crimenes_250_50m

Laura.w

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```
library(readxl)

library(readr)

data_250 <- read_xlsx('C://Users//LW//Box//Mexico City 2020//data//buffer_250_crime1_TableToExcel.xlsx')

data_250
```

```
## # A tibble: 2,246 x 26
##      FID Join_Count TARGET_FID nombre domicilio_ coordenada latitud
##    <dbl>      <dbl>      <dbl> <chr>  <chr>      <chr>        <dbl>
##  1     0         51          0 INTER~ DOMICILIO~ -99.10185~    19.4
##  2     1         45          1 PRIMA~ DOMICILIO~ -99.10427~    19.3
##  3     2         74          2 PREES~ DOMICILIO~ -99.23743~    19.3
##  4     3         48          3 PREES~ DOMICILIO~ -99.03688~    19.4
##  5     4          7          4 PRIMA~ DOMICILIO~ -99.11412~    19.4
##  6     5         71          5 PRIMA~ DOMICILIO~ -99.04822~    19.4
##  7     6         72          6 ESCUE~ DOMICILIO~ -99.02922~    19.3
##  8     7          5          7 SECUN~ DOMICILIO~ -99.06236~    19.3
##  9     8         60          8 PREES~ DOMICILIO~ -99.09861~    19.4
## 10     9         69          9 PRIMA~ DOMICILIO~ -99.09731~    19.4
## # ... with 2,236 more rows, and 19 more variables: longitud <dbl>,
## #   domicilio <chr>, BUFF_DIST <dbl>, ORIG_FID <dbl>, ao_hechos <chr>,
## #   mes_hechos <chr>, fecha_hech <chr>, delito <chr>, categoria_ <chr>,
## #   fiscalia <chr>, agencia <chr>, unidad_inv <chr>, alcaldia_h <chr>,
## #   colonia_he <chr>, ao_inicio <chr>, mes_inicio <chr>, fecha_inic <chr>,
## #   calle_hech <chr>, calle_he_1 <chr>
```

##Crimes within a 250m radius

Summary of crimes within a 250 radius of any school

```
data(data_250, package = "DMwR2")
summary(data_250)
```

```
##       FID           Join_Count       TARGET_FID        nombre
##  Min.   :   0.0   Min.   :  0.00   Min.   :   0.0   Length:2246
##  1st Qu.: 560.2   1st Qu.: 31.00   1st Qu.: 560.2   Class :character
##  Median :1120.5   Median : 55.00   Median :1120.5   Mode  :character
##  Mean   :1120.5   Mean   : 67.69   Mean   :1120.5
##  3rd Qu.:1680.8   3rd Qu.: 82.00   3rd Qu.:1680.8
##  Max.   :2241.0   Max.   :691.00   Max.   :2241.0
##  NA's   :4                         NA's   :4
##   domicilio_         coordenada           latitud         longitud
##  Length:2246        Length:2246        Min.   :19.17   Min.   :-99.33
##  Class :character   Class :character   1st Qu.:19.34   1st Qu.:-99.16
##  Mode  :character   Mode  :character   Median :19.38   Median :-99.12
##                                        Mean   :19.39   Mean   :-99.12
##                                        3rd Qu.:19.45   3rd Qu.:-99.08
```

```
##                                      Max.   :19.58   Max.   :-98.95
##                                      NA's   :4       NA's   :4
##   domicilio           BUFF_DIST      ORIG_FID       ao_hechos
##  Length:2246        Min.   :250   Min.   :   0.0   Length:2246
##  Class :character   1st Qu.:250   1st Qu.: 595.2   Class :character
##  Mode  :character   Median :250   Median :1197.5   Mode  :character
##                     Mean   :250   Mean   :1193.7
##                     3rd Qu.:250   3rd Qu.:1788.2
##                     Max.   :250   Max.   :2382.0
##                     NA's   :4     NA's   :4
##   mes_hechos         fecha_hech          delito
##  Length:2246        Length:2246        Length:2246
##  Class :character   Class :character   Class :character
##  Mode  :character   Mode  :character   Mode  :character
##
##
##
##
##   categoria_          fiscalia           agencia
##  Length:2246        Length:2246        Length:2246
##  Class :character   Class :character   Class :character
##  Mode  :character   Mode  :character   Mode  :character
##
##
##
##
##   unidad_inv         alcaldia_h         colonia_he
##  Length:2246        Length:2246        Length:2246
##  Class :character   Class :character   Class :character
##  Mode  :character   Mode  :character   Mode  :character
##
##
##
##
##   ao_inicio          mes_inicio         fecha_inic
##  Length:2246        Length:2246        Length:2246
##  Class :character   Class :character   Class :character
##  Mode  :character   Mode  :character   Mode  :character
##
##
##
##
##   calle_hech         calle_he_1
##  Length:2246        Length:2246
##  Class :character   Class :character
##  Mode  :character   Mode  :character
##
##
##
##
```

```
summary(data_250$Join_Count)
```

```
##    Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##    0.00   31.00   55.00   67.69   82.00  691.00
```

###We can review the vairance, standard deviation, and inter-quartile ranges:

