Zeppelin

FINISHED

```
import org.apache.spark.sql.functions._
import org.joda.time.format.DateTimeFormat
import org.apache.spark.ml.regression.LinearRegression
import org.apache.spark.ml.regression.LinearRegression
import org.apache.spark.mllib.util.MLUtils
```

```
import org.apache.spark.sql.functions._
import org.joda.time.format.DateTimeFormat
import org.apache.spark.ml.regression.LinearRegression
import org.apache.spark.ml.regression.LinearRegression
import org.apache.spark.mllib.util.MLUtils
```

FINISHED

```
// Load data - adjust the path to the location of your data
val inputPath =  "/Users/joannariascos/Desktop/algorithm/aarhus_parking.csv"
val parkingdata = sqlContext.read
        .format("com.databricks.spark.csv")
        .option("header", "true") // Use first line of all files as header
        .option("delimiter", ",")
        .option("inferSchema", "true") // Automatically infer data types
        .load(inputPath)

        parkingdata.registerTempTable("parkingdata")
```

```
inputPath: String = /Users/joannariascos/Desktop/algorithm/aarhus_parking.csv
parkingdata: org.apache.spark.sql.DataFrame = [vehiclecount: int, totalspaces: int ... 2 mo
re fields]
warning: there was one deprecation warning; re-run with -deprecation for details
```

ERROR

```
// Load training data
val training = spark.read.format("libsvm")
  .load("/Users/joannariascos/Desktop/algorithm/aarhus_parking.csv")

val lr = new LinearRegression()
  .setMaxIter(10)
  .setRegParam(0.3)
  .setElasticNetParam(0.8)

// Fit the model
val lrModel = lr.fit(training)

// Print the coefficients and intercept for linear regression
println(s"Coefficients: ${lrModel.coefficients} Intercept: ${lrModel.intercept}")
```

```
// Summarize the model over the training set and print out some metrics
val trainingSummary = lrModel.summary
println(s"numIterations: ${trainingSummary.totalIterations}")
println(s"objectiveHistory: [${trainingSummary.objectiveHistory.mkString(",")}]")
trainingSummary.residuals.show()
println(s"RMSE: ${trainingSummary.rootMeanSquaredError}")
println(s"r2: ${trainingSummary.r2}")
```

```
org.apache.spark.SparkException: Job aborted due to stage failure: Task 2 in stage 7.0 fa
iled 1 times, most recent failure: Lost task 2.0 in stage 7.0 (TID 22, localhost): java.l
ang.NumberFormatException: For input string: "17,953,BRUUNS,"
        at sun.misc.FloatingDecimal.readJavaFormatString(FloatingDecimal.java:2043)
        at sun.misc.FloatingDecimal.parseDouble(FloatingDecimal.java:110)
        at java.lang.Double.parseDouble(Double.java:538)
        at scala.collection.immutable.StringLike$class.toDouble(StringLike.scala:284)
        at scala.collection.immutable.StringOps.toDouble(StringOps.scala:29)
        at org.apache.spark.mllib.util.MLUtils$.parseLibSVMRecord(MLUtils.scala:107)
        at org.apache.spark.mllib.util.MLUtils$$anonfun$parseLibSVMFile$3.apply(MLUtils.s
cala:102)
        at org.apache.spark.mllib.util.MLUtils$$anonfun$parseLibSVMFile$3.apply(MLUtils.s
cala:102)
        at scala.collection.Iterator$$anon$11.next(Iterator.scala:409)
        at scala.collection.Iterator$$anon$11.next(Iterator.scala:409)
        at scala.collection.Iterator$class.foreach(Iterator.scala:893)
        at scala.collection.AbstractIterator.foreach(Iterator.scala:1336)
        at scala.collection.TraversableOnce$class.reduceLeft(TraversableOnce.scala:185)
```

FINISHED

```
//To read the file
val csv = sc.textFile("/Users/joannariascos/Desktop/algorithm/aarhus_parking.csv");

//To find the headers
val header = csv.first;

//To remove the header
val data = csv.filter(_(0) != header(0));

//To create a RDD of (label, features) pairs
val parsedData = data.map { line =>
    val parts = line.split(',')
    LabeledPoint(parts(0).toDouble, Vectors.dense(parts(1).split(' ').map(_.toDouble)))
    }.cache()
```

```
csv: org.apache.spark.rdd.RDD[String] = /Users/joannariascos/Desktop/algorithm/aarhus_parki
ng.csv MapPartitionsRDD[49] at textFile at <console>:42
header: String = vehiclecount,totalspaces,garagecode,ozone
data: org.apache.spark.rdd.RDD[String] = MapPartitionsRDD[50] at filter at <console>:45
parsedData: org.apache.spark.rdd.RDD[org.apache.spark.mllib.regression.LabeledPoint] = MapP
artitionsRDD[51] at map at <console>:47
```

ERROR

```
// Load training data
val training = sc.textFile("/Users/joannariascos/Desktop/algorithm/aarhus_parking.csv")
```

```
val lr = new LinearRegression()
  .setMaxIter(10)
  .setRegParam(0.3)
  .setElasticNetParam(0.8)

// Fit the model
val lrModel = lr.fit(training)

// Print the coefficients and intercept for linear regression
println(s"Coefficients: ${lrModel.coefficients} Intercept: ${lrModel.intercept}")

// Summarize the model over the training set and print out some metrics
val trainingSummary = lrModel.summary
println(s"numIterations: ${trainingSummary.totalIterations}")
println(s"objectiveHistory: [${trainingSummary.objectiveHistory.mkString(",")}]")
trainingSummary.residuals.show()
println(s"RMSE: ${trainingSummary.rootMeanSquaredError}")
```

```
training: org.apache.spark.rdd.RDD[String] = /Users/joannariascos/Desktop/algorithm/aarhus_
parking.csv MapPartitionsRDD[43] at textFile at <console>:35
lr: org.apache.spark.ml.regression.LinearRegression = linReg_657d76f00212
<console>:38: error: type mismatch;
 found   : org.apache.spark.rdd.RDD[String]
 required: org.apache.spark.sql.Dataset[_]
       val lrModel = lr.fit(training)
                            ^
```

ERROR

```
// Load training data
val training = MLUtils.loadLibSVMFile(sc,"/Users/joannariascos/Desktop/algorithm/aarhus_pa

val lr = new LinearRegression()
  .setMaxIter(10)
  .setRegParam(0.3)
  .setElasticNetParam(0.8)

// Fit the model
val lrModel = lr.fit(training)

// Print the weights and intercept for linear regression
println(s"Weights: ${lrModel.weights} Intercept: ${lrModel.intercept}")

// Summarize the model over the training set and print out some metrics
val trainingSummary = lrModel.summary
println(s"numIterations: ${trainingSummary.totalIterations}")
println(s"objectiveHistory: ${trainingSummary.objectiveHistory.toList}")
trainingSummary.residuals.show()
println(s"RMSE: ${trainingSummary.rootMeanSquaredError}")
println(s"r2: ${trainingSummary.r2}")
```

```
org.apache.spark.SparkException: Job aborted due to stage failure: Task 1 in stage 8.0 fa
iled 1 times, most recent failure: Lost task 1.0 in stage 8.0 (TID 25, localhost): java.l
ang.NumberFormatException: For input string: "17,953,BRUUNS,"
        at sun.misc.FloatingDecimal.readJavaFormatString(FloatingDecimal.java:2043)
        at sun.misc.FloatingDecimal.parseDouble(FloatingDecimal.java:110)
        at java.lang.Double.parseDouble(Double.java:538)
        at scala.collection.immutable.StringLike$class.toDouble(StringLike.scala:284)
        at scala.collection.immutable.StringOps.toDouble(StringOps.scala:29)
        at org.apache.spark.mllib.util.MLUtils$.parseLibSVMRecord(MLUtils.scala:107)
        at org.apache.spark.mllib.util.MLUtils$$anonfun$parseLibSVMFile$3.apply(MLUtils.s
cala:102)
        at org.apache.spark.mllib.util.MLUtils$$anonfun$parseLibSVMFile$3.apply(MLUtils.s
cala:102)
        at scala.collection.Iterator$$anon$11.next(Iterator.scala:409)
        at org.apache.spark.storage.memory.MemoryStore.putIteratorAsValues(MemoryStore.sc
ala:214)
        at org.apache.spark.storage.BlockManager$$anonfun$doPutIterator$1.apply(BlockMana
ger.scala:919)
```

FINISHED

```
%spark.r

aarhus_parking <- read.csv("/Users/joannariascos/Desktop/algorithm/aarhus_parking.csv")

head(aarhus_parking)
```

	vehiclecount	totalspaces	garagecode	ozone
1	0	65	NORREPORT	101
2	0	512	SKOLEBAKKEN	106
3	869	1240	SCANDCENTER	107
4	22	953	BRUUNS	103
5	124	130	BUSGADEHUSET	105
6	106	400	MAGASIN	106

FINISHED

```
%r

model = lm(ozone~vehiclecount+totalspaces+garagecode, data = aarhus_parking)
```

FINISHED

```
%r


modeltwo = lm(ozone~totalspaces, data = aarhus_parking)

anova(model,modeltwo)
```

```
Analysis of Variance Table
```

