Problem Set 7

MGSC 310, Fall 2019, Professor Hersh (BEST PROFESSOR EVER!!!)

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Question 1) What Predicts Bike Share Usage?

    a. Read in the Bike Sharing Dataset file (day.csv) into Bike_DF

```
library('tidyverse')
```

```
## -- Attaching packages -------------------------------------------------------------

## v ggplot2 3.2.1      v purrr   0.3.2
## v tibble  2.1.3      v dplyr   0.8.3
## v tidyr   0.8.3      v stringr 1.4.0
## v readr   1.3.1      v forcats 0.4.0

## -- Conflicts ----------------------------------------------------------------------
## x dplyr::filter() masks stats::filter()
## x dplyr::lag()    masks stats::lag()
```

```
library('coefplot')
library('glmnet')
```

```
## Loading required package: Matrix

##
## Attaching package: 'Matrix'

## The following object is masked from 'package:tidyr':
##
##     expand

## Loading required package: foreach

##
## Attaching package: 'foreach'

## The following objects are masked from 'package:purrr':
##
##     accumulate, when

## Loaded glmnet 2.0-18
```

```r
library('glmnetUtils')
```

```
##
## Attaching package: 'glmnetUtils'

## The following objects are masked from 'package:glmnet':
##
##     cv.glmnet, glmnet
```

```r
library('leaps')
set.seed(1861)


Bike_DF <- read.csv("/Users/geoffreyhughes/Documents/MGSC_310/MGSC310/Datasets/Bike-Sharing-Dataset/day
```

b. Clean and factor the data

```r
Bike_DF$weekday <- as.factor(Bike_DF$weekday)
levels(Bike_DF$weekday) <- c("Sunday", "Monday", "Tuesday", "Wednesday", "Thursday", "Friday", "Saturday

Bike_DF$season <- as.factor(Bike_DF$season)
levels(Bike_DF$season) <- c("Winter", "Spring", "Summer", "Fall")

Bike_DF$mnth <- as.factor(Bike_DF$mnth)
levels(Bike_DF$mnth) <- c("January", "February", "March", "April", "May", "June", "July", "August", "Se

Bike_DF$weathersit <- as.factor(Bike_DF$weathersit)
levels(Bike_DF$weathersit) <- c("Clear", "Light", "Medium", "Heavy")
```

c. Ensure factors are correctly applied

```r
sapply(Bike_DF, is.factor)
```

```
##      instant      dteday      season          yr        mnth     holiday
##        FALSE        TRUE        TRUE       FALSE        TRUE       FALSE
##      weekday  workingday  weathersit        temp       atemp         hum
##         TRUE       FALSE        TRUE       FALSE       FALSE       FALSE
##    windspeed      casual  registered         cnt
##        FALSE       FALSE       FALSE       FALSE
```

d. Create any variables

```r
Bike_DF <- Bike_DF %>% mutate(fahrenheit = (9/5) * temp + 32)
```

e. Train & Test Split of dataset

```r
train_idx <- sample(1:nrow(Bike_DF), size = floor(0.70*nrow(Bike_DF)))
bike_train <- Bike_DF %>% slice(train_idx)
bike_test <- Bike_DF %>% slice(-train_idx)
```