```
#variance
var(data_250$Join_Count)
```

```
## [1] 4207.749
```

```
#standard deviation
sd(data_250$Join_Count)
```

```
## [1] 64.86717
```

```
#inter-quartile range
quantile(data_250$Join_Count)
```

```
##   0%  25%  50%  75% 100%
##    0   31   55   82  691
```

```
quantile(data_250$Join_Count, probs=c(0.2, 0.8))
```

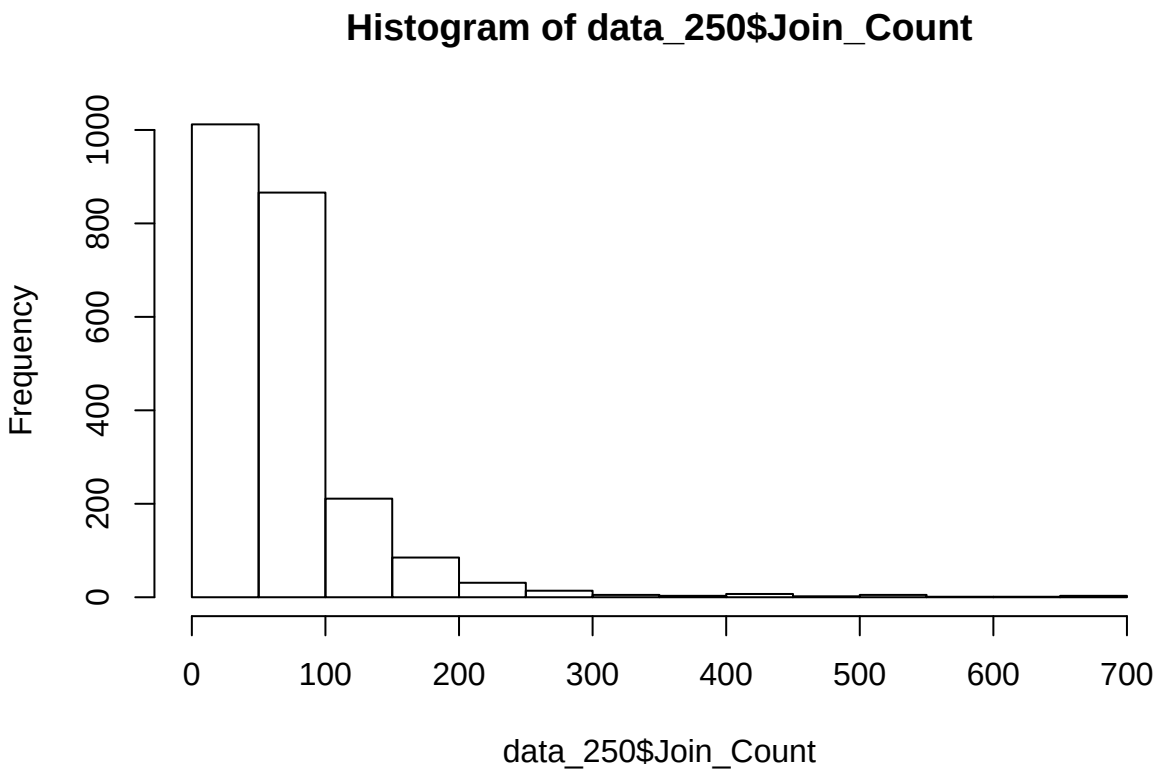
```
## 20% 80%
##  26  91
```

Joint Count Distribution

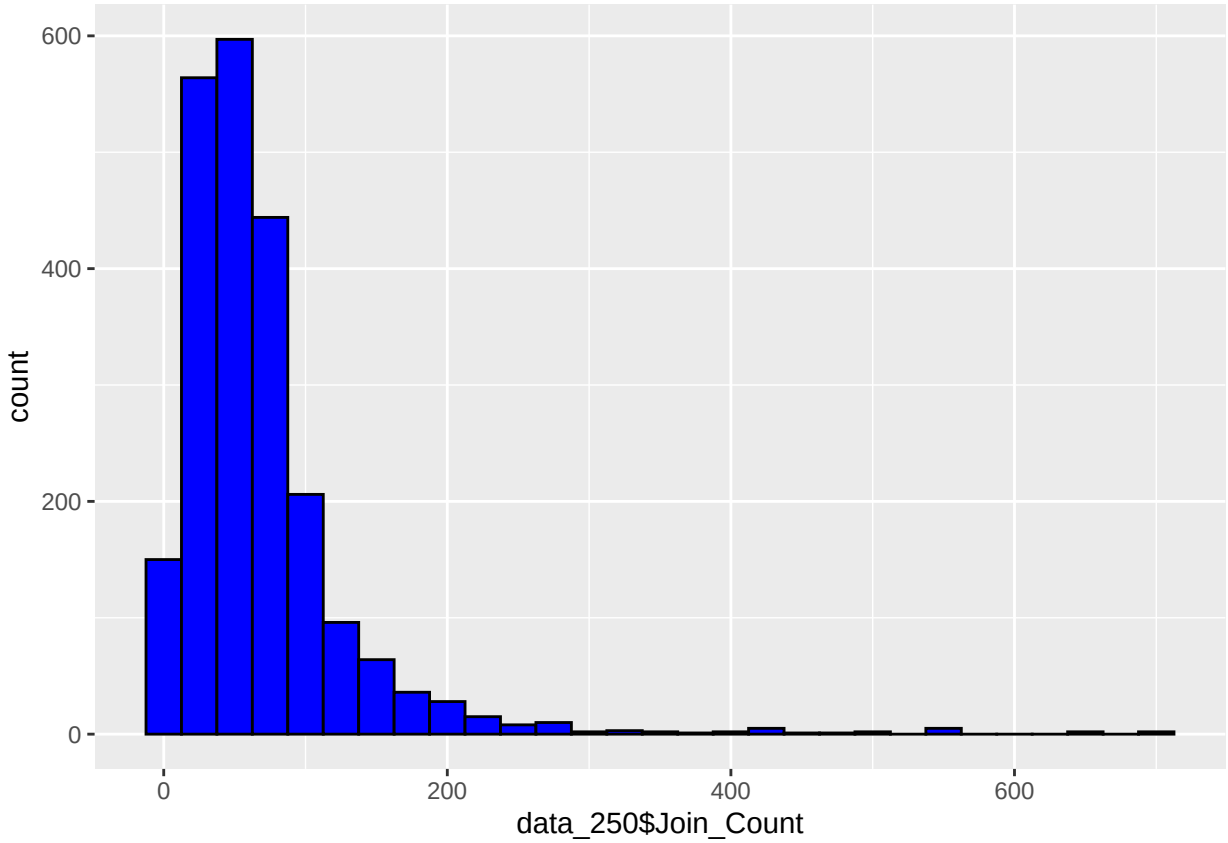
Our histogram is skewed to the lower end of the crime numbers, with most areas experiencing under 150 crimes.

When we look at the bandwith a little closer we can see that most areas with a 250 radius aruond a school have between 25 and 75 crimes on average, with 50 crimes