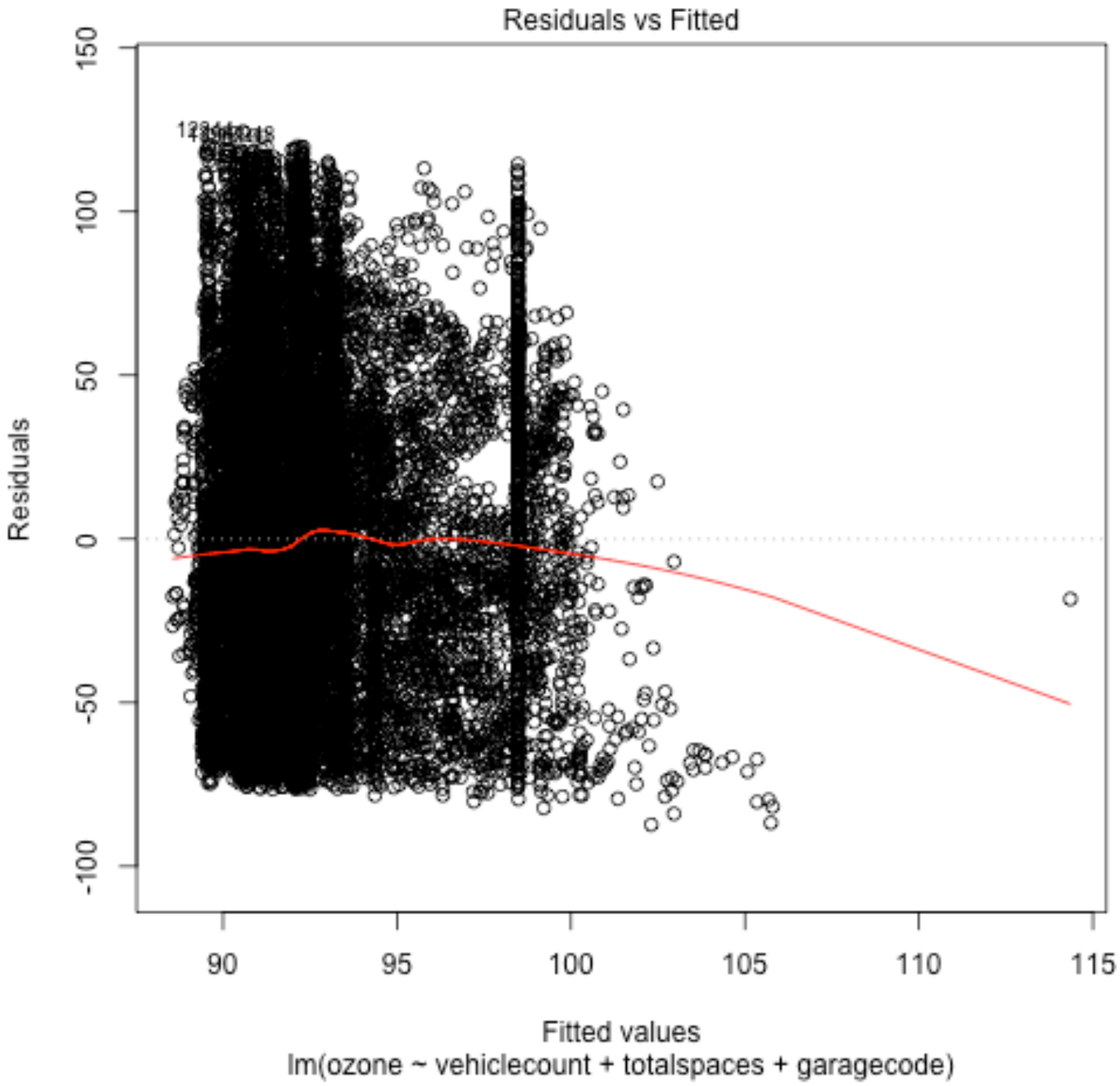
ERROR

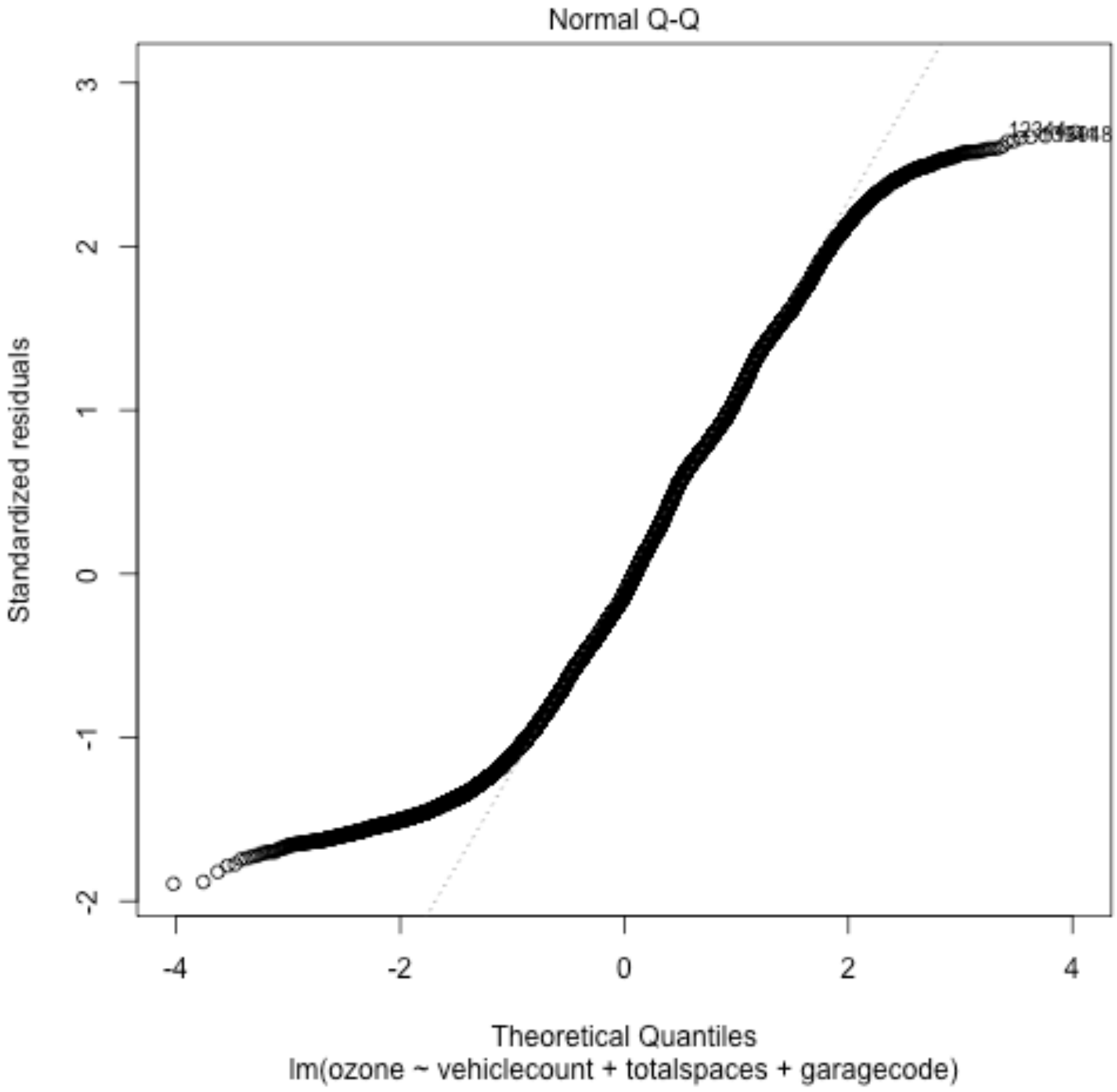
```
library(bootstrap)

theta.model <- function(x,y){lsmodel(x,y)}
theta.predict <- function(model,x){cbind(1,x)%*%model$coef}
```

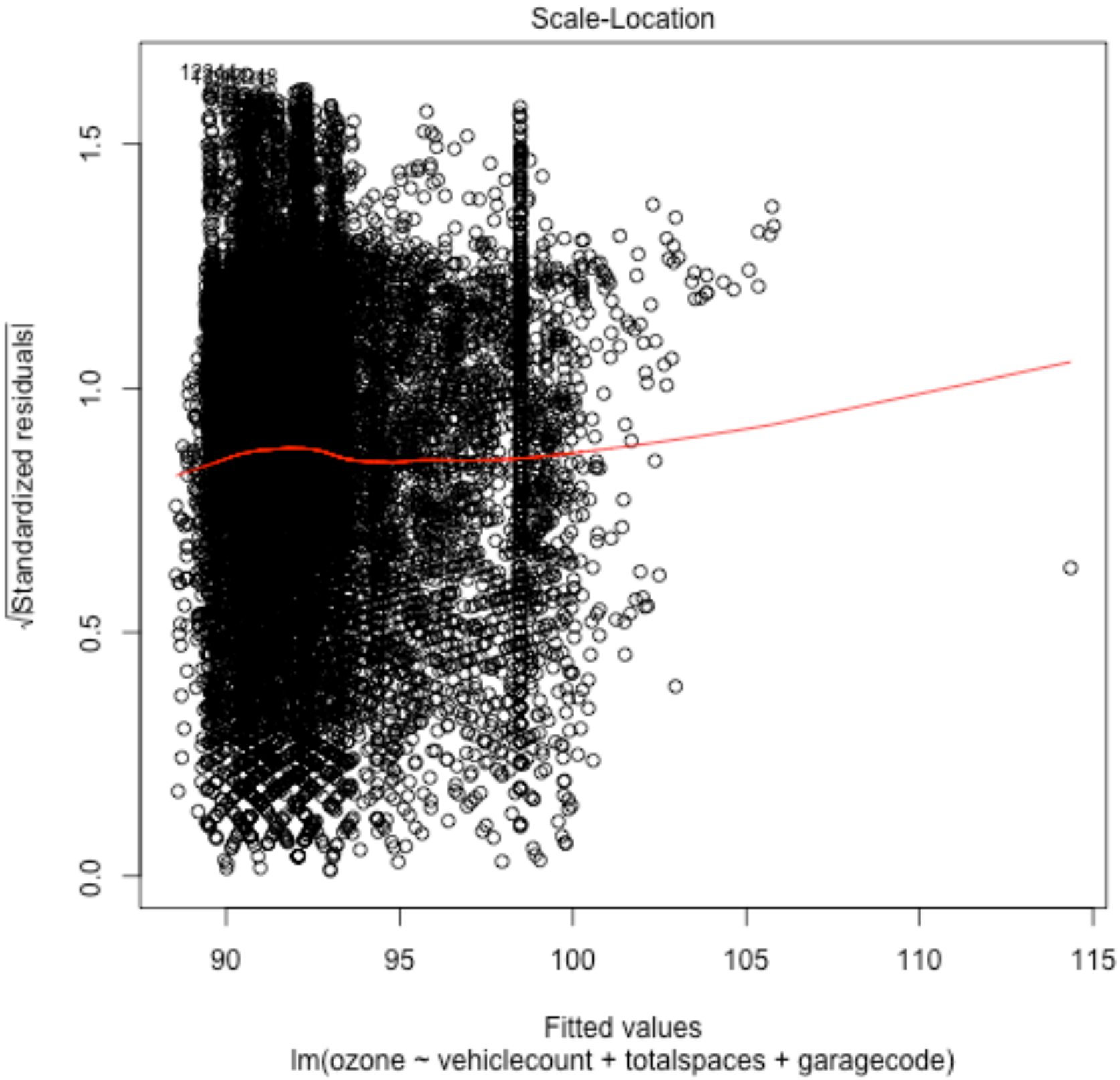
```
<console>:26: error: not found: value library
       library(bootstrap)
       ^
<console>:26: error: not found: value bootstrap
       library(bootstrap)
               ^
```