f. Forwards Stepwise Linear Model

```r
fwd_fit <- regsubsets(cnt ~ season + holiday + mnth + workingday + weathersit + temp + hum + windspeed,
                      data = bike_train,
                      nvmax = 4,
                      method = "forward")
```

```
## Warning in leaps.setup(x, y, wt = wt, nbest = nbest, nvmax = nvmax,
## force.in = force.in, : 1 linear dependencies found
```

```
## Reordering variables and trying again:
```

```r
summary(fwd_fit)
```

```
## Subset selection object
## Call: regsubsets.formula(cnt ~ season + holiday + mnth + workingday +
##     weathersit + temp + hum + windspeed, data = bike_train, nvmax = 4,
##     method = "forward")
## 22 Variables  (and intercept)
##                   Forced in Forced out
## seasonSpring          FALSE      FALSE
## seasonSummer          FALSE      FALSE
## seasonFall            FALSE      FALSE
## holiday               FALSE      FALSE
## mnthFebruary          FALSE      FALSE
## mnthMarch             FALSE      FALSE
## mnthApril             FALSE      FALSE
## mnthMay               FALSE      FALSE
## mnthJune              FALSE      FALSE
## mnthJuly              FALSE      FALSE
## mnthAugust            FALSE      FALSE
## mnthSeptember         FALSE      FALSE
## mnthOctober           FALSE      FALSE
## mnthNovember          FALSE      FALSE
## mnthDecember          FALSE      FALSE
## workingday            FALSE      FALSE
## weathersitLight       FALSE      FALSE
## weathersitMedium      FALSE      FALSE
## temp                  FALSE      FALSE
## hum                   FALSE      FALSE
## windspeed             FALSE      FALSE
## weathersitHeavy       FALSE      FALSE
## 1 subsets of each size up to 5
## Selection Algorithm: forward
##          seasonSpring seasonSummer seasonFall holiday mnthFebruary
## 1  ( 1 ) " "          " "          " "        " "     " "
## 2  ( 1 ) " "          " "          " "        " "     " "
## 3  ( 1 ) " "          " "          "*"        " "     " "
## 4  ( 1 ) " "          " "          "*"        " "     " "
## 5  ( 1 ) " "          " "          "*"        " "     " "
##          mnthMarch mnthApril mnthMay mnthJune mnthJuly mnthAugust
## 1  ( 1 ) " "       " "       " "     " "      " "      " "
## 2  ( 1 ) " "       " "       " "     " "      " "      " "
## 3  ( 1 ) " "       " "       " "     " "      " "      " "
```

```
## 4  ( 1 ) " "         " "         " "       " "         " "         " "
## 5  ( 1 ) " "         " "         " "       " "         " "         " "
##          mnthSeptember mnthOctober mnthNovember mnthDecember workingday
## 1  ( 1 ) " "           " "         " "          " "          " "
## 2  ( 1 ) " "           " "         " "          " "          " "
## 3  ( 1 ) " "           " "         " "          " "          " "
## 4  ( 1 ) " "           " "         " "          " "          " "
## 5  ( 1 ) "*"           " "         " "          " "          " "
##          weathersitLight weathersitMedium weathersitHeavy temp hum
## 1  ( 1 ) " "             " "              " "             "*"  " "
## 2  ( 1 ) " "             "*"              " "             "*"  " "
## 3  ( 1 ) " "             "*"              " "             "*"  " "
## 4  ( 1 ) " "             "*"              " "             "*"  "*"
## 5  ( 1 ) " "             "*"              " "             "*"  "*"
##          windspeed
## 1  ( 1 ) " "
## 2  ( 1 ) " "
## 3  ( 1 ) " "
## 4  ( 1 ) " "
## 5  ( 1 ) " "
```

- The first five variables selected are: temp, weathersitheavy, seasonfall, hum, seasonspring

g. Backwards Stepwise Linear Model

```
bck_fit <- regsubsets(cnt ~ season + holiday + mnth + workingday + weathersit + temp + hum + windspeed,
                      data = bike_train,
                      nvmax = 4,
                      method = "backward")
```

```
## Warning in leaps.setup(x, y, wt = wt, nbest = nbest, nvmax = nvmax,
## force.in = force.in, : 1 linear dependencies found
```

```
## Reordering variables and trying again:
```

```
summary(bck_fit)
```

```
## Subset selection object
## Call: regsubsets.formula(cnt ~ season + holiday + mnth + workingday +
##     weathersit + temp + hum + windspeed, data = bike_train, nvmax = 4,
##     method = "backward")
## 22 Variables  (and intercept)
##               Forced in Forced out
## seasonSpring       FALSE      FALSE
## seasonSummer       FALSE      FALSE
## seasonFall         FALSE      FALSE
## holiday            FALSE      FALSE
## mnthFebruary       FALSE      FALSE
## mnthMarch          FALSE      FALSE
## mnthApril          FALSE      FALSE
## mnthMay            FALSE      FALSE
## mnthJune           FALSE      FALSE
```

```
## mnthJuly               FALSE      FALSE
## mnthAugust             FALSE      FALSE
## mnthSeptember          FALSE      FALSE
## mnthOctober            FALSE      FALSE
## mnthNovember           FALSE      FALSE
## mnthDecember           FALSE      FALSE
## workingday             FALSE      FALSE
## weathersitLight        FALSE      FALSE
## weathersitMedium       FALSE      FALSE
## temp                   FALSE      FALSE
## hum                    FALSE      FALSE
## windspeed              FALSE      FALSE
## weathersitHeavy        FALSE      FALSE
## 1 subsets of each size up to 5
## Selection Algorithm: backward
##            seasonSpring seasonSummer seasonFall holiday mnthFebruary
## 1  ( 1 ) " "          " "          " "        " "     " "
## 2  ( 1 ) " "          " "          " "        " "     " "
## 3  ( 1 ) " "          " "          "*"        " "     " "
## 4  ( 1 ) " "          " "          "*"        " "     " "
## 5  ( 1 ) " "          " "          "*"        " "     " "
##            mnthMarch mnthApril mnthMay mnthJune mnthJuly mnthAugust
## 1  ( 1 ) " "       " "       " "     " "      " "      " "
## 2  ( 1 ) " "       " "       " "     " "      " "      " "
## 3  ( 1 ) " "       " "       " "     " "      " "      " "
## 4  ( 1 ) " "       " "       " "     " "      " "      " "
## 5  ( 1 ) " "       " "       " "     " "      " "      " "
##            mnthSeptember mnthOctober mnthNovember mnthDecember workingday
## 1  ( 1 ) " "           " "         " "          " "          " "
## 2  ( 1 ) " "           " "         " "          " "          " "
## 3  ( 1 ) " "           " "         " "          " "          " "
## 4  ( 1 ) " "           " "         " "          " "          " "
## 5  ( 1 ) "*"           " "         " "          " "          " "
##            weathersitLight weathersitMedium weathersitHeavy temp hum
## 1  ( 1 ) " "             " "              " "             "*"  " "
## 2  ( 1 ) " "             "*"              " "             "*"  " "
## 3  ( 1 ) " "             "*"              " "             "*"  " "
## 4  ( 1 ) " "             "*"              " "             "*"  "*"
## 5  ( 1 ) " "             "*"              " "             "*"  "*"
##            windspeed
## 1  ( 1 ) " "
## 2  ( 1 ) " "
## 3  ( 1 ) " "
## 4  ( 1 ) " "
## 5  ( 1 ) " "
```