```
library(ggplot2)

hist(data_250$Join_Count)
```

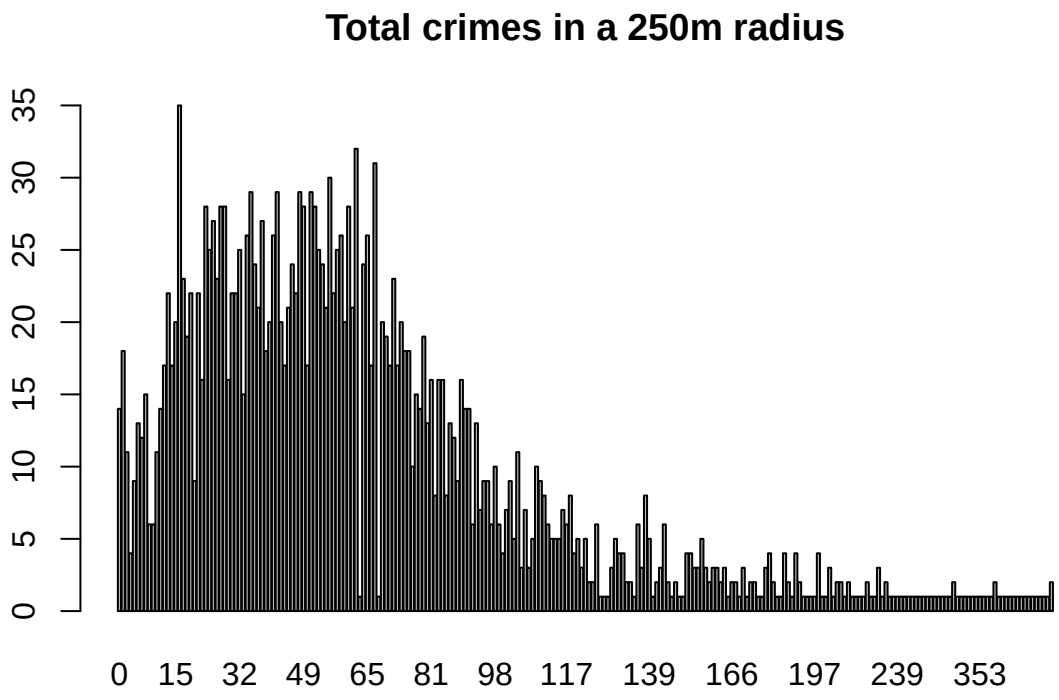



```
ggplot(data_250) +
    geom_histogram(aes(x = data_250$Join_Count),
                   binwidth = 25, fill = "blue", color = "black")
```

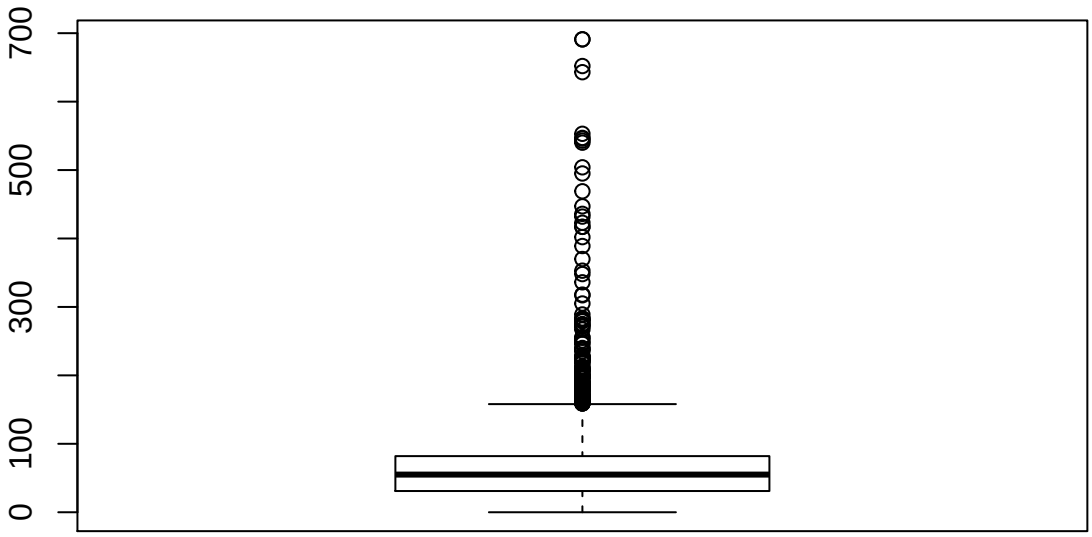


And look at the frequency of crimes