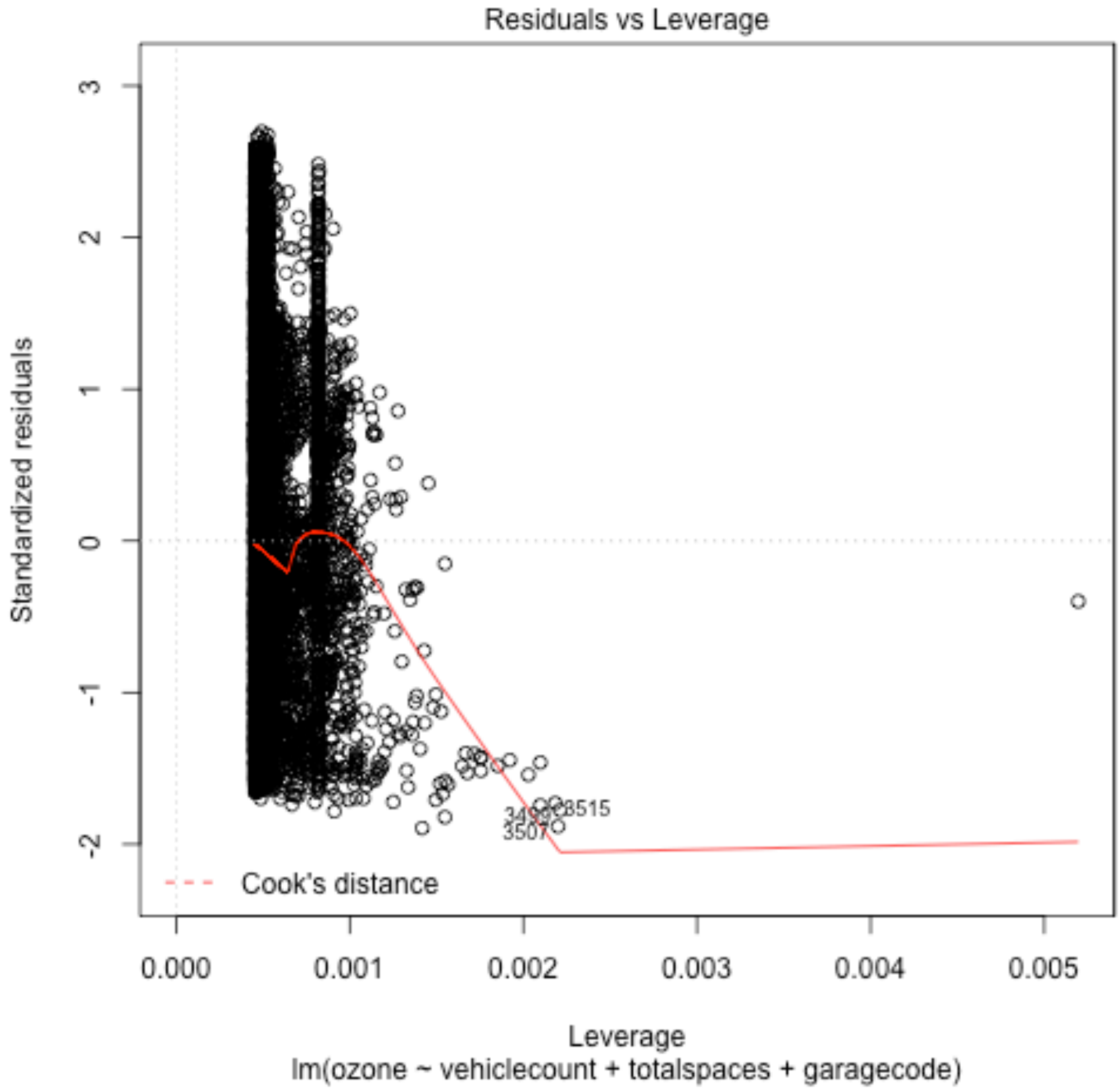
FINISHED

```
%r
plot(model)
```


Residuals vs Fitted
Residuals
150
100
50
0
-50
-100
90
95
100
105
110
115
Fitted values
lm(ozone ~ vehiclecount + totalspaces + garagecode)


Normal Q-Q
Standardized residuals
3
2
1
0
-1
-2
-4
-2
0
2
4
Theoretical Quantiles
lm(ozone ~ vehiclecount + totalspaces + garagecode)


Scale-Location
√|Standardized residuals|
0.0
0.5
1.0
1.5
90
95
100
105
110
115
Fitted values
lm(ozone ~ vehiclecount + totalspaces + garagecode)



FINISHED

```
%r

colnames(aarhus_parking)
```

```
[1] “vehiclecount” “totalspaces”  “garagecode”   “ozone”
```

FINISHED

```
%r

str(aarhus_parking)
```

```
'data.frame':   55264 obs. of  4 variables:
 $ vehiclecount: int  0 0 869 22 124 106 115 233 0 0 …
 $ totalspaces : int  65 512 1240 953 130 400 210 700 65 512 …
 $ garagecode  : Factor w/ 8 levels “BRUUNS”,“BUSGADEHUSET”,..: 5 8 7 1 2 4 3 6 5 8 …
 $ ozone       : int  101 106 107 103 105 106 110 106 106 110 …
```

FINISHED

```
%r
summary(aarhus_parking)
```

```
vehiclecount     totalspaces           garagecode        ozone<br />
 Min.   :   0.0   Min.   :  65.0   BRUUNS       : 6908   Min.   : 15.00<br />
 1st Qu.:  32.0   1st Qu.: 190.0   BUSGADEHUSET : 6908   1st Qu.: 54.00<br />
 Median :  96.0   Median : 456.0   KALKVAERKSVEJ: 6908   Median : 87.00<br />
 Mean   : 192.2   Mean   : 526.2   MAGASIN      : 6908   Mean   : 92.42<br />
 3rd Qu.: 296.0   3rd Qu.: 763.2   NORREPORT    : 6908   3rd Qu.:127.00<br />
 Max.   :1464.0   Max.   :1240.0   SALLING      : 6908   Max.   :215.00<br />
                                   (Other)      :13816   NA's   :37696
```

ERROR

```
st=>start: Start:>http://www.google.com[blank]
e=>end:>http://www.google.com
op1=>operation: My Operation
sub1=>subroutine: My Subroutine
cond=>condition: Yes
or No?:>http://www.google.com
io=>inputoutput: catch something...

st->op1->cond
cond(yes)->io->e
cond(no)->sub1(right)->op1
```

```
<console>:1: error: ';' expected but '=>' found.
st=>start: Start:>http://www.google.com[blank]
  ^
```

FINISHED

```
%r

summary(lm(ozone~vehiclecount+totalspaces+garagecode, data = aarhus_parking))
```

```
Call:
lm(formula = ozone ~ vehiclecount + totalspaces + garagecode,
    data = aarhus_parking)
```

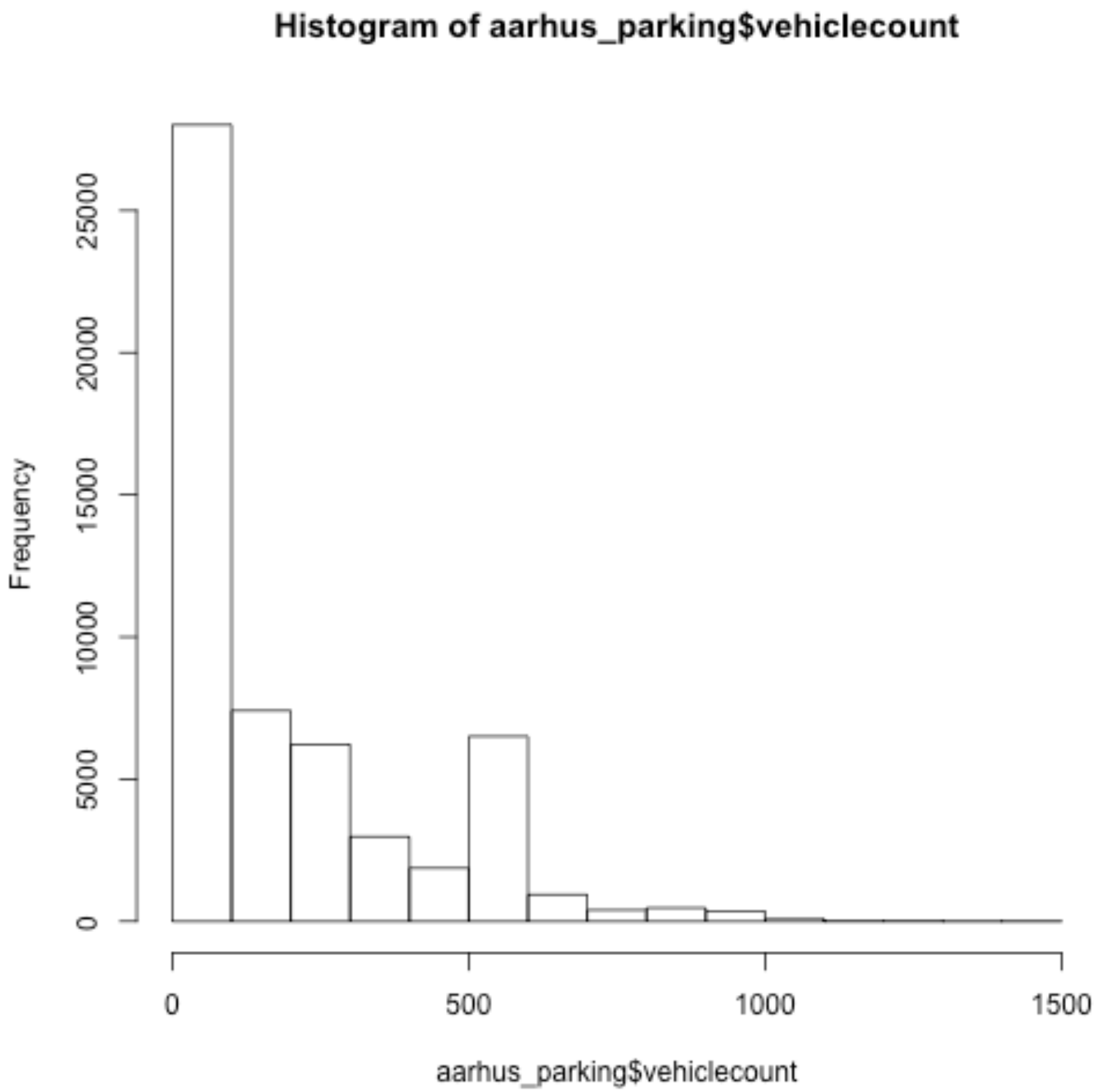
FINISHED

```
%r

model
```

```
Call:
lm(formula = ozone ~ vehiclecount + totalspaces + garagecode,
    data = aarhus_parking)
```