- The five predictor variables included in M5 are: temp, weathersitMedium, seasonFall, hum, and mnth9
- These five variables are not the same for our forward and backward stepwise models. This can occur when either model finds a different local min instead of the same local or global minimum error - that's why they are not guaranteed to be the same.

h. Ridge model and how MSE changes as we change lambda

```r
ridge_mod <- cv.glmnet(cnt ~ .,
                       data = bike_train,
                       alpha = 0)

coef(ridge_mod)
```

```
## 770 x 1 sparse Matrix of class "dgCMatrix"
##                            1
## (Intercept)     -3.306589e+03
## instant          3.796743e-01
## dteday2011-01-01 -2.188737e+02
## dteday2011-01-02 -2.323449e+02
## dteday2011-01-03 -1.832695e+02
## dteday2011-01-04  .
## dteday2011-01-05 -1.690196e+02
## dteday2011-01-06 -1.702807e+02
## dteday2011-01-07 -1.640431e+02
## dteday2011-01-08  .
## dteday2011-01-09 -2.153870e+02
## dteday2011-01-10 -1.812788e+02
## dteday2011-01-11 -1.810954e+02
## dteday2011-01-12  .
## dteday2011-01-13 -1.750295e+02
## dteday2011-01-14 -1.787086e+02
## dteday2011-01-15 -1.887302e+02
## dteday2011-01-16 -2.006359e+02
## dteday2011-01-17  .
## dteday2011-01-18 -2.307924e+02
## dteday2011-01-19 -1.590145e+02
## dteday2011-01-20 -1.360895e+02
## dteday2011-01-21 -1.630710e+02
## dteday2011-01-22 -2.024645e+02
## dteday2011-01-23 -2.027639e+02
## dteday2011-01-24 -1.711619e+02
## dteday2011-01-25 -1.289747e+02
## dteday2011-01-26 -2.268372e+02
## dteday2011-01-27 -2.629649e+02
## dteday2011-01-28  .
## dteday2011-01-29 -2.059208e+02
## dteday2011-01-30 -2.101981e+02
## dteday2011-01-31 -1.607711e+02
## dteday2011-02-01  .
## dteday2011-02-02 -1.663561e+02
## dteday2011-02-03 -1.702180e+02
## dteday2011-02-04 -1.533792e+02
## dteday2011-02-05 -2.069549e+02
## dteday2011-02-06  .
## dteday2011-02-07  .
## dteday2011-02-08  .
## dteday2011-02-09 -1.524411e+02
## dteday2011-02-10 -1.691008e+02
## dteday2011-02-11 -1.598136e+02
## dteday2011-02-12  .
```

```
## dteday2011-02-13   .
## dteday2011-02-14   .
## dteday2011-02-15 -1.575649e+02
## dteday2011-02-16 -1.392213e+02
## dteday2011-02-17 -1.230650e+02
## dteday2011-02-18 -9.431537e+01
## dteday2011-02-19 -1.811553e+02
## dteday2011-02-20 -1.611972e+02
## dteday2011-02-21 -1.997545e+02
## dteday2011-02-22 -1.793493e+02
## dteday2011-02-23 -1.508254e+02
## dteday2011-02-24 -1.501447e+02
## dteday2011-02-25 -1.815284e+02
## dteday2011-02-26 -1.478958e+02
## dteday2011-02-27 -1.205412e+02
## dteday2011-02-28   .
## dteday2011-03-01 -1.610570e+02
## dteday2011-03-02 -1.430228e+02
## dteday2011-03-03   .
## dteday2011-03-04 -1.429372e+02
## dteday2011-03-05 -1.418988e+02
## dteday2011-03-06   .
## dteday2011-03-07 -1.536949e+02
## dteday2011-03-08 -1.461029e+02
## dteday2011-03-09   .
## dteday2011-03-10 -2.556810e+02
## dteday2011-03-11   .
## dteday2011-03-12 -1.448508e+02
## dteday2011-03-13 -1.273055e+02
## dteday2011-03-14 -1.545937e+02
## dteday2011-03-15 -1.408072e+02
## dteday2011-03-16 -1.330220e+02
## dteday2011-03-17   .
## dteday2011-03-18   .
## dteday2011-03-19 -8.000834e+01
## dteday2011-03-20 -1.201947e+02
## dteday2011-03-21 -1.616407e+02
## dteday2011-03-22   .
## dteday2011-03-23 -1.505672e+02
## dteday2011-03-24 -1.656095e+02
## dteday2011-03-25 -1.483926e+02
## dteday2011-03-26 -1.277963e+02
## dteday2011-03-27   .
## dteday2011-03-28 -1.645890e+02
## dteday2011-03-29   .
## dteday2011-03-30 -1.973442e+02
## dteday2011-03-31 -1.654902e+02
## dteday2011-04-01 -1.432301e+02
## dteday2011-04-02   .
## dteday2011-04-03   .
## dteday2011-04-04   .
## dteday2011-04-05   .
## dteday2011-04-06 -1.182034e+02
## dteday2011-04-07 -9.921332e+01
```