```
freq <- table(data_250$Join_Count)
barplot(freq, main="Total crimes in a 250m radius")
```

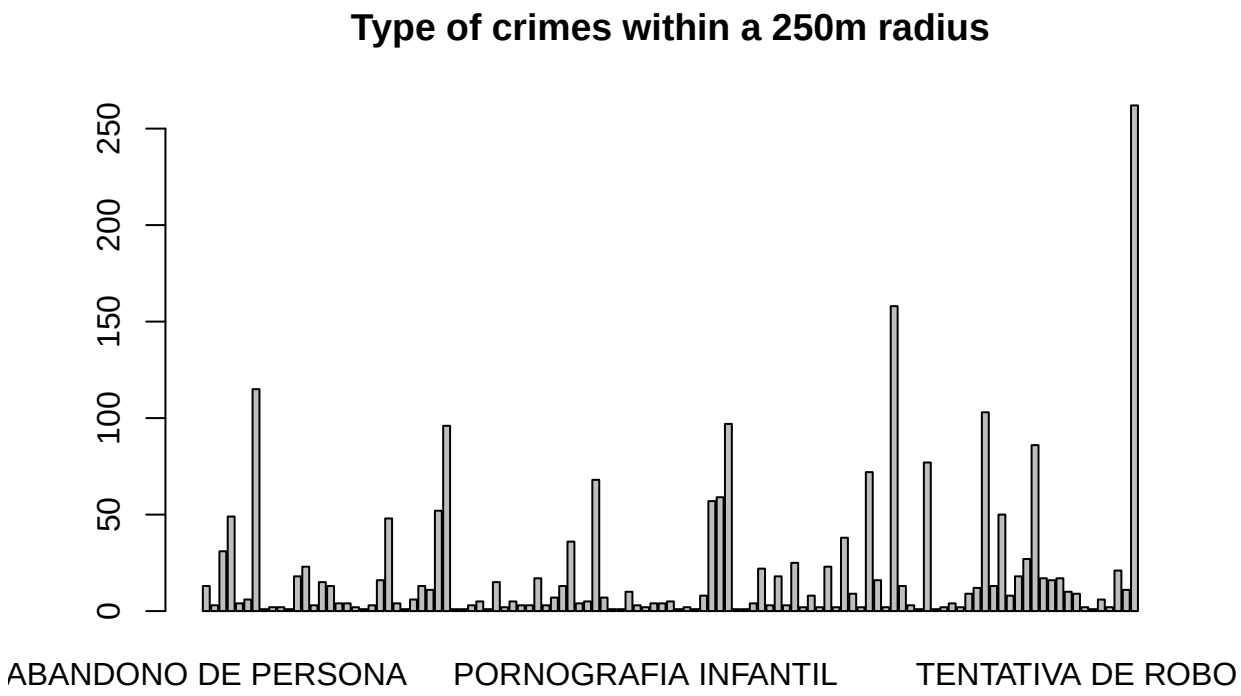