FINISHED

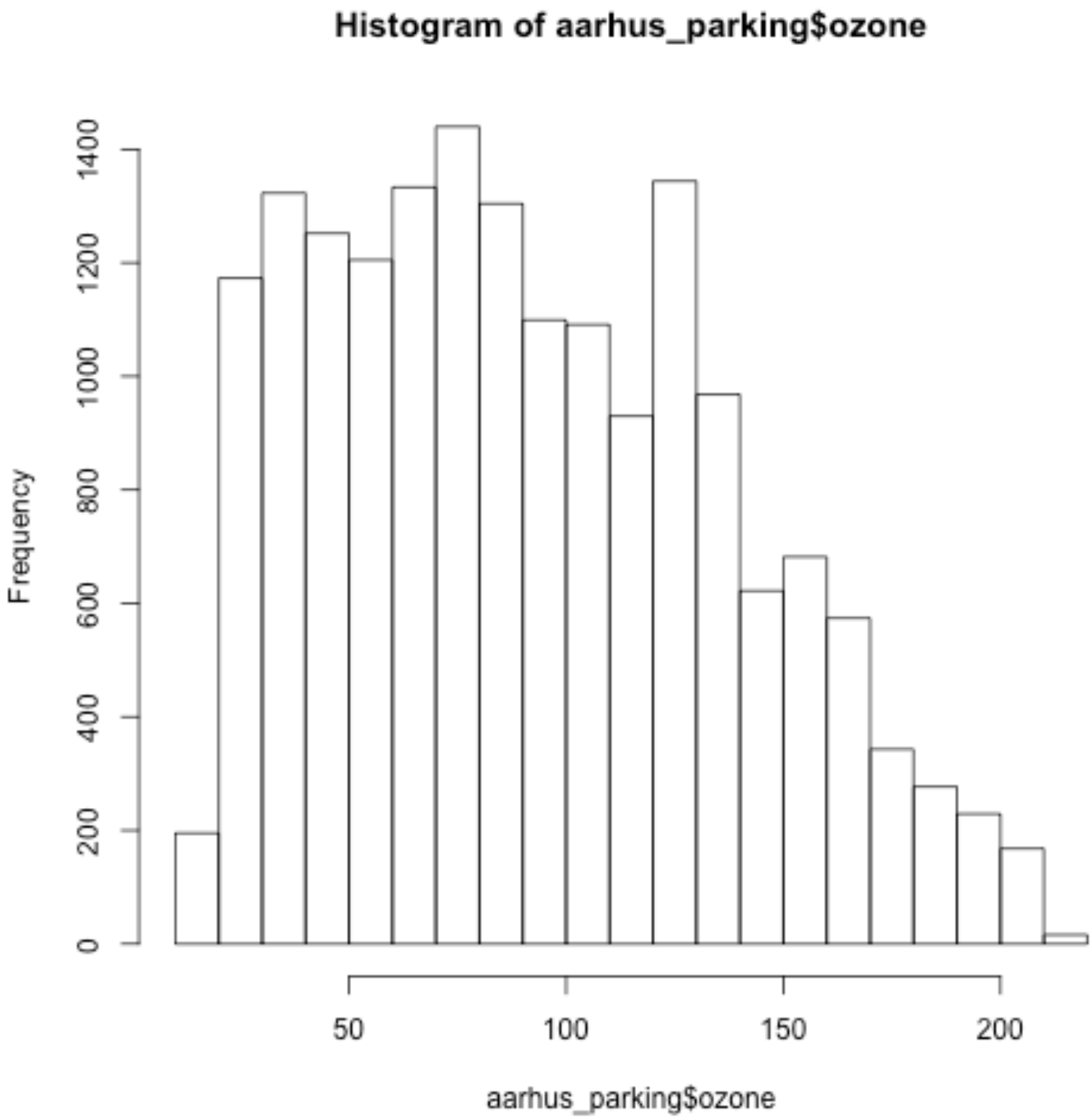
```
%r

hist(aarhus_parking$vehiclecount)
```



FINISHED

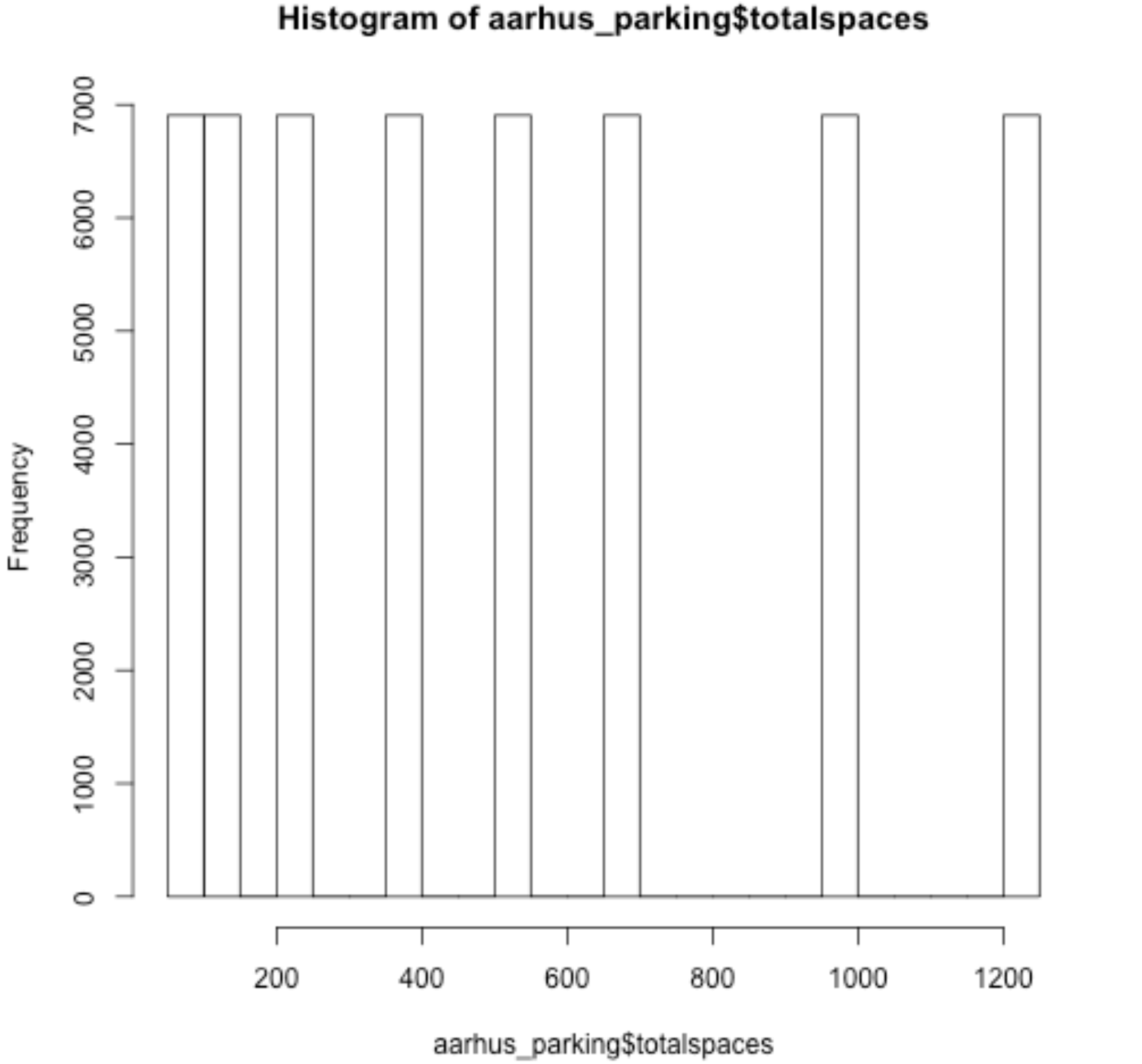
```
%r
```

```
hist(aarhus_parking$ozone)
```



