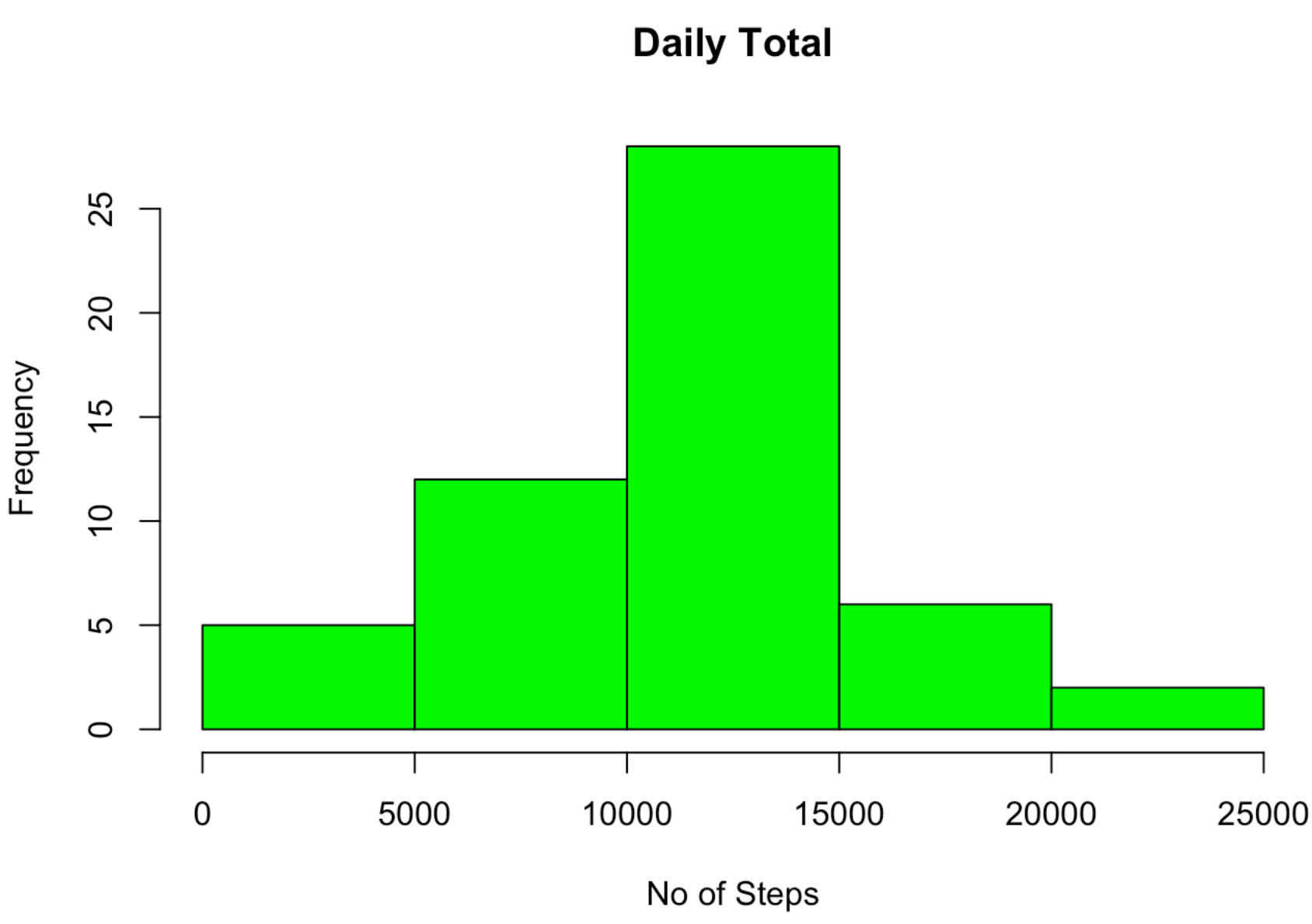
Loading and preprocessing the data

```
#Loading and preprocessing the data

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

What is mean total number of steps taken per day?