```
boxplot(data_250$Join_Count)
```

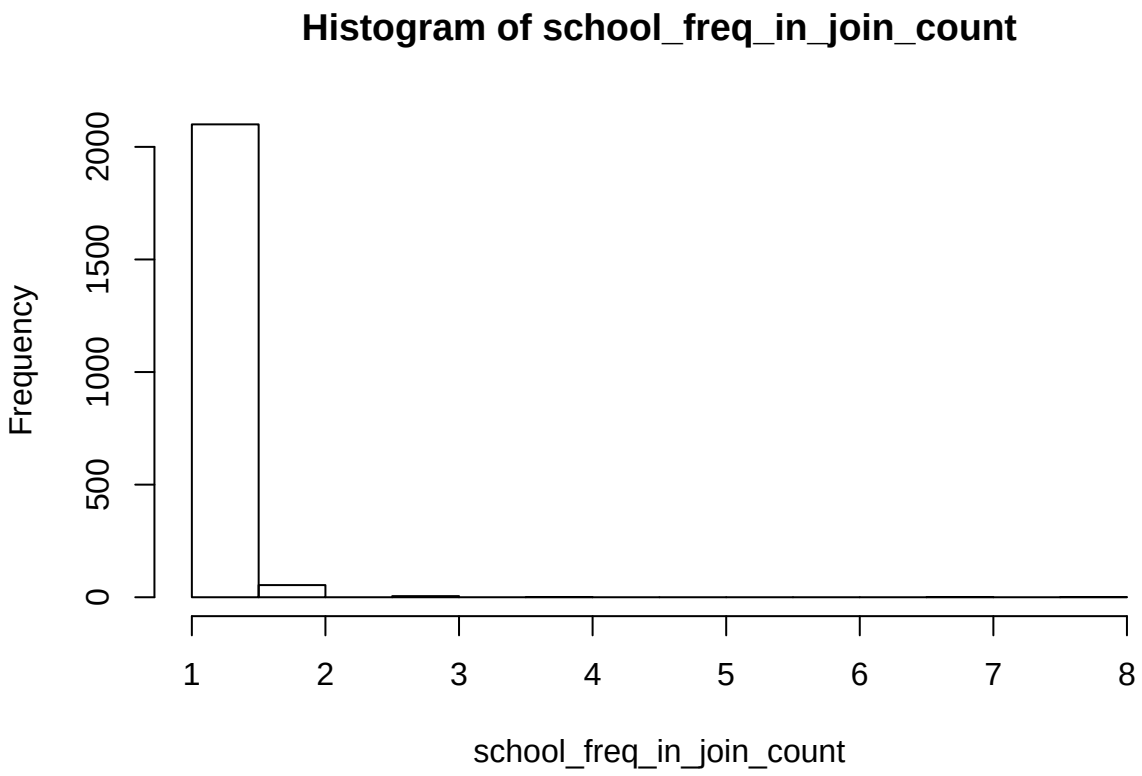



```
ggplot(data_250, aes(x=Join_Count, y=delito)) + geom_point()+ggtitle("Type of Crimes Reported")
```

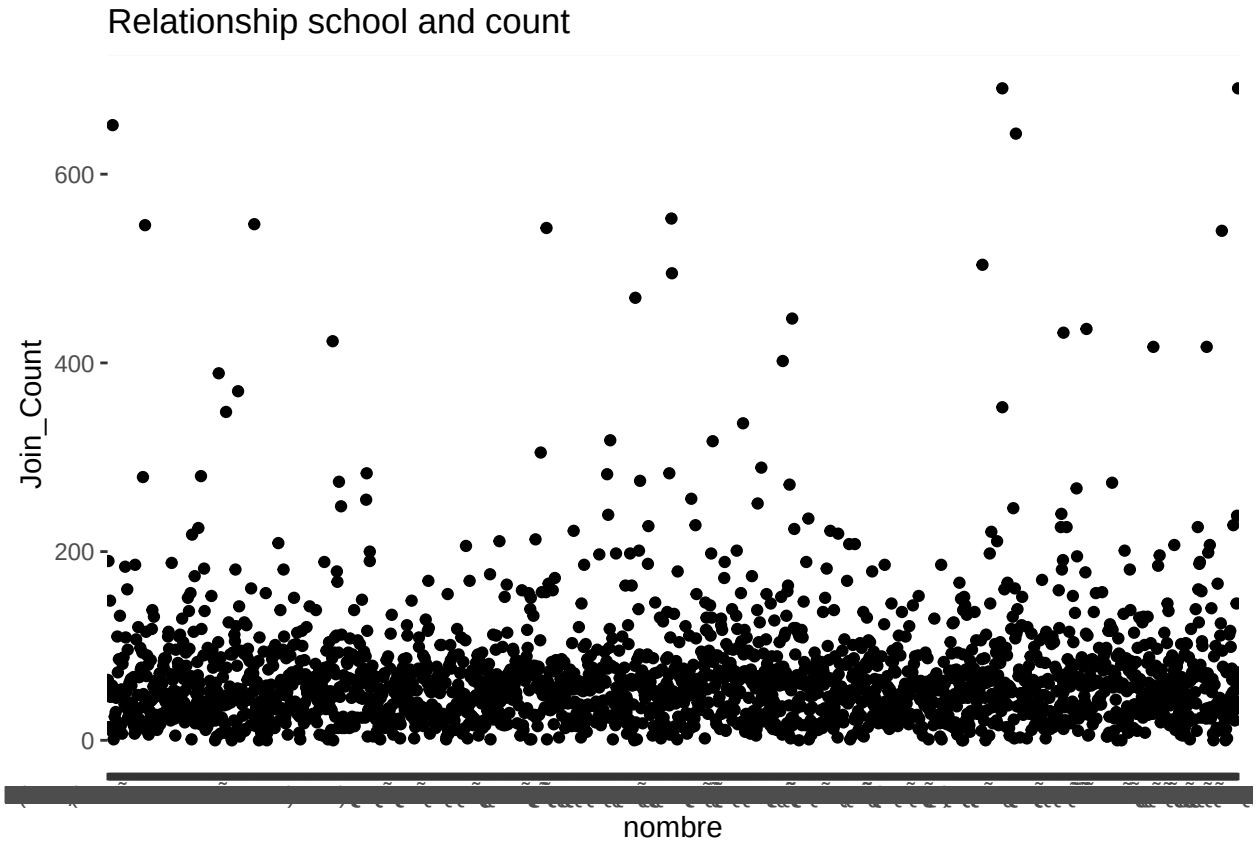

```
freq <- table(data_250$delito)
barplot(freq, main="Type of crimes within a 250m radius")
```



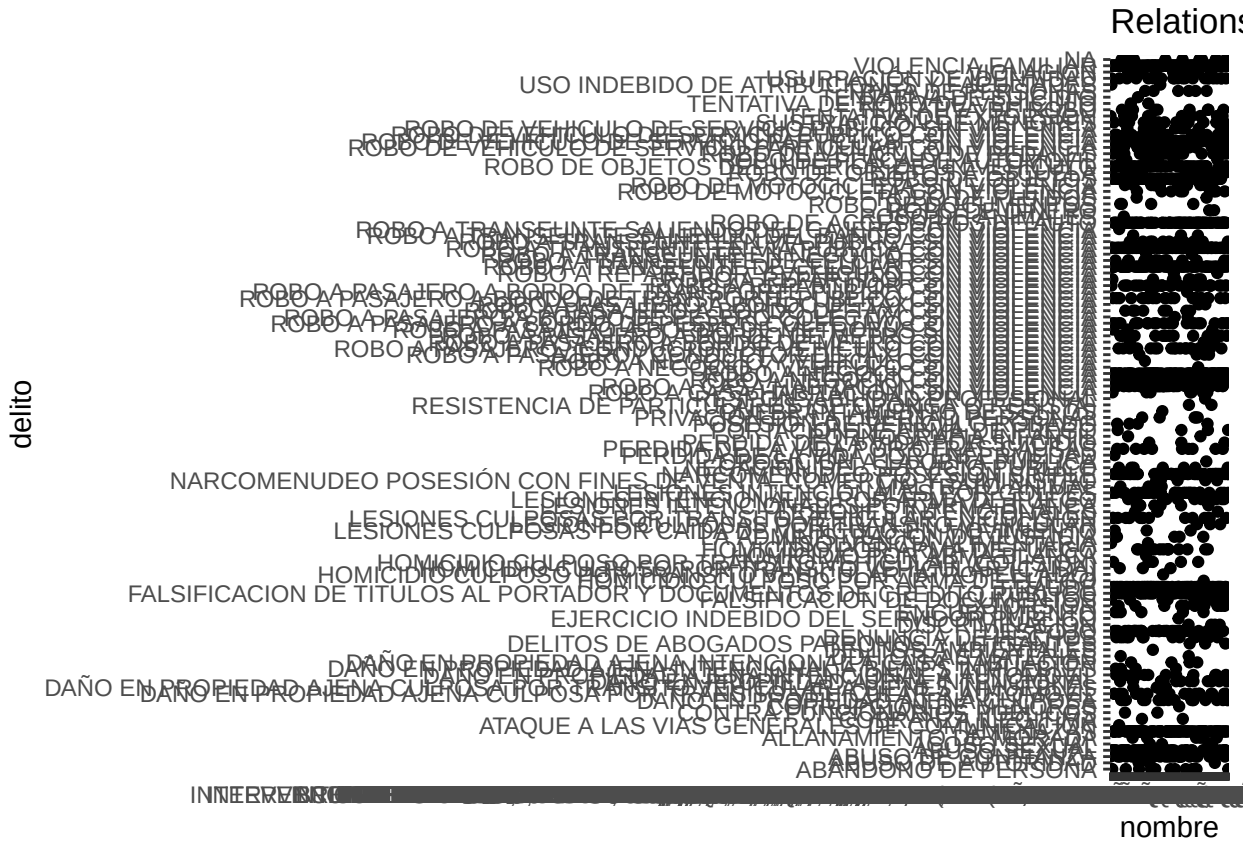