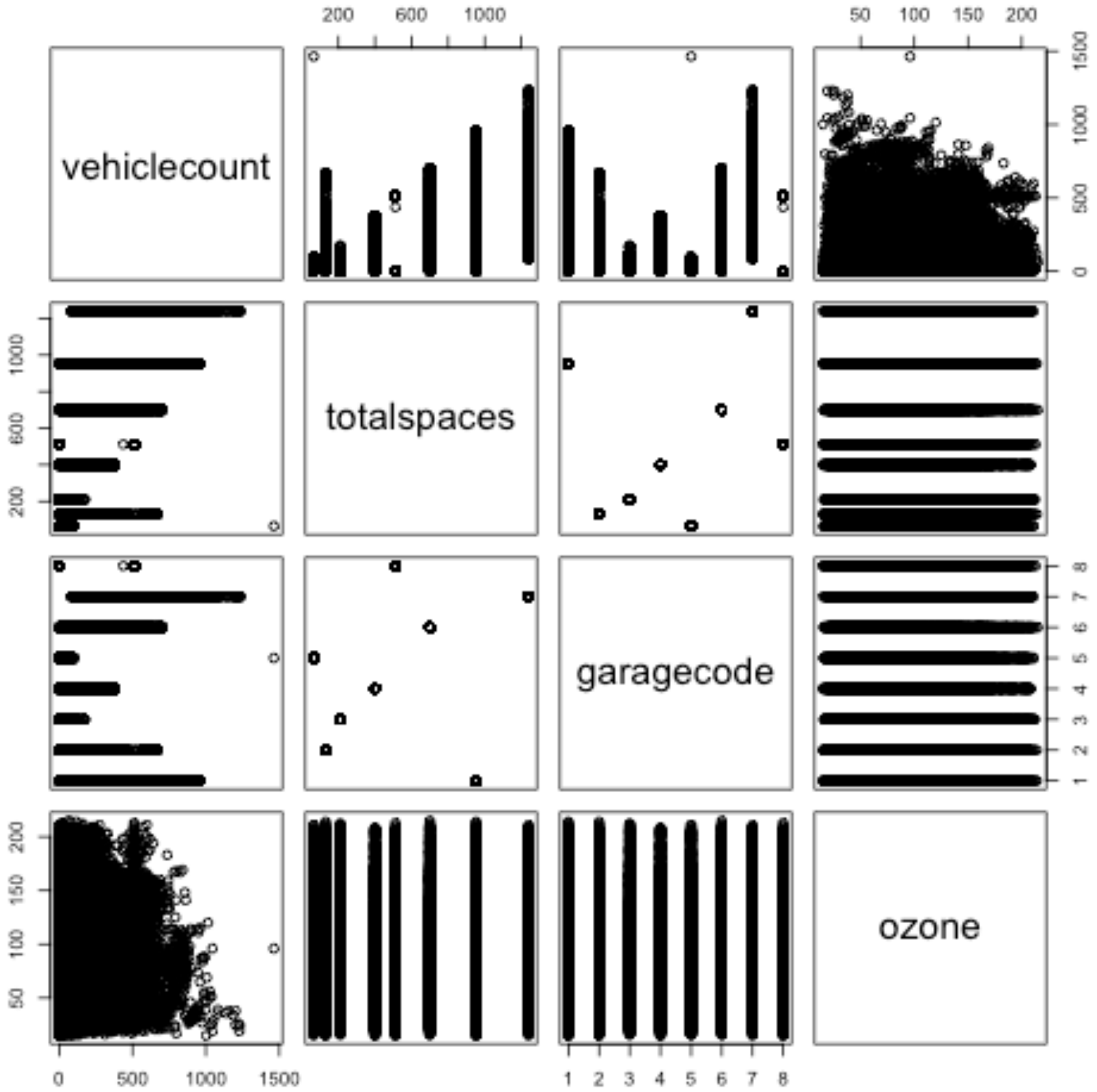
FINISHED

```
%r

hist(aarhus_parking$totalspaces)
```



FINISHED

```
%r {"imageWidth":"400px}

library("ggplot2")

plot(aarhus_parking)
```



FINISHED

```
%spark.r
data(aarhus_parking)
aarhus_parking

class(aarhus_parking)
```

1	0	65	NORREPORT	101
2	0	512	SKOLEBAKKEN	106
3	869	1240	SCANDCENTER	107
4	22	953	BRUUNS	103
5	124	130	BUSGADEHUSET	105
6	106	400	MAGASIN	106
7	115	210	KALKVAERKSVEJ	110
8	233	700	SALLING	106
9	0	65	NORREPORT	106
10	0	512	SKOLEBAKKEN	110
11	959	1240	SCANDCENTER	115
12	22	953	BRUUNS	114
13	124	130	BUSGADEHUSET	118
14	119	400	MAGASIN	113
15	121	210	KALKVAERKSVEJ	114
16	282	700	SALLING	115
17	0	65	NORREPORT	115
18	0	512	SKOLEBAKKEN	120

```
%spark.r

start(aarhus_parking)
```

FINISHED

```
Error in hasTsp(x): invalid time series parameters specified
```

```
%spark.r

end(aarhus_parking)
```

FINISHED

```
Error in hasTsp(x): invalid time series parameters specified
```

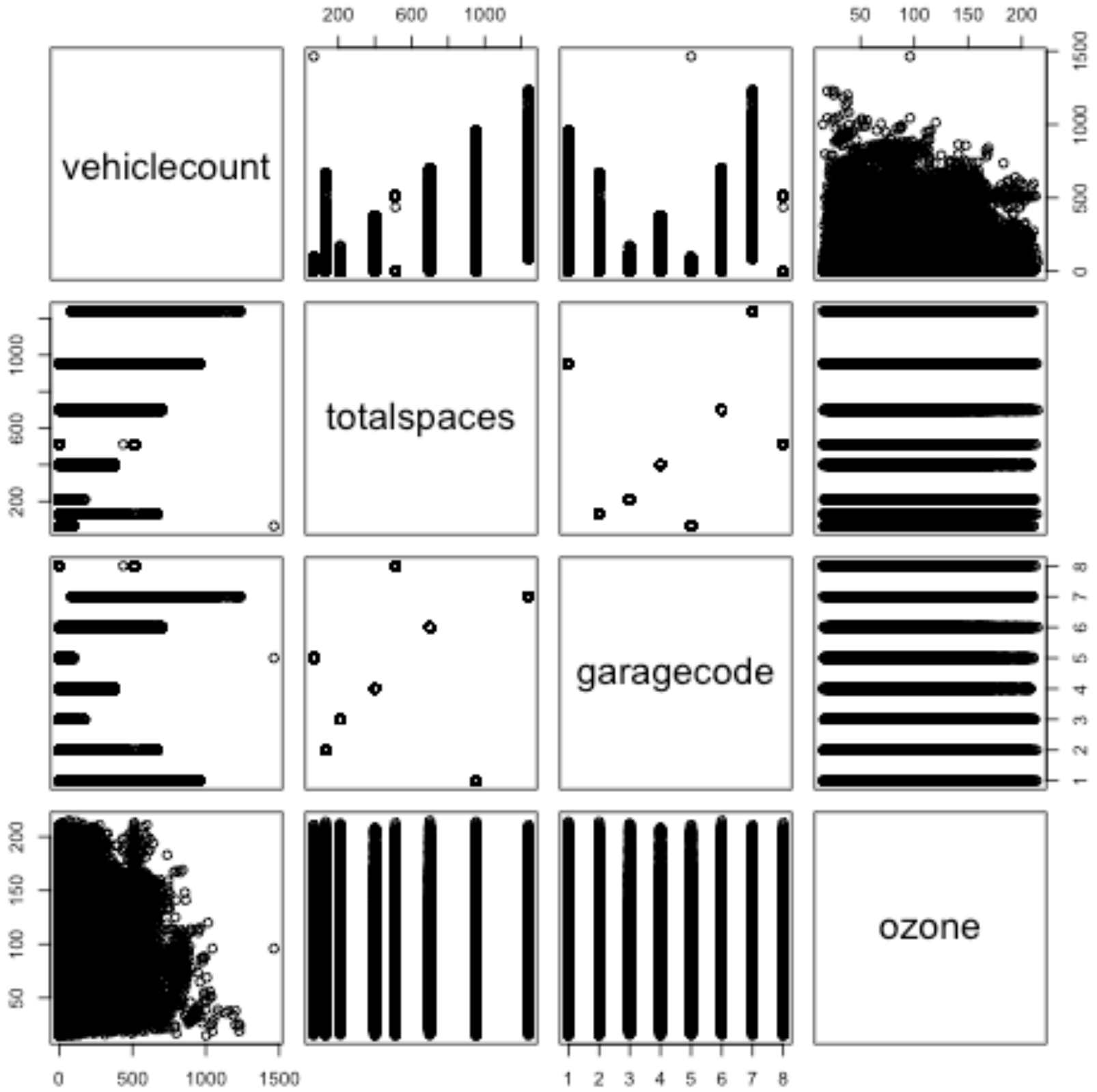
```
%spark.r

frequency(aarhus_parking)
```

FINISHED

```
[1] 1
```

```
%spark.r

plot(aarhus_parking)
```

FINISHED



FINISHED

```
abline(lm(aarhus_parking~time(aarhus_parking))
```

```
Incomplete expression
```

FINISHED

```
%r

modelone <- ts(aarhus_parking, frequency=12, start=c(1946,1))
```

```
%r

library(forecast)
fcast <- forecast(aarhus_parking, newdata=data.frame(income=c(-1,1)))
```

FINISHED

```
Error in library(forecast): there is no package called 'forecast'
```

```
Error in eval(expr, envir, enclos): could not find function "forecast"
```

```
sc
```

FINISHED

```
res0: org.apache.spark.SparkContext = org.apache.spark.SparkContext@5add6c08
```

```
plot(modelone)
```

ERROR

```
<console>:27: error: not found: value plot
       plot(modelone)
       ^
<console>:27: error: not found: value modelone
       plot(modelone)
            ^
```

```
import org.apache.spark.mllib.util.LinearDataGenerator

val numRows = 10000
val numCols = 1000
val rawData = LinearDataGenerator.generateLinearRDD(sc, numRows, numCols, 1).toDF()

// Repartition into a more parallelism-friendly number of partitions
val data = rawData.repartition(64).cache()
```

FINISHED

```
import org.apache.spark.mllib.util.LinearDataGenerator
numRows: Int = 10000
numCols: Int = 1000
rawData: org.apache.spark.sql.DataFrame = [label: double, features: vector]
data: org.apache.spark.sql.Dataset[org.apache.spark.sql.Row] = [label: double, features: ve
ctor]
```

```
%r

fit <- tslm(ozone ~ vehiclecount + totalspaces + garagecode)
```

