Reproducible Research: Peer Assessment 1

Loading and proccesing the data

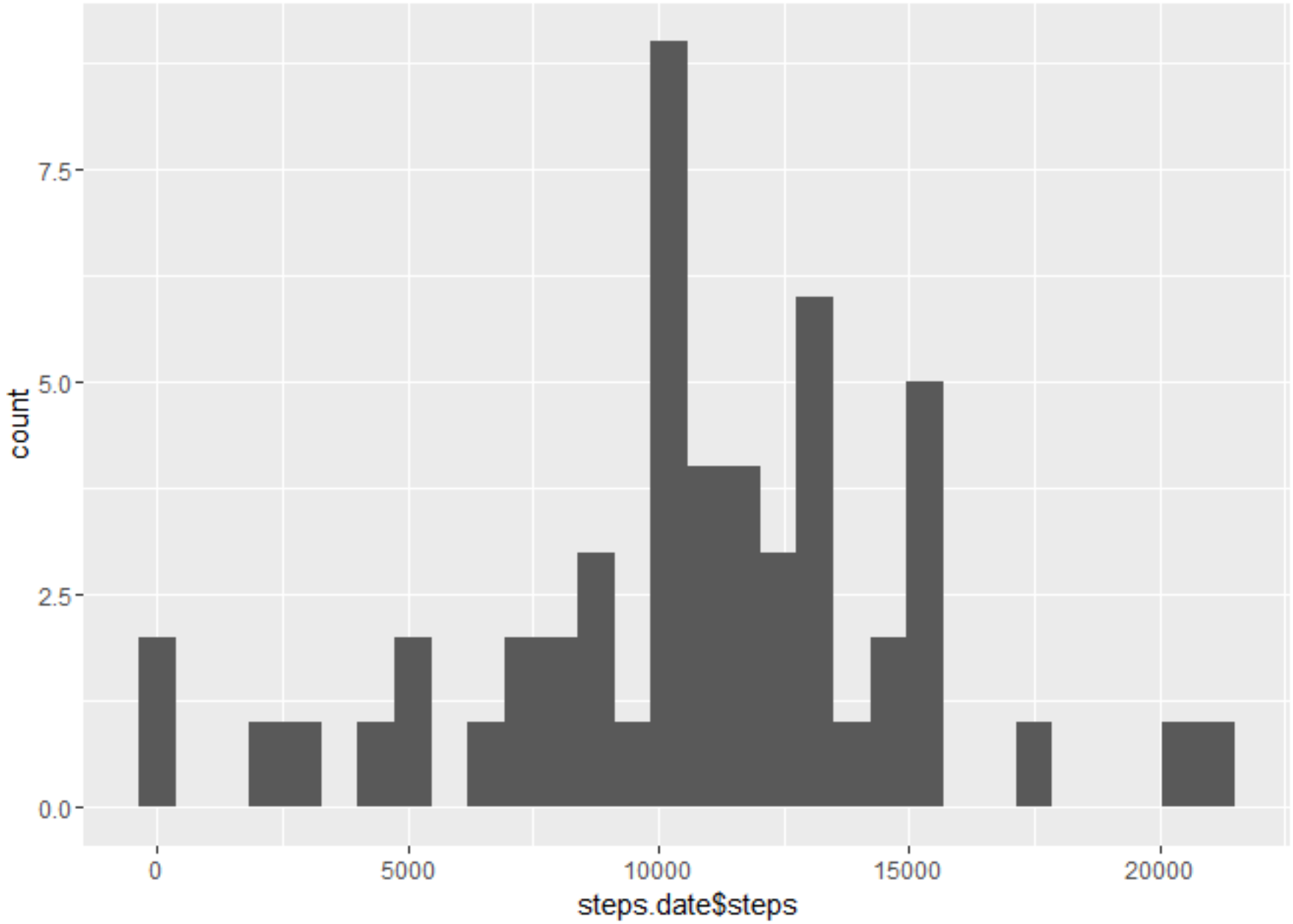
```
data<-read.csv("activity.csv")
```

What is mean total number of steps taken per day?

1:Histogram of the total number of steps taken each day

```
library(ggplot2)
steps.date<-aggregate(steps~date, data=data, FUN = sum)
p<-qplot(steps.date$steps, geom="histogram")
p
```

```
## `stat_bin()` using `bins = 30`. Pick better value with `binwidth`.
```



2: Mean and median total number of steps taken per day

```
mean.steps<-mean(steps.date$steps)
```