```
#table(data_250$Join_Count, data_250$nombre)
school_freq_in_join_count <- table(data_250$nombre)
hist(school_freq_in_join_count)
```




```
ggplot(data_250, aes(x=nombre, y=Join_Count)) + geom_point()+ggtitle("Relationship school and count")
```




```
ggplot(data_250, aes(x=nombre, y=delito)) + geom_point()+ggtitle("Relationship school and crime")
```

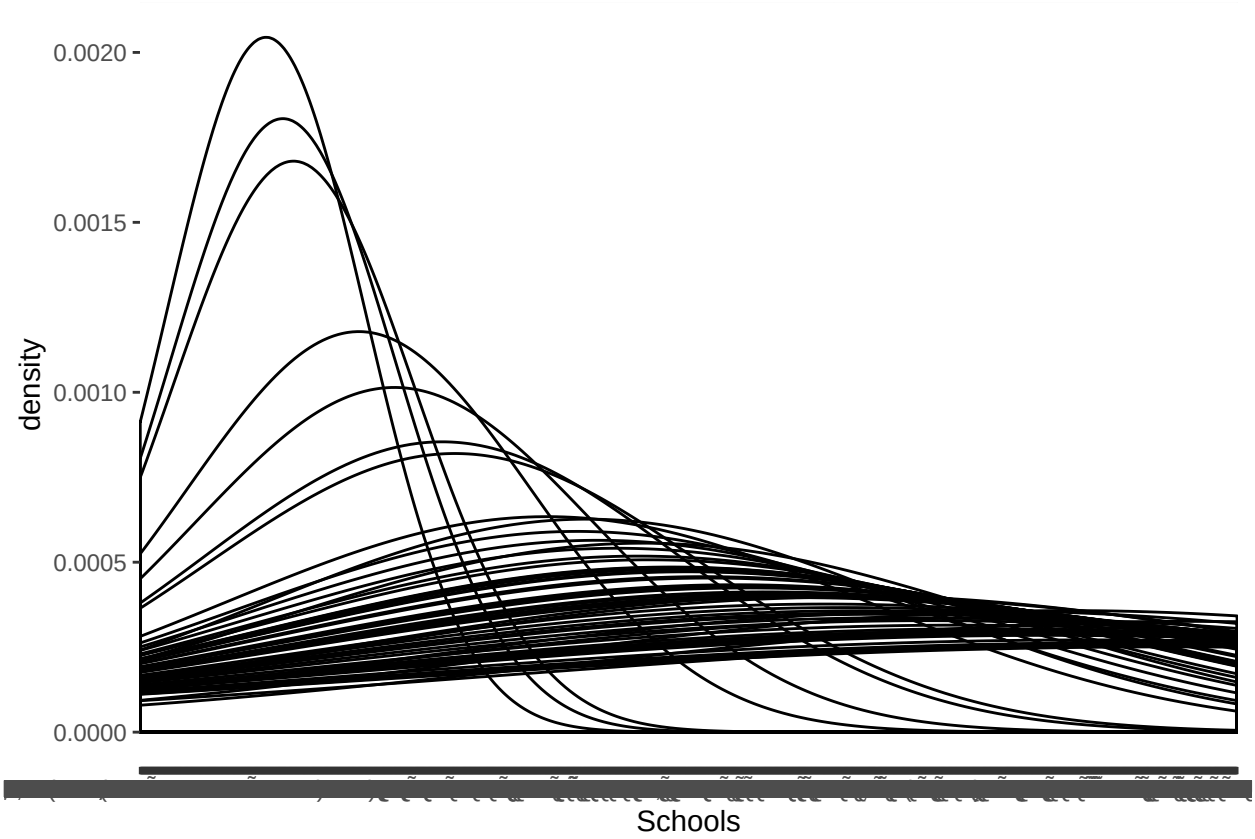



```
#missing.value.rows <- filter(data_250, !complete.cases(data_250))
#missing.value.rows


#apply(data_250, 1, function(x) sum(is.na(x)))