FINISHED

```
Error in eval(expr, envir, enclos): could not find function "tslm"
```

FINISHED

```
%r

coefficients(model)
```

```
garagecodeBUSGADEHUSET garagecodeKALKVAERKSVEJ       garagecodeMAGASIN
           -2.191652364             0.238790550            -0.140165941
    garagecodeNORREPORT       garagecodeSALLING   garagecodeSCANDCENTER
            0.047225980            -0.504496446            -1.439290374
  garagecodeSKOLEBAKKEN
                     NA
```

FINISHED

```
%r

confint(model, level=0.95)
```

```
(Intercept)             87.491821077 96.959928651
vehiclecount             0.010913491  0.019515627
totalspaces             -0.009247282  0.003236974
garagecodeBUSGADEHUSET  -6.649535257  2.266230530
garagecodeKALKVAERKSVEJ -3.766315284  4.243896385
garagecodeMAGASIN       -3.274337972  2.994006090
garagecodeNORREPORT     -4.711821775  4.806273736
garagecodeSALLING       -2.884713945  1.875721053
garagecodeSCANDCENTER   -5.393283802  2.514703053
garagecodeSKOLEBAKKEN             NA           NA
```

FINISHED

```
%r
fitted(model)
```

```
92.07777  90.68724 100.28165  89.69668  91.53016  92.49639  93.58326
        8         9        10        11        12        13        14
 93.16276  92.07777  90.68724 101.65096  89.69668  91.53016  92.69418
       15        16        17        18        19        20        21
 93.67454  93.90828  92.07777  90.68724 102.48776  89.69668  91.54537
       22        23        24        25        26        27        28
 93.18105  93.73540  95.23194  89.69668  92.07777  90.68724 102.95941
       29        30        31        32        33        34        35
 91.83445  93.72877  93.79626  96.41868  92.07777  90.68724  93.34381
       36        37        38        39        40        41        42
 89.69668  92.15395  94.01785  92.79210  93.45184  92.07777  90.68724
       43        44        45        46        47        48        49
 92.53743  89.69668  91.98659  93.80484  92.77689  92.72154  92.07777
       50        51        52        53        54        55        56
 90.68724  92.11143  89.69668  92.18438  93.34841  92.74646  92.35639
       57        58        59        60        61        62        63
 92.07777  90.68724  91.94407  89.69668  92.16917  93.16583  92.67038
       64        65        66        67        68        69        70
```

FINISHED

```
%r

residuals(model)
```

```
8.922234149  15.312763851   6.718354712  13.303316362  13.469842217
          6             7             8             9            10
 13.503609360  16.416742630  12.837237043  13.922234149  19.312763851
         11            12            13            14            15
 13.349044437  24.303316362  26.469842217  20.305820098  20.325455279
         16            17            18            19            20
 21.091723671  22.922234149  29.312763851  17.512243713  25.303316362
         21            22            23            24            25
 18.454627659  14.818954223  13.264597044   6.768057071  11.303316362
         26            27            28            29            30
 11.922234149  10.312763851  -6.959407604   4.165551045   6.271230113
         31            32            33            34            35
 10.203738810   5.581321499   6.922234149  10.312763851  10.656193441
         36            37            38            39            40
 18.303316362  11.846045314   9.982153499  15.207899678  14.548160429
         41            42            43            44            45
 11.922234149   9.312763851  11.462565048  15.303316362  13.013405459
         46            47            48            49            50
```

FINISHED

```
%r

anova(model)
```

```
Analysis of Variance Table
```

FINISHED

```
%r
```

```
vcov(model)
```

```
(Intercept)              5.833246e+00 -6.449969e-05 -7.288449e-03
vehiclecount            -6.449969e-05  4.815003e-06 -9.173920e-07
totalspaces             -7.288449e-03 -9.173920e-07  1.014167e-05
garagecodeBUSGADEHUSET  -4.873959e+00 -6.963061e-04  6.137709e-03
garagecodeKALKVAERKSVEJ -4.299779e+00  4.120483e-05  5.199843e-03
garagecodeMAGASIN       -2.911121e+00 -7.214983e-05  3.327733e-03
garagecodeNORREPORT     -5.358439e+00  4.512334e-05  6.644293e-03
garagecodeSALLING       -7.188819e-01 -2.227684e-04  3.663671e-04
garagecodeSCANDCENTER    3.227003e+00 -4.830274e-04 -4.966160e-03
                        garagecodeBUSGADEHUSET garagecodeKALKVAERKSVEJ
(Intercept)                      -4.8739590503           -4.299779e+00
vehiclecount                     -0.0006963061            4.120483e-05
totalspaces                       0.0061377092            5.199843e-03
garagecodeBUSGADEHUSET            5.1725089901            3.616269e+00
garagecodeKALKVAERKSVEJ           3.6162686153            4.175149e+00
garagecodeMAGASIN                 2.4917027598            2.215533e+00
garagecodeNORREPORT               4.4864332678            3.961114e+00
garagecodeSALLING                 0.7119709076            6.519357e-01
```

