nypd_data %>% filter(VIC_SEX=="M") %>% select(c(VIC_RACE,VIC_AGE_GROUP))

summary(vic_male)
```

```
##    VIC_RACE          VIC_AGE_GROUP     
##  Length:23182       Length:23182      
##  Class :character   Class :character  
##  Mode  :character   Mode  :character  
```

```
### how many victims group by sex

nypd_data %>% group_by(VIC_SEX) %>% summarise(count=n())
```

```
## # A tibble: 3 x 2
##   VIC_SEX count
##   <chr>   <int>
## 1 F        2403
## 2 M       23182
## 3 U          11
```

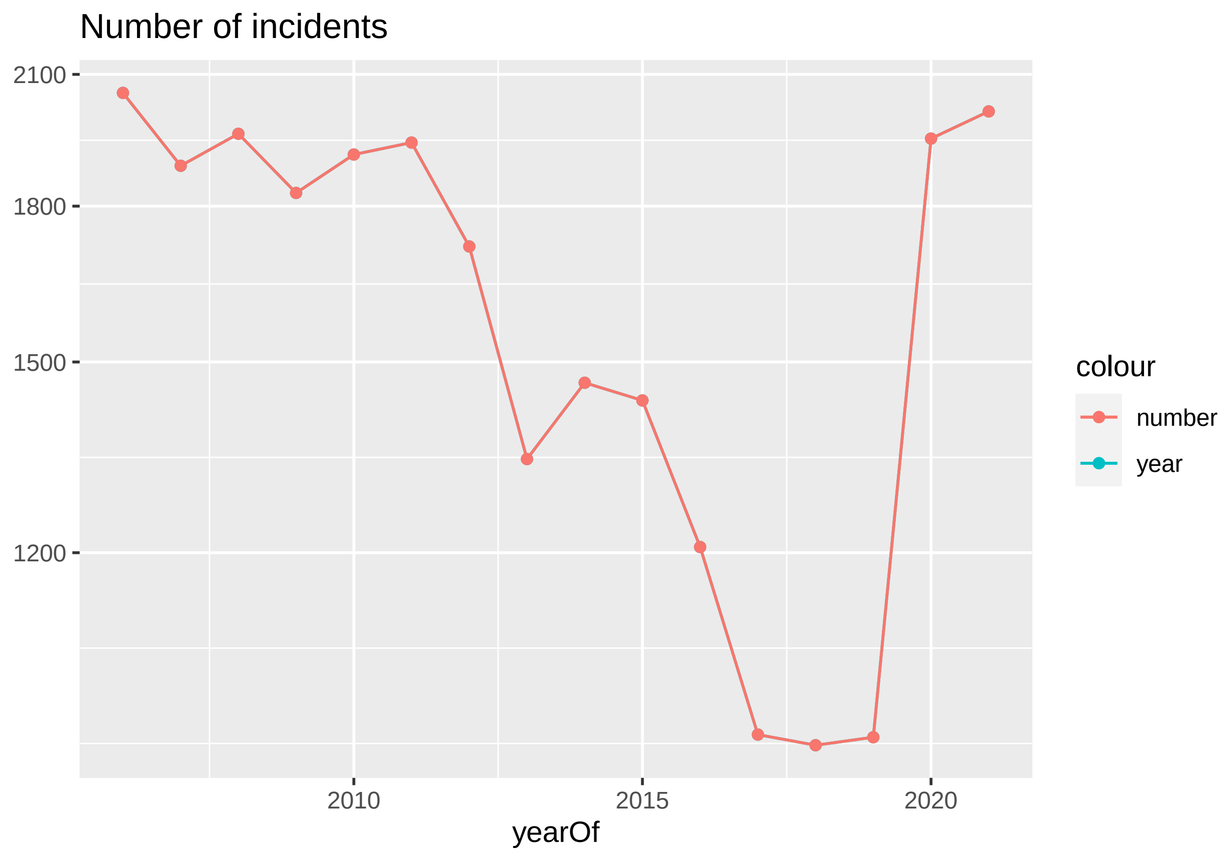
```
### the totals of vic_male is 21370, and the totals of vic_female is 2204.


### how many perps group by sex

nypd_data %>% group_by(PERP_SEX) %>% summarise(count=n())
```

```
## # A tibble: 4 x 2
##   PERP_SEX count
##   <chr>    <int>
## 1 F          371
## 2 M        14416
## 3 U         1499
## 4 <NA>      9310
```

```
### the number of incident of every year

nypd_byyear = nypd_data %>% mutate(yearOf=year(mdy(OCCUR_DATE))) %>% group_by(yearOf) %>% summarise(numb

summary(nypd_byyear)
```

```
##      yearOf         number
##  Min.   :2006   Min.   : 958
##  1st Qu.:2010   1st Qu.:1306
##  Median :2014   Median :1772
##  Mean   :2014   Mean   :1600
##  3rd Qu.:2017   3rd Qu.:1941
##  Max.   :2021   Max.   :2055
```

```
### plot the incident by year

nypd_byyear %>% ggplot(aes(x=yearOf,y=number))+geom_line(aes(color="year")) + geom_point(aes(color="yea
  scale_y_log10() +
  labs(title = "Number of incidents",y=NULL)
```



Mode

```
mod <- lm(yearOf~number,data=nypd_byyear)
summary(mod)
```

```
##
## Call:
## lm(formula = yearOf ~ number, data = nypd_byyear)
##
## Residuals:
##     Min      1Q  Median      3Q     Max
## -4.7756 -2.3315 -0.3892  0.5406  9.9688
##
## Coefficients:
##                  Estimate Std. Error t value Pr(>|t|)
## (Intercept)  2.023e+03  4.445e+00 455.127   <2e-16 ***
## number      -6.003e-03  2.699e-03  -2.225   0.0431 *
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 4.236 on 14 degrees of freedom
## Multiple R-squared:  0.2612, Adjusted R-squared:  0.2084
## F-statistic: 4.949 on 1 and 14 DF,  p-value: 0.04307
```

Bias

The dataset has many variables, and in the report I only used some of them. Didn't use variables like PERP_RACE, VIC_RACE,PERCINT etc. The Analysis and mode is simple. Some of variables are NA values. I thinks this is also bias in dataset.