#sort(apply(data_250, 2, function(x) sum(is.na(x))))
```

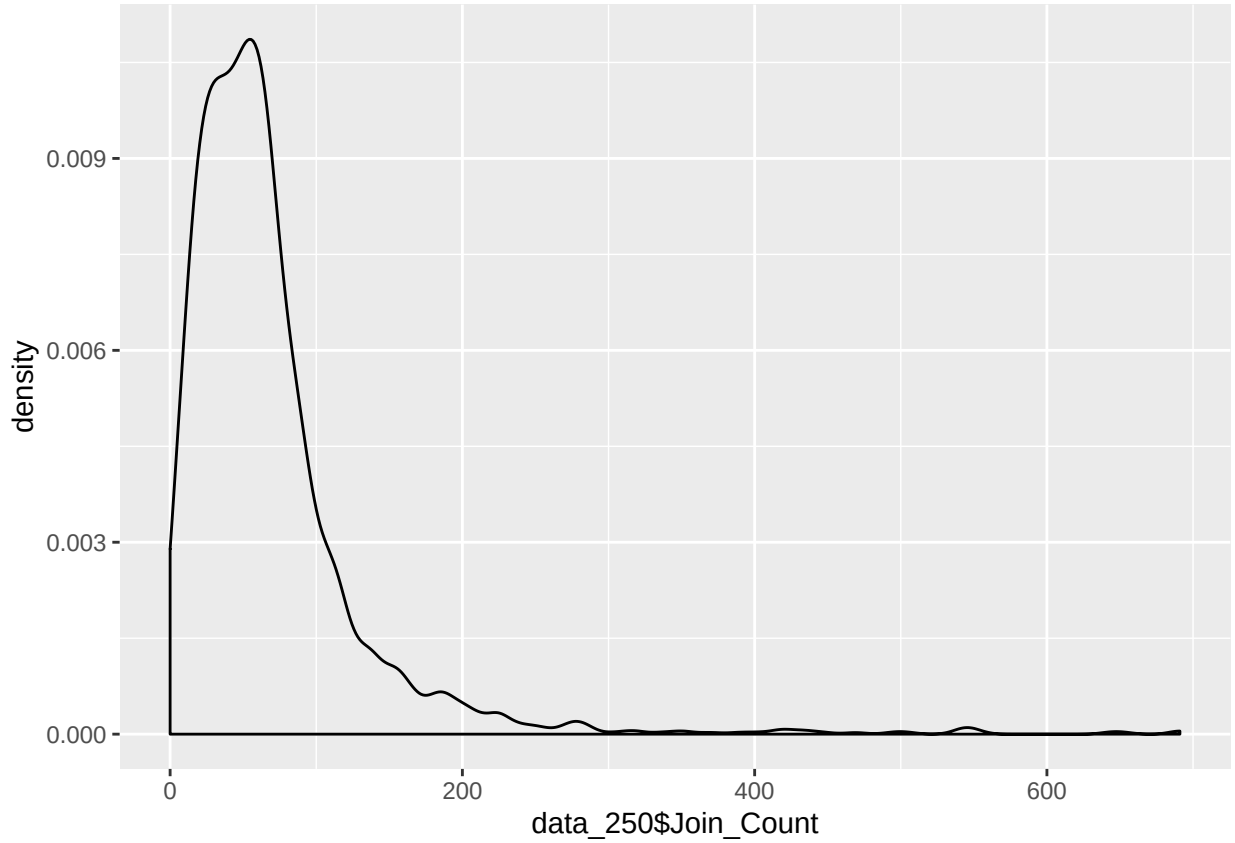
```
dfdata_250 <- data.frame(data_250)

crimes_in_250r <- as.factor(data_250$delito)

Schools <- as.factor(data_250$nombre)
```

```
#table2 <- table(data_250$delito, data_250$nombre, data_250$Join_Count)
#table2
```

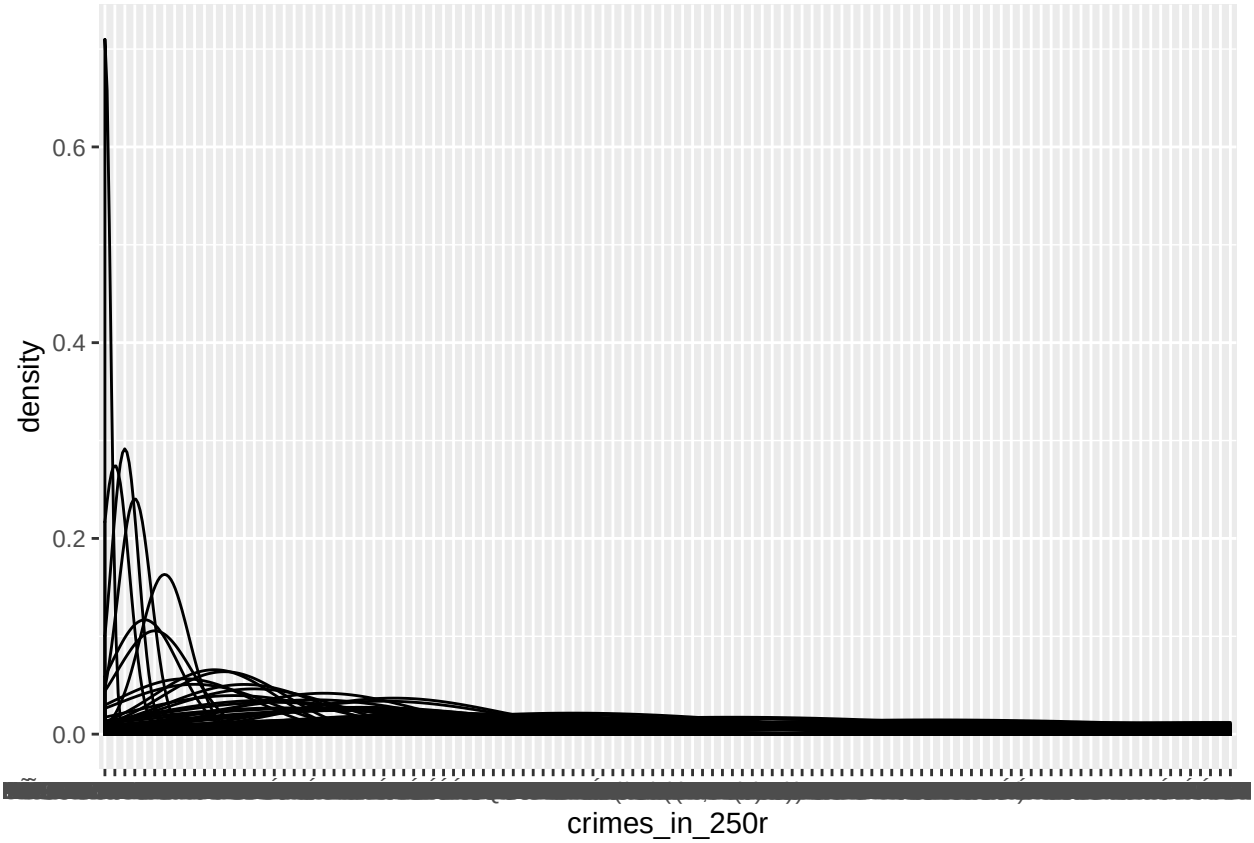
```
library(lattice)
library(ggplot2)
#densityplot(~ crimes_in_250r, group = Schools, data = data_250, auto.key = TRUE)