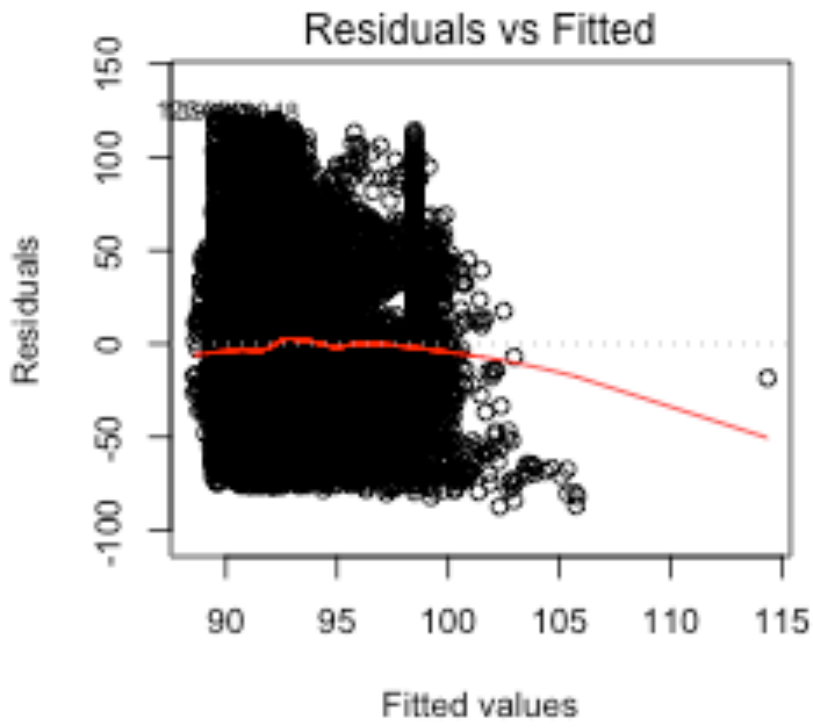
FINISHED

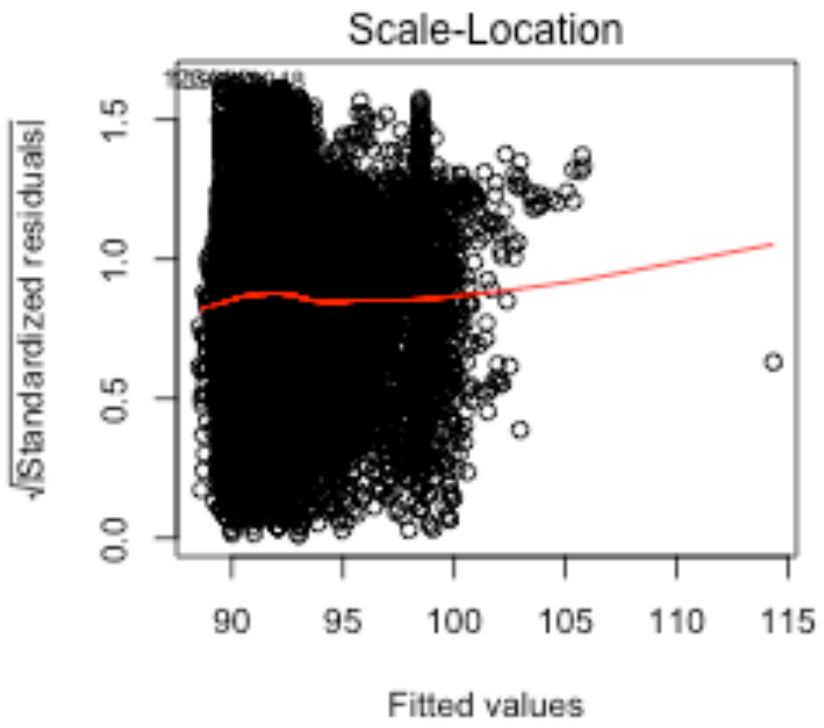
```
%r


influence(model)
```

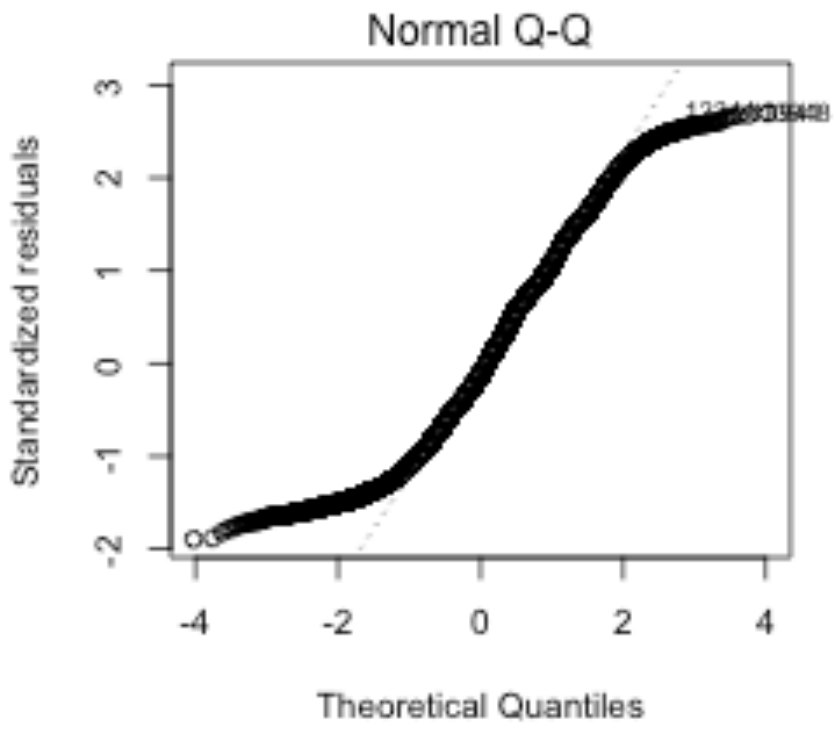
```
$hat
          1           2           3           4           5
0.0004559825 0.0004832205 0.0010648366 0.0005230584 0.0004631889
          6           7           8           9          10
0.0004553779 0.0004665068 0.0004589876 0.0004559825 0.0004832205
         11          12          13          14          15
0.0012945228 0.0005230584 0.0004631889 0.0004558431 0.0004684927
         16          17          18          19          20
0.0004732811 0.0004559825 0.0004832205 0.0014529287 0.0005230584
         21          22          23          24          25
0.0004629252 0.0004602460 0.0004699072 0.0005254274 0.0005230584
         26          27          28          29          30
0.0004559825 0.0004832205 0.0015482434 0.0004587750 0.0004707375
         31          32          33          34          35
0.0004713940 0.0006012955 0.0004559825 0.0004832205 0.0004643620
         36          37          38          39          40
0.0005230584 0.0004560883 0.0004786388 0.0004561188 0.0004632405
         41          42          43          44          45
```

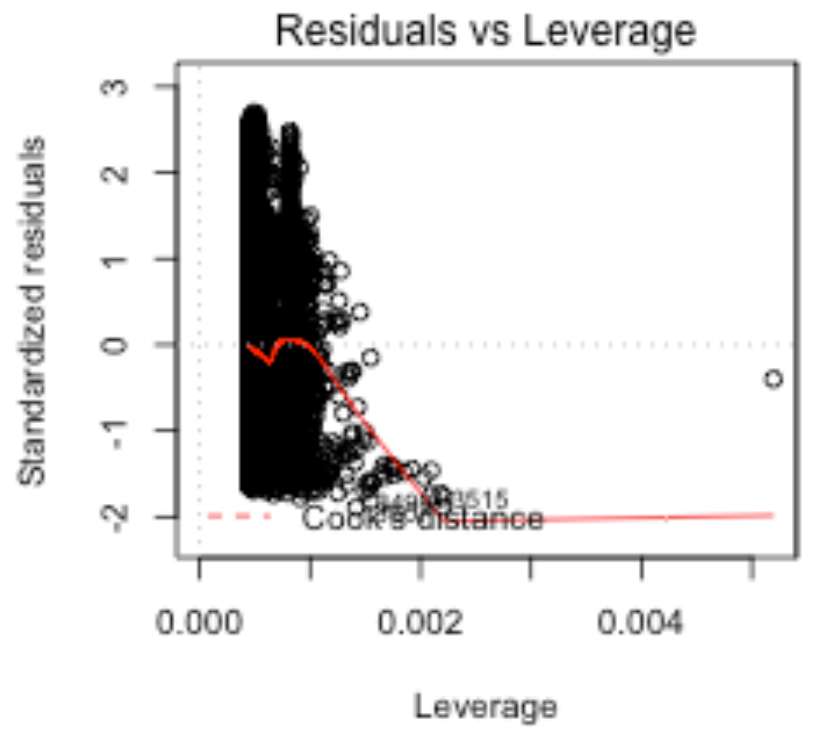
FINISHED

```
%r
layout(matrix(c(1,2,3,4),2,2))

plot(model)
```









FINISHED

```
%r

install.packages("DAAG", repos = "http://cran.us.r-project.org")
```

```
The downloaded binary packages are in
    /var/folders/ll/1mpcgfrd7nlgpz03y3z75t6w0000gn/T//RtmptTl8YT/downloaded_packages
```

FINISHED

```
%r
```

```
library(DAAG)
```

```
Error in cv.lm(df = aarhus_parking, DAAG, m = 3): unused argument (df = aarhus_
parking)
```

FINISHED

```
%r

install.packages("boostrap", repos = "http://cran.us.r-project.org")
```

FINISHED

```
%r

library(boostrap)
```

```
Error in library(boostrap): there is no package called 'boostrap'
```

FINISHED

```
%r

fitone <- lm(ozone ~ vehiclecount + totalspaces+garagecode, data=mod)

fittwo <- lm(ozone~totalspaces)

anova(fitone, fittwo)
```

```
Error in as.data.frame.default(data): cannot coerce class ""lm"" to a data.fram
e
```

```
Error in eval(expr, envir, enclos): object 'totalspaces' not found
```

```
Error in anova.lm(fitone, fittwo): object 'fittwo' not found
```

FINISHED

```
%r

install.packages("bootstrap", repos = "http://cran.us.r-project.org")
```

```
The downloaded binary packages are in
    /var/folders/ll/1mpcgfrd7nlgpz03y3z75t6w0000gn/T//RtmptTl8YT/downloaded_packages
```

FINISHED

```
%r

library(bootstrap)

theta.model <- function(x,y){lsmodel(x,y)}
theta.predict <- function(model,x){cbind(1,x)%*%model$coef}
```

FINISHED

```
%r

X <- as.matrix(model[c("ozone","vehiclecount","totalspaces")])

y <- as.matrix(model[c("garagecode")])
```

FINISHED

```
%r
install.packages("MASS", repos = "http://cran.us.r-project.org")
```

```
The downloaded binary packages are in
    /var/folders/ll/1mpcgfrd7nlgpz03y3z75t6w0000gn/T//RtmptTl8YT/downloaded_packages
```

FINISHED

```
%r

library(MASS)



modelfit <- lm(ozone~vehiclecount+totalspaces+garagecode,data=aarhus_parking)
step <- stepAIC(model, direction="both")
step$anova
```

```
Start:  AIC=134634.2
ozone ~ vehiclecount + totalspaces + garagecode
```

FINISHED

```
%r

install.packages("leaps", repos = "http://cran.us.r-project.org")
```

```
There is a binary version available (and will be installed) but
  the source version is later:
      binary source
leaps    2.9    3.0
```

FINISHED

```
%r

library(leaps)

attach(aarhus_parking)

leaps<-regsubsets(ozone~vehiclecount+totalspaces+garagecode,data=aarhus_parking,nbest=10)
```

FINISHED

```
%r

summary(leaps)
```

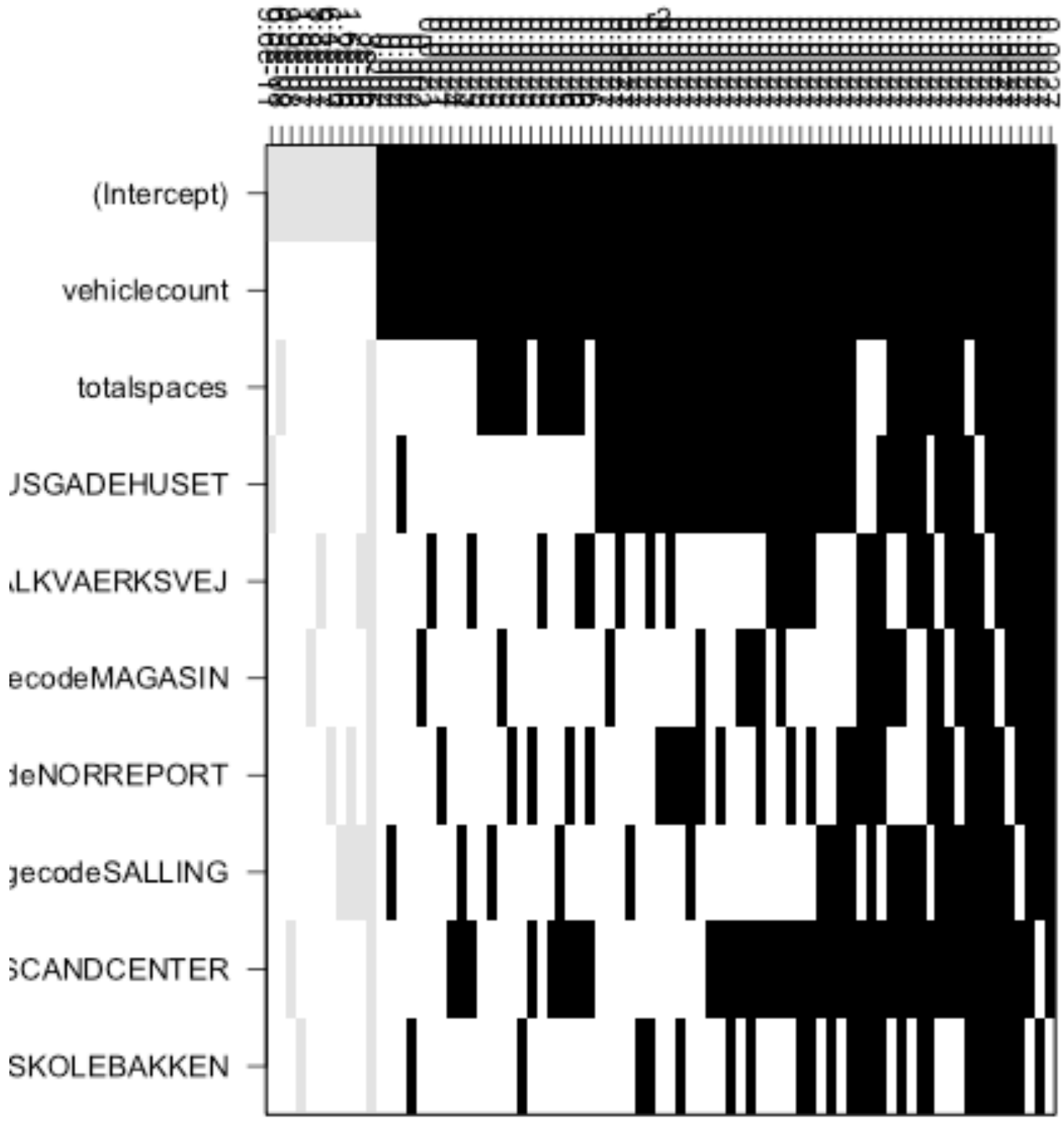
```
Subset selection object
Call: regsubsets.formula(ozone ~ vehiclecount + totalspaces + garagecode,
    data = aarhus_parking, nbest = 10)
9 Variables  (and intercept)
                        Forced in Forced out
vehiclecount                FALSE      FALSE
totalspaces                 FALSE      FALSE
garagecodeBUSGADEHUSET      FALSE      FALSE
garagecodeKALKVAERKSVEJ     FALSE      FALSE
garagecodeMAGASIN           FALSE      FALSE
garagecodeNORREPORT         FALSE      FALSE
garagecodeSALLING           FALSE      FALSE
garagecodeSCANDCENTER       FALSE      FALSE
garagecodeSKOLEBAKKEN       FALSE      FALSE
10 subsets of each size up to 8
Selection Algorithm: exhaustive
          vehiclecount totalspaces garagecodeBUSGADEHUSET
1  ( 1 )  “<em>”          “ ”         “ ”<br />
```