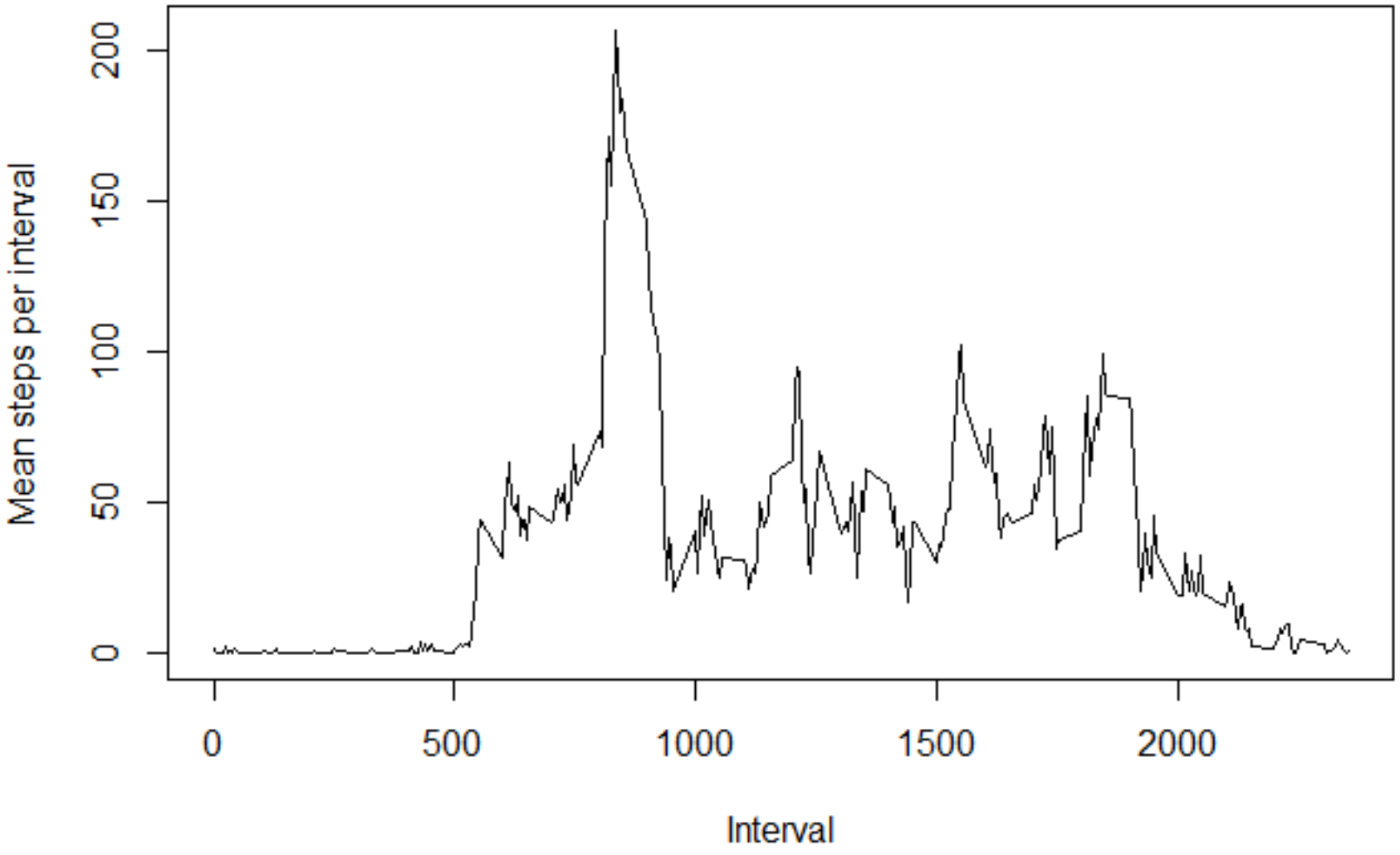
```
median.steps<-median(steps.date$steps)
```

The mean: 1.076618910^{4}
The median: 10765

What is the average daily activity pattern?

1. A plot of the average steps per interval:

```
steps.interval<-aggregate(steps~interval, data=data, FUN = mean)
plot(y=steps.interval$steps, x=steps.interval$interval, type = "l",
     ylab = "Mean steps per interval", xlab = "Interval")
```



2. Calculate the interval with the highest average steps:

```
max.steps<-steps.interval[which.max(steps.interval$steps),1]
```

The interval with the highest average steps is 835

Imputing missing values

1. The number of NA rows:

```
num.na<-sum(is.na(data$steps))
```

The number of rows without data is: 2304

2. I will fill the missing data with the average steps per interval:

```
data.fill<-data
for (i in 1 : nrow(data.fill)) {
  if(is.na(data.fill[i,]$steps)) {
   data.fill[i,]$steps<-steps.interval[steps.interval$interval==data.fill[i,]$interval,]$steps
          }
  }
```

3. The new dataset is named: “data.fill”

4. 4.1:Histogram

```
steps.date.new<-aggregate(steps~date, data=data.fill, FUN = sum)
p<-hist(steps.date.new$steps, geom="histogram")
```