```
## dteday2011-04-08 -2.080533e+02
## dteday2011-04-09 -1.323867e+02
## dteday2011-04-10  .
## dteday2011-04-11 -8.156463e+01
## dteday2011-04-12  .
## dteday2011-04-13 -1.601258e+02
## dteday2011-04-14 -9.429630e+01
## dteday2011-04-15 -9.308519e+01
## dteday2011-04-16 -2.549833e+02
## dteday2011-04-17  .
## dteday2011-04-18 -8.287352e+01
## dteday2011-04-19 -8.955997e+01
## dteday2011-04-20  .
## dteday2011-04-21  .
## dteday2011-04-22 -1.924822e+02
## dteday2011-04-23 -1.511087e+01
## dteday2011-04-24 -1.710831e+01
## dteday2011-04-25  .
## dteday2011-04-26  .
## dteday2011-04-27  .
## dteday2011-04-28 -2.734832e+01
## dteday2011-04-29  1.191586e+01
## dteday2011-04-30  7.207455e+01
## dteday2011-05-01  .
## dteday2011-05-02  4.068351e-02
## dteday2011-05-03  1.874944e+00
## dteday2011-05-04 -1.245357e+02
## dteday2011-05-05  1.790708e+00
## dteday2011-05-06  .
## dteday2011-05-07  .
## dteday2011-05-08 -1.895608e+01
## dteday2011-05-09 -1.272732e+01
## dteday2011-05-10  1.935466e+01
## dteday2011-05-11 -2.992855e+01
## dteday2011-05-12  .
## dteday2011-05-13 -1.972901e+01
## dteday2011-05-14  .
## dteday2011-05-15  9.583104e+00
## dteday2011-05-16  .
## dteday2011-05-17 -2.079722e+01
## dteday2011-05-18  .
## dteday2011-05-19  1.303421e+01
## dteday2011-05-20  2.965893e+01
## dteday2011-05-21  9.164591e+01
## dteday2011-05-22  .
## dteday2011-05-23  .
## dteday2011-05-24 -3.051421e+00
## dteday2011-05-25  2.414505e+01
## dteday2011-05-26 -4.958825e+00
## dteday2011-05-27  .
## dteday2011-05-28  6.120029e+00
## dteday2011-05-29  6.994252e+00
## dteday2011-05-30  .
## dteday2011-05-31  .
```

```
## dteday2011-06-01 -5.912592e+01
## dteday2011-06-02  1.544992e+01
## dteday2011-06-03  .
## dteday2011-06-04  4.794270e+01
## dteday2011-06-05  2.368194e+01
## dteday2011-06-06  .
## dteday2011-06-07  .
## dteday2011-06-08  .
## dteday2011-06-09 -7.245489e+01
## dteday2011-06-10  .
## dteday2011-06-11  1.120264e+01
## dteday2011-06-12 -2.424786e+01
## dteday2011-06-13  2.990669e+01
## dteday2011-06-14  2.028628e+01
## dteday2011-06-15  3.913716e+01
## dteday2011-06-16 -6.355626e+01
## dteday2011-06-17  .
## dteday2011-06-18  2.547266e+01
## dteday2011-06-19  4.705986e+00
## dteday2011-06-20 -4.399927e+01
## dteday2011-06-21  .
## dteday2011-06-22  .
## dteday2011-06-23  5.667032e+00
## dteday2011-06-24  .
## dteday2011-06-25  .
## dteday2011-06-26  3.545104e+01
## dteday2011-06-27  .
## dteday2011-06-28  .
## dteday2011-06-29  3.189859e+01
## dteday2011-06-30  5.381756e+01
## dteday2011-07-01  3.802273e+01
## dteday2011-07-02  1.550498e+01
## dteday2011-07-03 -5.984682e+00
## dteday2011-07-04  .
## dteday2011-07-05  .
## dteday2011-07-06 -1.651398e+01
## dteday2011-07-07 -2.308942e+01
## dteday2011-07-08 -5.084789e+01
## dteday2011-07-09  3.733675e+01
## dteday2011-07-10 -4.772558e-01
## dteday2011-07-11 -6.151246e+01
## dteday2011-07-12  .
## dteday2011-07-13 -4.313508e+01
## dteday2011-07-14  2.362937e+01
## dteday2011-07-15  6.094582e+01
## dteday2011-07-16  .
## dteday2011-07-17  3.742080e+01
## dteday2011-07-18  .
## dteday2011-07-19 -3.184577e+01
## dteday2011-07-20 -4.770603e+01
## dteday2011-07-21  .
## dteday2011-07-22  .
## dteday2011-07-23 -1.420453e+02
## dteday2011-07-24  .
```