ggplot(data_250) + geom_density(aes(x = Schools))
```



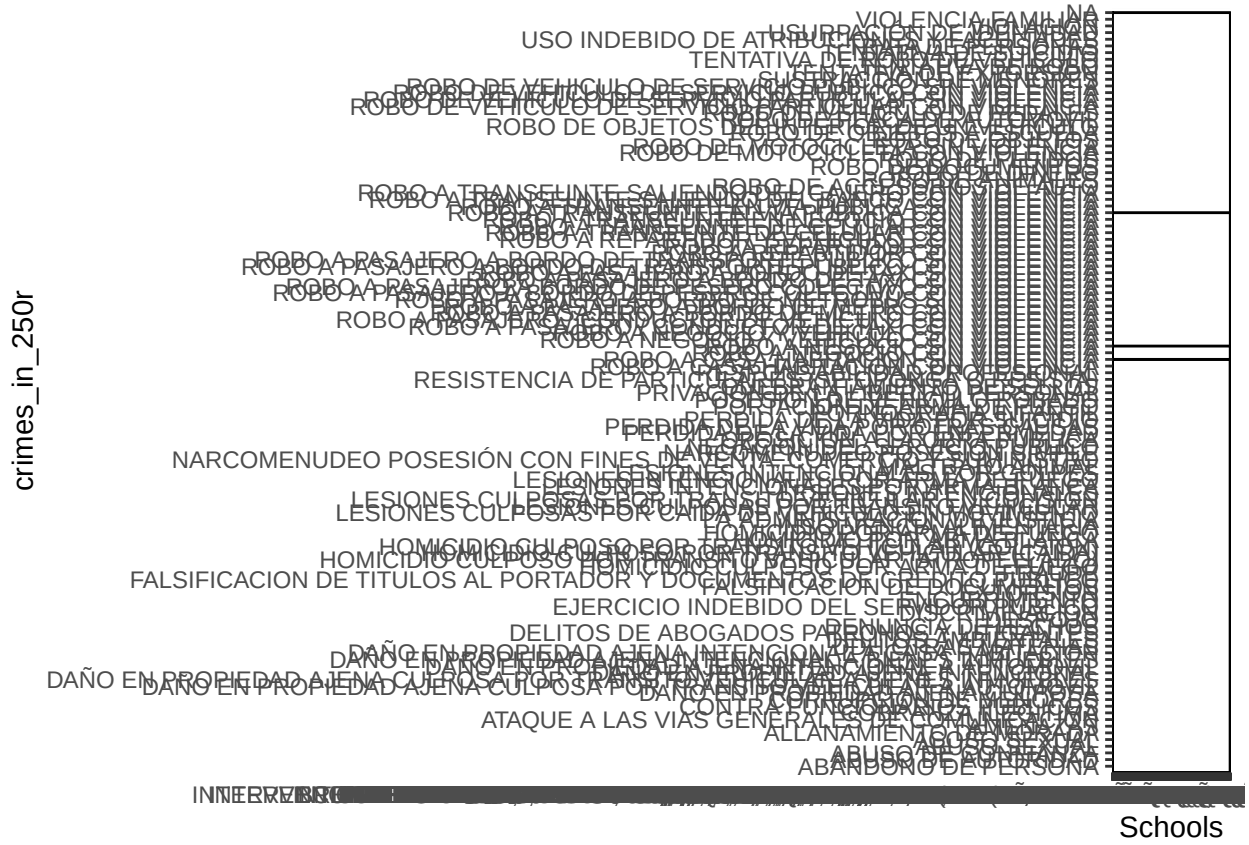

```
ggplot(data_250) + geom_density(aes(x = data_250$Join_Count))
```




```
ggplot(data_250) + geom_density(aes(x = crimes_in_250r))
```




```
ggplot(data_250) + geom_density(aes(x= Schools, y=crimes_in_250r))
```




```
#ggplot(data_250) + geom_density(aes(x = fctdelt_250)) + facet_wrap(~fctnom_250)
```