```
##What is mean total number of steps taken per day?
dailySteps <- aggregate(steps ~ date, activityData,sum)
##png("plot1.png")
hist(dailySteps$steps, main=paste("Daily Total"), col="green", xlab="No of Steps")
```



```
##dev.off()
dailyMean <- mean(dailySteps$steps)
dailyMedian <- median(dailySteps$steps)
print("Daily Mean and Median")
```

```
## [1] "Daily Mean and Median"
```

```
print(dailyMean)
```

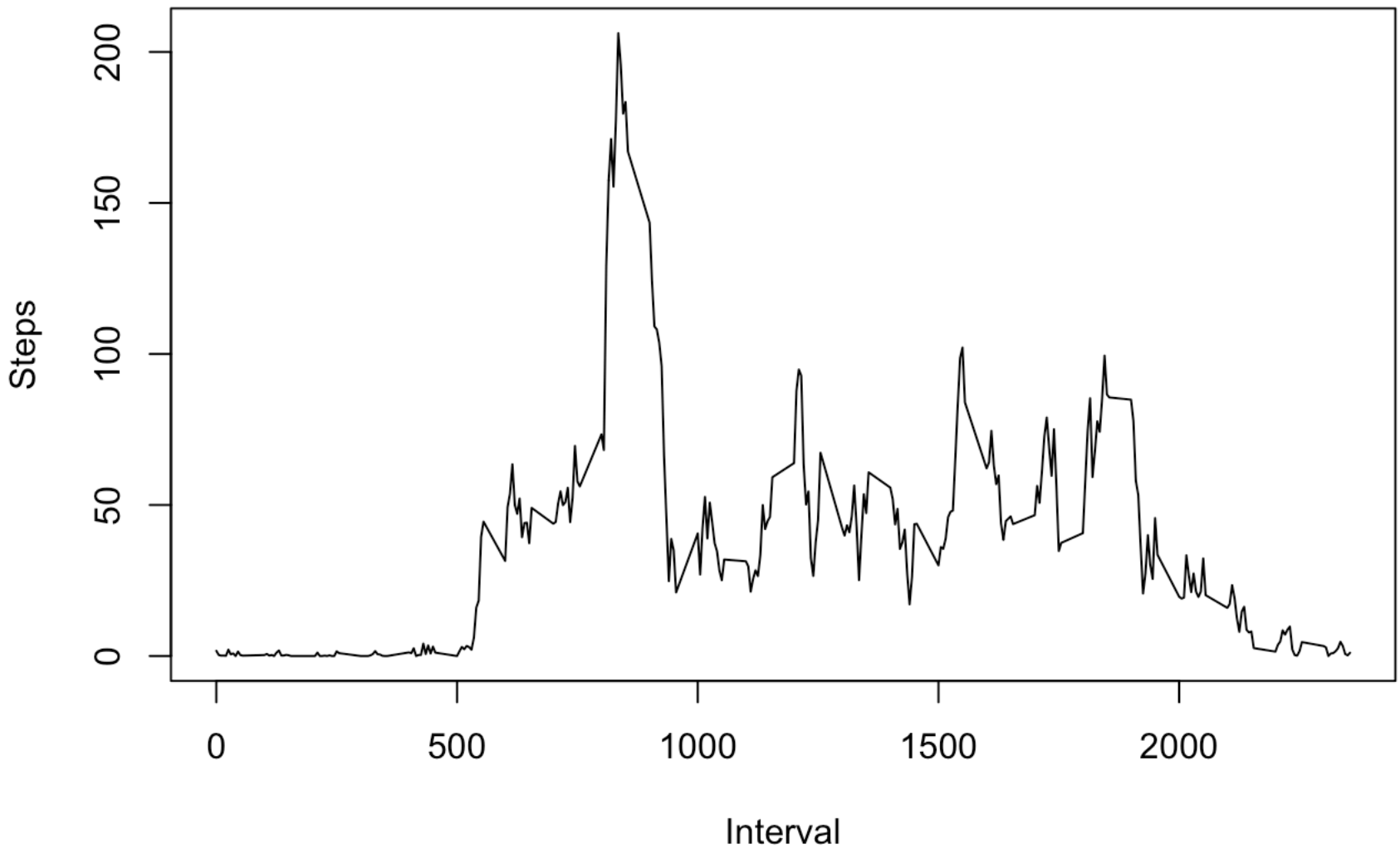
```
## [1] 10766.19
```

```
print(dailyMedian)
```

```
## [1] 10765
```

What is the average daily activity pattern?

```
##What is the average daily activity pattern?
stepsInterval <- aggregate(steps ~ interval, activityData,mean)
##png("plot2.png")
plot(stepsInterval$interval, stepsInterval$steps,type="l", xlab="Interval",ylab="Step
s")
```