```
## dteday2011-07-25   .
## dteday2011-07-26 -2.480028e+01
## dteday2011-07-27 -2.110269e+01
## dteday2011-07-28 -4.381666e+01
## dteday2011-07-29   .
## dteday2011-07-30   .
## dteday2011-07-31 -5.452787e+01
## dteday2011-08-01   .
## dteday2011-08-02 -5.258267e+00
## dteday2011-08-03 -9.365925e+01
## dteday2011-08-04 -9.334838e+00
## dteday2011-08-05  3.203651e+00
## dteday2011-08-06 -3.254259e+01
## dteday2011-08-07 -8.690952e+01
## dteday2011-08-08   .
## dteday2011-08-09 -2.661952e+01
## dteday2011-08-10 -9.777679e+00
## dteday2011-08-11 -6.019605e+00
## dteday2011-08-12   .
## dteday2011-08-13 -4.196858e+01
## dteday2011-08-14 -6.546388e+01
## dteday2011-08-15   .
## dteday2011-08-16   .
## dteday2011-08-17 -1.286579e+01
## dteday2011-08-18 -8.182487e+01
## dteday2011-08-19   .
## dteday2011-08-20  2.676575e+01
## dteday2011-08-21 -7.481798e+01
## dteday2011-08-22   .
## dteday2011-08-23   .
## dteday2011-08-24   .
## dteday2011-08-25 -9.001961e+01
## dteday2011-08-26 -1.442566e+01
## dteday2011-08-27 -2.784418e+02
## dteday2011-08-28 -3.712283e+01
## dteday2011-08-29 -9.174400e+00
## dteday2011-08-30  3.527484e+01
## dteday2011-08-31   .
## dteday2011-09-01   .
## dteday2011-09-02   .
## dteday2011-09-03 -3.093432e+01
## dteday2011-09-04   .
## dteday2011-09-05 -1.047024e+02
## dteday2011-09-06 -1.286340e+02
## dteday2011-09-07 -1.984615e+02
## dteday2011-09-08   .
## dteday2011-09-09 -9.075038e+01
## dteday2011-09-10  4.064910e+01
## dteday2011-09-11  1.574469e+01
## dteday2011-09-12   .
## dteday2011-09-13 -4.754260e+00
## dteday2011-09-14   .
## dteday2011-09-15   .
## dteday2011-09-16  2.176683e+01
```

```
## dteday2011-09-17  3.368166e-01
## dteday2011-09-18  .
## dteday2011-09-19  .
## dteday2011-09-20 -7.553856e+01
## dteday2011-09-21 -2.169255e+01
## dteday2011-09-22  1.192023e+01
## dteday2011-09-23 -1.746360e+02
## dteday2011-09-24  6.569975e+01
## dteday2011-09-25  .
## dteday2011-09-26  1.340964e+00
## dteday2011-09-27  .
## dteday2011-09-28  .
## dteday2011-09-29  9.872306e+00
## dteday2011-09-30  4.482065e+01
## dteday2011-10-01 -1.428430e+02
## dteday2011-10-02 -9.883362e+01
## dteday2011-10-03  .
## dteday2011-10-04  5.551037e-01
## dteday2011-10-05  2.344127e+01
## dteday2011-10-06  2.043125e+01
## dteday2011-10-07  .
## dteday2011-10-08  6.462316e+01
## dteday2011-10-09  7.164763e+01
## dteday2011-10-10  4.390719e+01
## dteday2011-10-11  8.974332e+00
## dteday2011-10-12 -1.444035e+02
## dteday2011-10-13 -1.259004e+02
## dteday2011-10-14 -6.223448e+01
## dteday2011-10-15  5.567106e+01
## dteday2011-10-16  4.227345e+01
## dteday2011-10-17  .
## dteday2011-10-18  2.508586e+01
## dteday2011-10-19 -1.441103e+02
## dteday2011-10-20 -1.546454e+01
## dteday2011-10-21 -8.135442e+00
## dteday2011-10-22 -1.227025e+01
## dteday2011-10-23 -5.085793e+00
## dteday2011-10-24 -2.170485e+01
## dteday2011-10-25  .
## dteday2011-10-26 -3.728660e+01
## dteday2011-10-27 -1.344297e+02
## dteday2011-10-28 -3.232483e+01
## dteday2011-10-29 -2.554664e+02
## dteday2011-10-30 -7.641921e+01
## dteday2011-10-31 -5.186878e+01
## dteday2011-11-01 -2.190411e+01
## dteday2011-11-02 -1.140901e+01
## dteday2011-11-03 -3.070370e+01
## dteday2011-11-04 -1.105910e+01
## dteday2011-11-05 -2.687371e+01
## dteday2011-11-06 -5.225663e+01
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## dteday2011-11-09 -2.012884e+01
```