FINISHED

```
%r

plot(leaps,scale="r2")
```

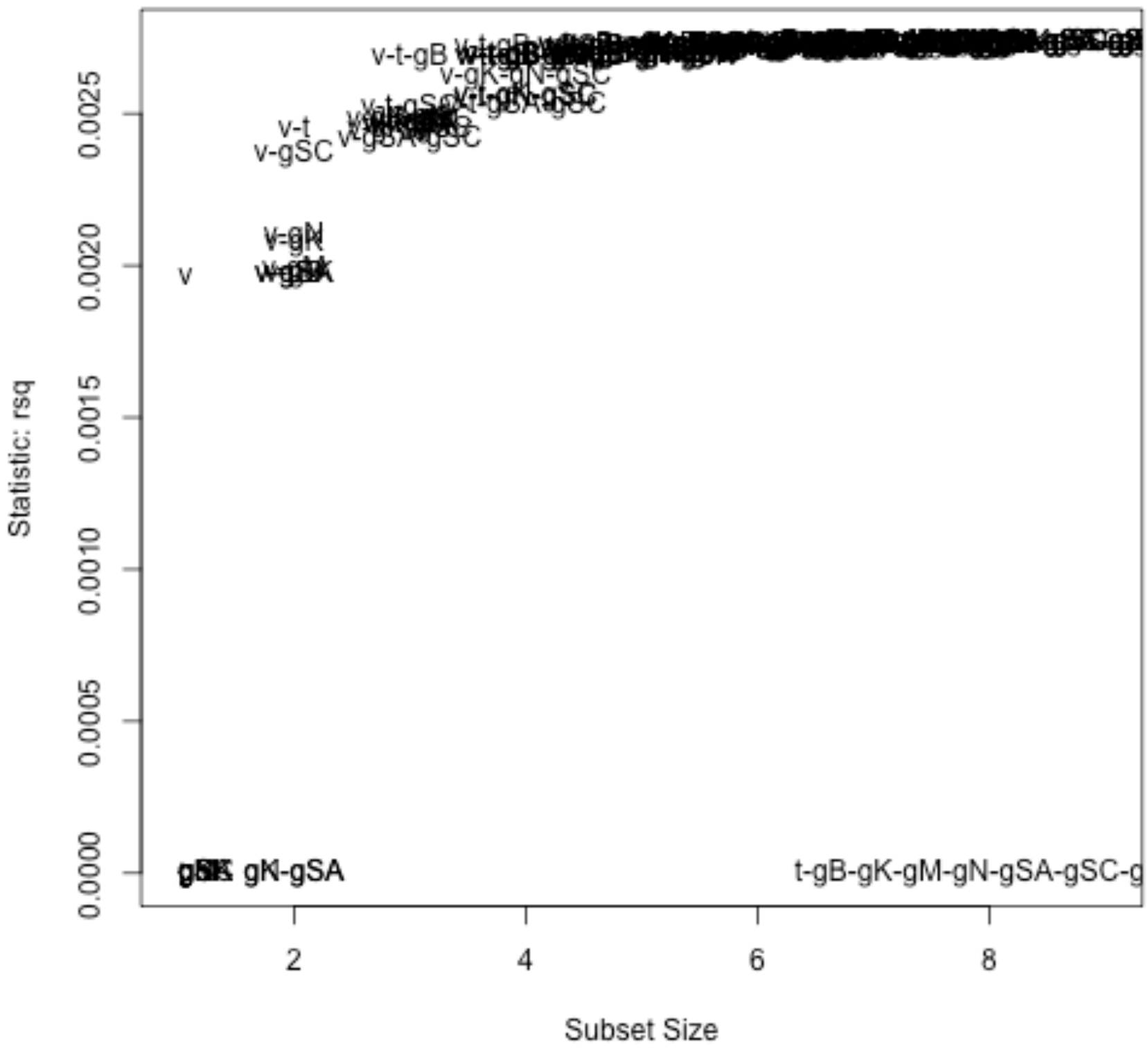
```r
%r
install.packages("car", repos = "http://cran.us.r-project.org")
library(car)
subsets(leaps, statistic="rsq")
```

FINISHED



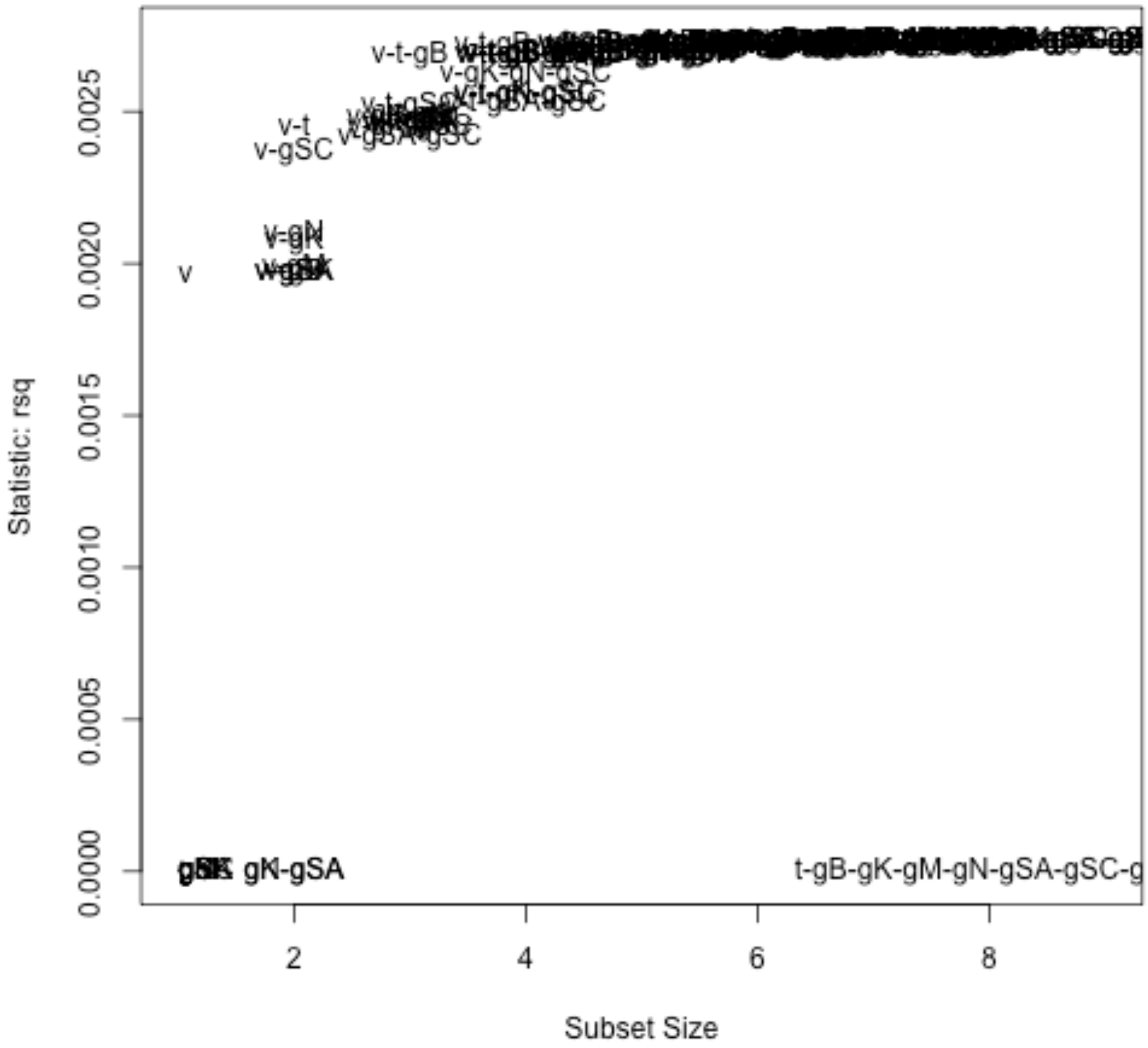
The downloaded binary packages are in
/var/folders/ll/1mpcgfrd7nlgpz03y3z75t6w0000gn/T//RtmptTl8YT/downloaded_packages

```
Error in legend(if (!is.na(charmatch(legend[1], "interactive"))) locator(1) els
e if (is.character(legend)) legend else if (is.numeric(legend) && : invalid coo
rdinate lengths
```



FINISHED

```
Error in legend(if (!is.na(charmatch(legend[1], "interactive"))) locator(1) els
e if (is.character(legend)) legend else if (is.numeric(legend) && : invalid coo
rdinate lengths
```



READY