```
##dev.off()
maxInterval<- stepsInterval[which.max(stepsInterval$steps),1]
print("daily activity pattern")
```

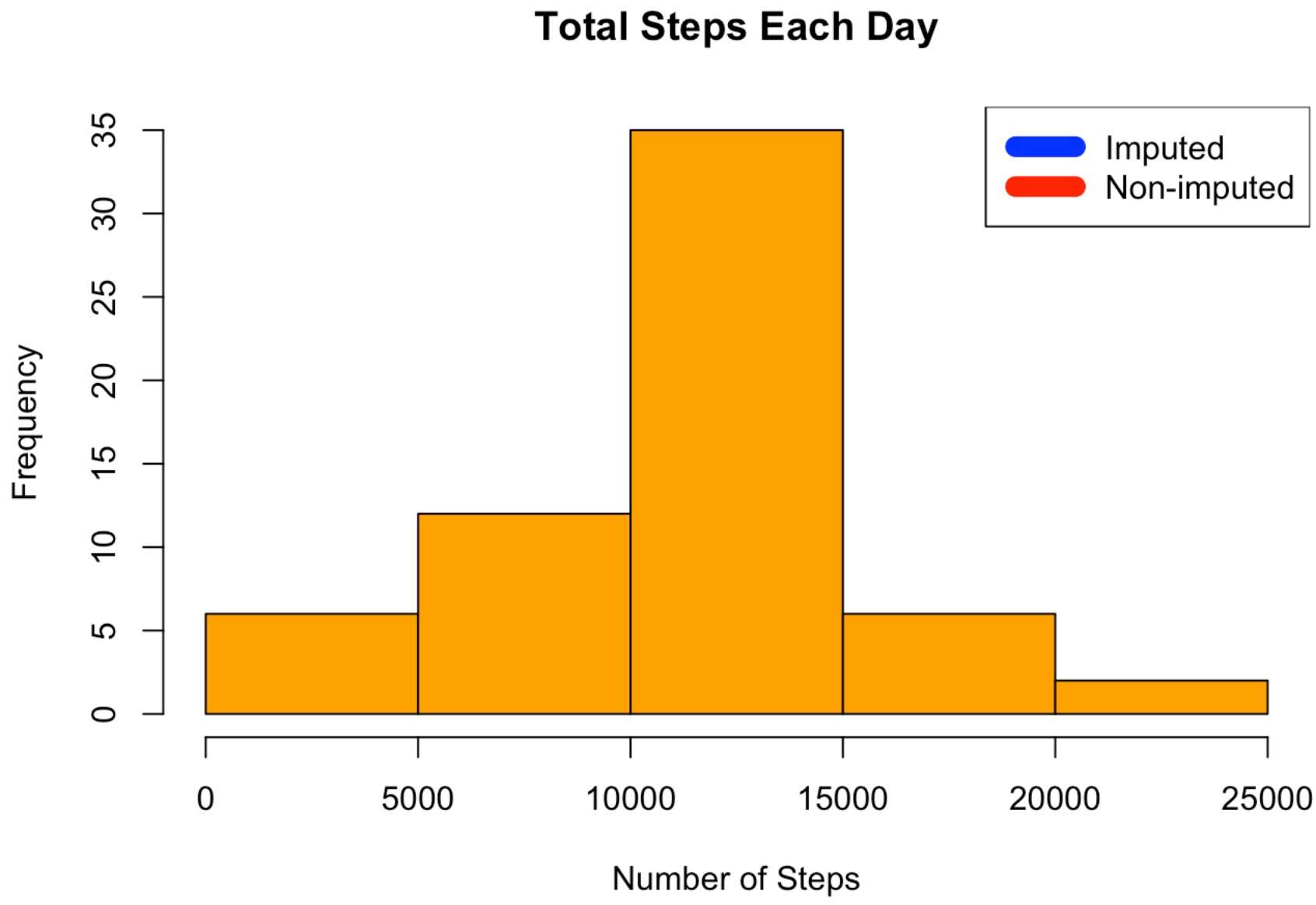
```
## [1] "daily activity pattern"
```

```
print(maxInterval)
```

```
## [1] 835
```

Imputing missing values

```
##Imputing missing values
incompleteData<- sum(!complete.cases(activityData))
imputedData <- transform(activityData, steps=ifelse(is.na(activityData$steps),stepsIn
terval$steps[match(activityData$interval,stepsInterval$interval)],activityData$steps)
)
imputedData[as.character(imputedData$date)=="2012-10-01",1] <-0
stepsByDay <- aggregate(steps ~ date, imputedData, sum)
hist(stepsByDay$steps, main=paste("Total Steps Each Day"), col="orange",xlab="Number
of Steps")
legend("topright", c("Imputed", "Non-imputed"), col=c("blue", "red"), lwd=10)
```




```
rmeanImputed <- mean(stepsByDay$steps)
rmedianImputed <- median(stepsByDay$steps)
print("Imputing missing values mean and median")
```