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## dteday2011-11-11   .
## dteday2011-11-12   .
## dteday2011-11-13   .
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## dteday2011-11-15   .
## dteday2011-11-16  -1.852001e+02
## dteday2011-11-17  -8.437357e+01
## dteday2011-11-18  -6.530048e+01
## dteday2011-11-19  -4.733313e+01
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## dteday2011-11-21   .
## dteday2011-11-22  -1.988145e+02
## dteday2011-11-23  -1.312945e+02
## dteday2011-11-24   .
## dteday2011-11-25  -1.281036e+02
## dteday2011-11-26  -1.054638e+02
## dteday2011-11-27  -1.074578e+02
## dteday2011-11-28  -4.725694e+01
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## dteday2011-12-05  -2.765710e+01
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## dteday2011-12-07  -2.623433e+02
## dteday2011-12-08  -6.277676e+01
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## dteday2011-12-12  -6.506628e+01
## dteday2011-12-13  -5.148459e+01
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## dteday2011-12-17   .
## dteday2011-12-18   .
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## dteday2011-12-22   .
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## dteday2011-12-27  -2.208564e+02
## dteday2011-12-28   .
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## dteday2011-12-30  -8.392398e+01
## dteday2011-12-31   .
## dteday2012-01-01  -1.510550e+02
## dteday2012-01-02   .
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## dteday2012-01-13 -6.140659e+01
## dteday2012-01-14 -1.165683e+02
## dteday2012-01-15   .
## dteday2012-01-16   .
## dteday2012-01-17   .
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## dteday2012-01-19 -5.284246e+01
## dteday2012-01-20   .
## dteday2012-01-21 -1.977438e+02
## dteday2012-01-22 -1.427365e+02
## dteday2012-01-23 -1.146332e+02
## dteday2012-01-24  1.610327e+01
## dteday2012-01-25  1.509875e+01
## dteday2012-01-26  1.896862e+00
## dteday2012-01-27 -4.793691e+01
## dteday2012-01-28 -6.976622e+00
## dteday2012-01-29 -6.668619e+01
## dteday2012-01-30 -3.347793e+01
## dteday2012-01-31  2.572392e+01
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## dteday2012-02-03   .
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## dteday2012-02-06 -2.546460e+01
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## dteday2012-02-08 -9.299368e+01
## dteday2012-02-09 -2.037696e+01
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## dteday2012-02-11   .
## dteday2012-02-12 -1.842857e+02
## dteday2012-02-13 -4.979931e+01
## dteday2012-02-14   .
## dteday2012-02-15   .
## dteday2012-02-16 -8.498550e+01
## dteday2012-02-17 -1.654362e+00
## dteday2012-02-18  7.562022e+00
## dteday2012-02-19   .
## dteday2012-02-20 -7.281020e+01
## dteday2012-02-21   .
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## dteday2012-02-25   .
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## dteday2012-02-28   1.149912e+01
## dteday2012-02-29    .
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## dteday2012-03-02  -7.823868e+01
## dteday2012-03-03  -1.422617e+01
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## dteday2012-03-12    .