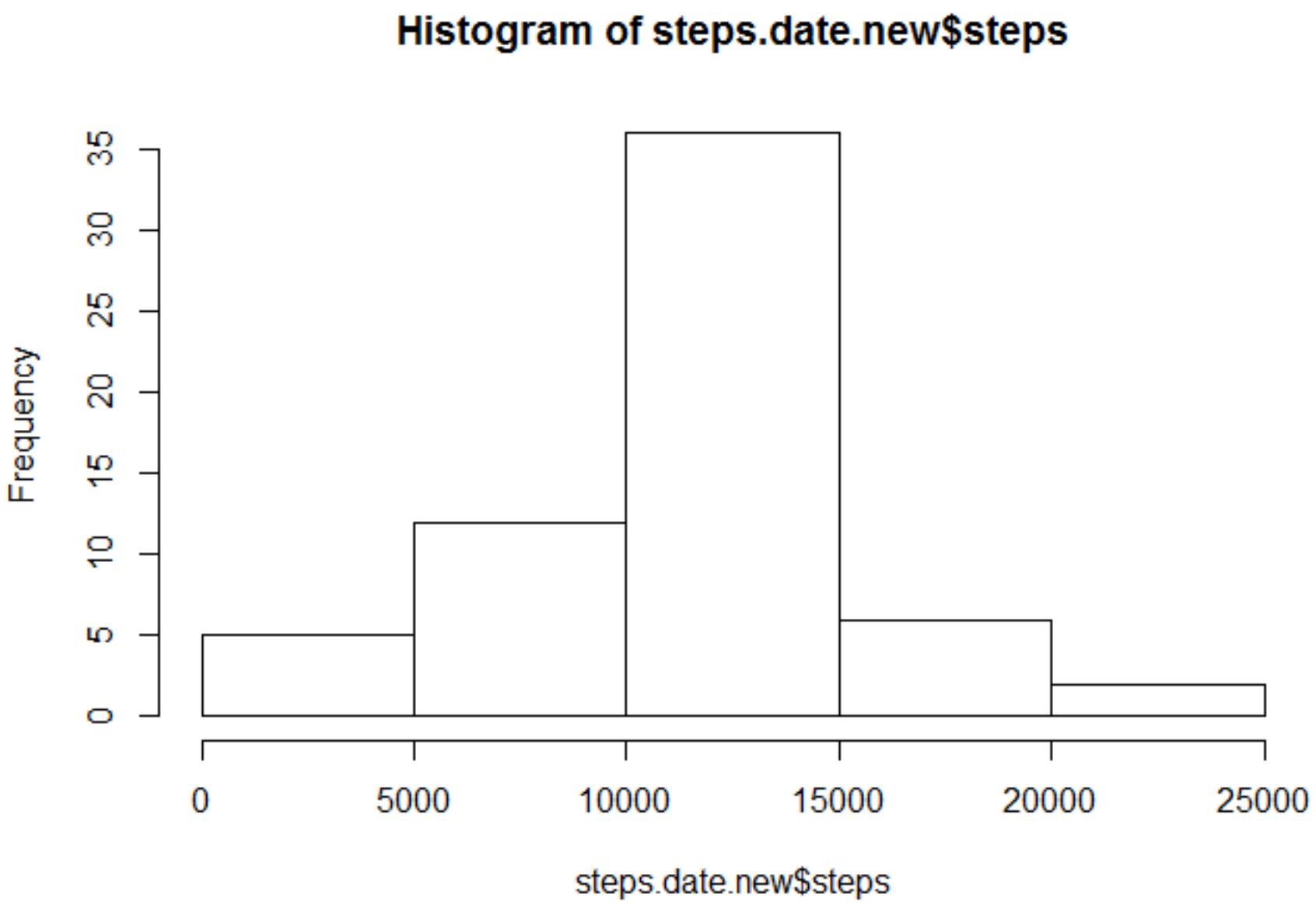
```
## Warning in plot.window(xlim, ylim, "", ...): "geom" is not a graphical
## parameter
```

```
## Warning in title(main = main, sub = sub, xlab = xlab, ylab = ylab, ...):
```

```
## "geom" is not a graphical parameter
```

```
## Warning in axis(1, ...): "geom" is not a graphical parameter
```

```
## Warning in axis(2, ...): "geom" is not a graphical parameter
```



4.2: mean and median:

```
mean.steps.new<-mean(steps.date.new$steps)
median.steps.new<-median(steps.date.new$steps)
```

The new mean is 1.076618910^{4} The new median is 1.076618910^{4}

Their is no big difference in the mean an in the median, yet there is a diffrence in the histogram, the results make sence becaouse of the way the mean and median is calculate.

Differences in activity patterns between weekdays and weekends

1: Adding to the date if the activity where in weekdays or in weekend:

```
weekdays<-weekdays(as.Date((data.fill$date)))
sabat<-weekdays=="שבת"
sunday<-weekdays==names(table(weekdays))[2]
weekend_day<-sabat+sunday
weekend<-vector(length = nrow(data.fill))
weekend[weekend_day==1]<-"Weekend"
weekend[weekend_day==0]<-"Weekday"
data.fill$weekend<-weekend
```

2: A plot by Weekend/Weekday

```
steps.day <- aggregate(steps ~ interval + weekend, data = data.fill, mean)
library("lattice")
xyplot(steps ~ interval | weekend, steps.day, type = "l", layout = c(1, 2),
    xlab = "Interval", ylab = "Number of steps")
```