```
## [1] "Imputing missing values mean and median"
```

```
print(rmeanImputed)
```

```
## [1] 10589.69
```

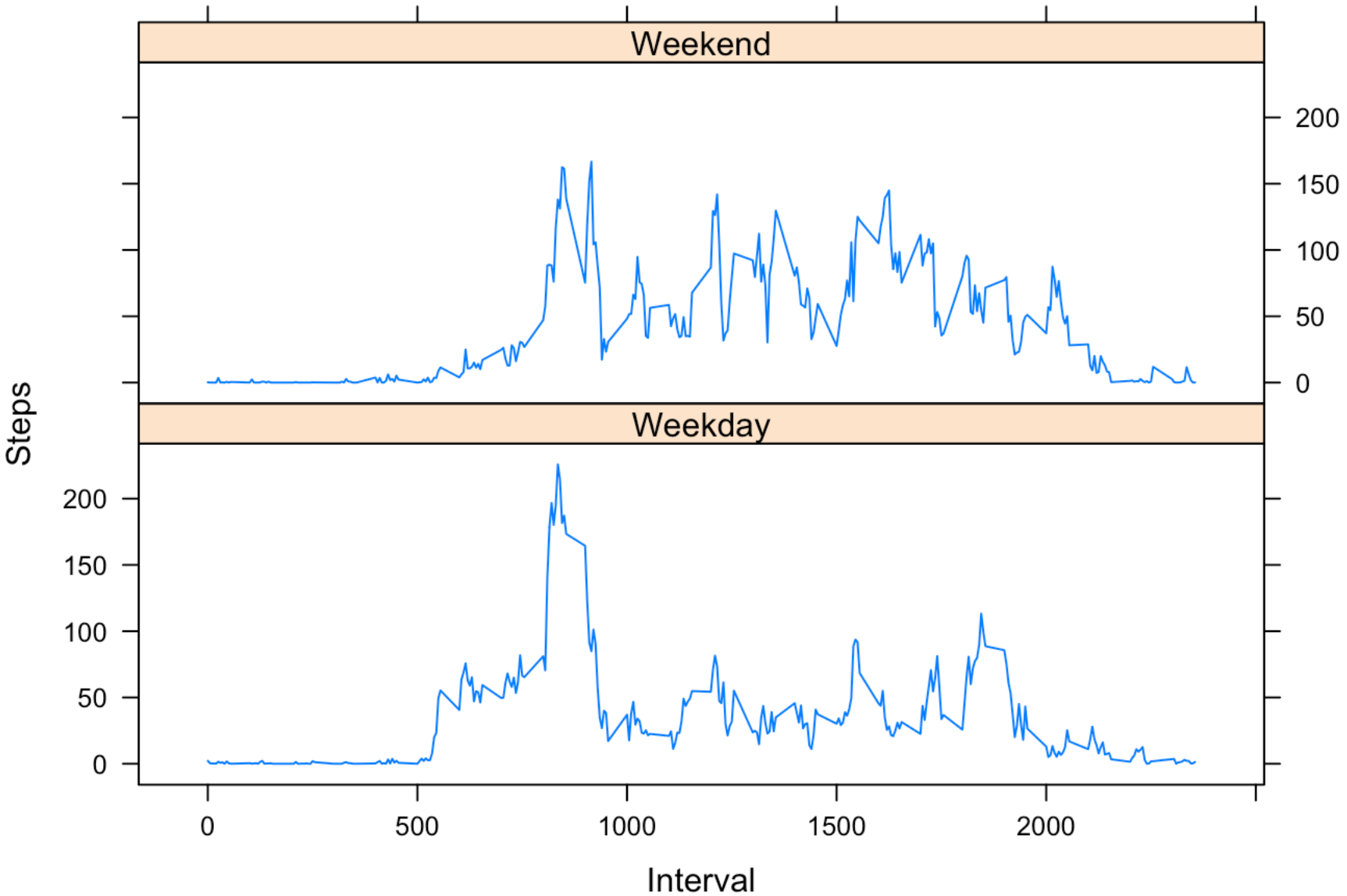
```
print(rmedianImputed)
```

```
## [1] 10766.19
```

```
meanDelta <- rmeanImputed-dailyMean
medianDelta <-rmedianImputed-dailyMedian
totalDiff <- sum(stepsByDay$steps)-sum(dailySteps$steps)
```

Are there differences in activity patterns between weekdays and weekends?

```
##Are there differences in activity patterns between weekdays and weekends?
weekdays <- c("Monday","Tuesday","Wednesday","Thursday","Friday")
imputedData$DOW = as.factor(ifelse(is.element(weekdays(as.Date(imputedData$date)),wee
kdays),"Weekday","Weekend"))
stepsByDay <-aggregate(steps ~ interval +DOW, imputedData,mean)
library(lattice)
xyplot(stepsByDay$steps ~ stepsByDay$interval |stepsByDay$DOW, meain="Average Steps p
er Day/Interval", xlab="Interval", ylab="Steps",layout=c(1,2),type="l")
```


Weekend
Weekday
Steps
Interval
0
50
100
150
200
0
500
1000
1500
2000