## dteday2012-03-13   1.069954e+02
## dteday2012-03-14   1.388094e+02
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## dteday2012-03-17    .
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## dteday2012-03-20   1.246630e+02
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## dteday2012-04-05   1.429294e+02
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## dteday2012-04-14   2.152964e+02
## dteday2012-04-15   1.788642e+02
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## dteday2012-04-26  3.413826e+01
## dteday2012-04-27  1.271673e+02
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## dteday2012-05-13   .
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## dteday2012-05-22   .
## dteday2012-05-23   .
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## dteday2012-05-25  1.374288e+02
## dteday2012-05-26  1.178661e+02
## dteday2012-05-27  1.213822e+02
## dteday2012-05-28  8.012318e+01
## dteday2012-05-29   .
## dteday2012-05-30   .
## dteday2012-05-31   .
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## dteday2012-06-03  2.127423e+02
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## dteday2012-06-05  1.818227e+02
## dteday2012-06-06   .
## dteday2012-06-07  2.033067e+02
## dteday2012-06-08   .
## dteday2012-06-09   .
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## dteday2012-08-23  .
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## dteday2012-08-30  .
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## dteday2012-09-25  2.105931e+02
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## dteday2012-09-27  1.970886e+02
## dteday2012-09-28  2.024818e+02
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## dteday2012-11-02  1.036570e+02
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## dteday2012-11-04  4.343861e+01
## dteday2012-11-05  6.051856e+01
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## dteday2012-11-07  5.670294e+01
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## dteday2012-11-13 -2.317273e+01
## dteday2012-11-14  8.110368e+01
## dteday2012-11-15  8.148612e+01
## dteday2012-11-16  .
## dteday2012-11-17  8.524517e+01
## dteday2012-11-18  9.822362e+00
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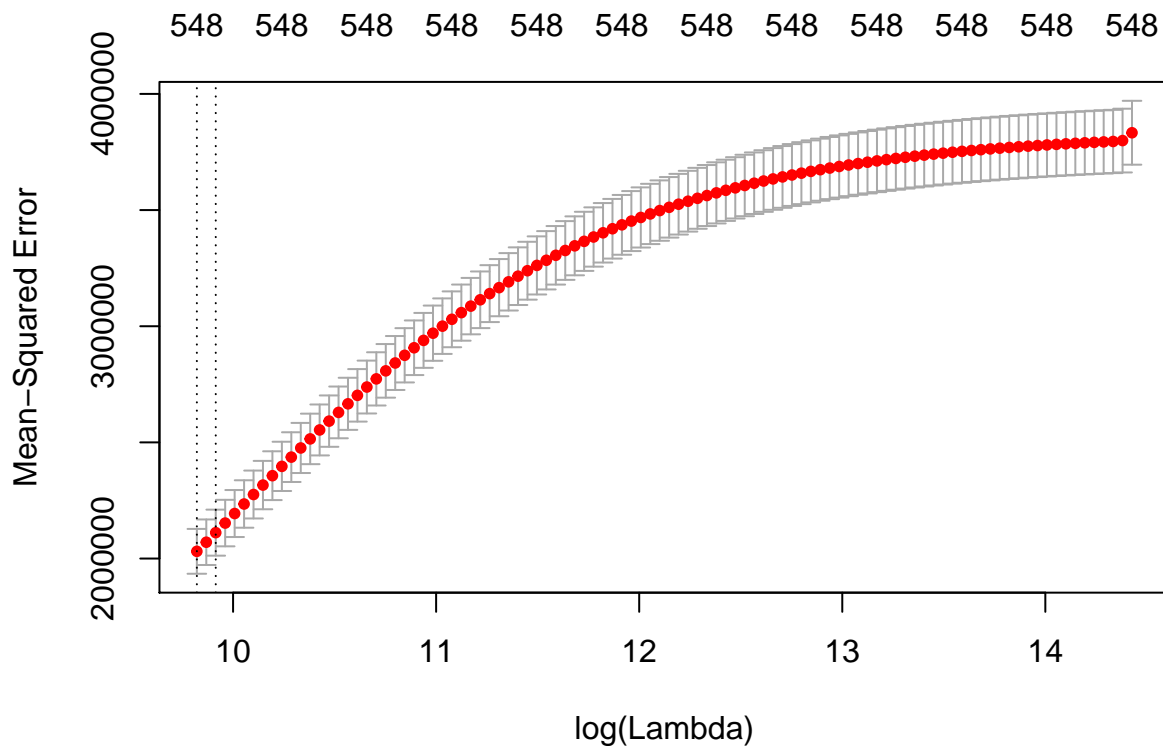
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## dteday2012-11-26  3.991729e+01
## dteday2012-11-27 -3.076124e+01
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## dteday2012-11-29  6.352749e+01
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## dteday2012-12-22 -1.962800e+02
## dteday2012-12-23 -2.006856e+02
## dteday2012-12-24  .
## dteday2012-12-25  .
## dteday2012-12-26  .
## dteday2012-12-27 -1.578946e+02
## dteday2012-12-28  .
## dteday2012-12-29 -2.245568e+02
## dteday2012-12-30 -1.934872e+02
## dteday2012-12-31 -1.106045e+02
## seasonWinter     -1.408909e+02
## seasonSpring      3.839214e+01
## seasonSummer      8.175345e+01
## seasonFall        2.080615e+01
## yr                1.523176e+02
## mnthJanuary      -1.394459e+02
## mnthFebruary     -1.096998e+02
## mnthMarch        -4.754237e+01
## mnthApril         9.393054e+00
## mnthMay           5.278501e+01
## mnthJune          7.815944e+01
## mnthJuly          5.853539e+01
## mnthAugust        5.103711e+01
## mnthSeptember     1.061033e+02
```

```
## mnthOctober        2.848045e+01
## mnthNovember      -1.322616e+01
## mnthDecember      -6.423374e+01
## holiday           -5.006890e+01
## weekdaySunday     -6.529487e+00
## weekdayMonday     -8.613074e+00
## weekdayTuesday     3.345819e+00
## weekdayWednesday   1.190486e+00
## weekdayThursday    1.206586e+01
## weekdayFriday      2.131849e+00
## weekdaySaturday   -4.044464e+00
## workingday         1.063834e+01
## weathersitClear    6.798168e+01
## weathersitLight   -4.320864e+01
## weathersitMedium  -1.919627e+02
## weathersitHeavy    .
## temp               3.788195e+02
## atemp              4.369180e+02
## hum               -1.103187e+02
## windspeed         -3.361577e+02
## casual             1.161072e-01
## registered         7.630663e-02
## fahrenheit         2.104564e+02
```

```
#coefpath(ridge_mod)
plot(ridge_mod)
```


When plotted, we see a logarithmic-type of growth for MSE as we increase lambda

   i. Lambda min and Lambda 1se

```r
ridge_mod$lambda.min
```

```
## [1] 18428.13
```

```r
ridge_mod$lambda.1se
```

```
## [1] 20224.85
```

- Lambda Min = 18428.13
- Lambda 1se = 20224.85
- lambda.min is the value for lambda at which our Mean-Squared Error is lowest. Although lambda.min is the best for minimizing error on our training data, we use lambda.1se because it does not run the same risk as being over-fit to the training model, and has less bias than lambda.min. All while still being close to the lambda.min (within one standard deviation of it). We prefer this one for our model because it should preform better on test data (and should at least have less bias).

j.

```r
as.matrix(coef(ridge_mod, s = "lambda.min"))
```

```
##                            1
## (Intercept)     -3.716580e+03
## instant          4.035552e-01
## dteday2011-01-01 -2.322856e+02
## dteday2011-01-02 -2.467197e+02
## dteday2011-01-03 -1.935676e+02
## dteday2011-01-04  0.000000e+00
## dteday2011-01-05 -1.785703e+02
## dteday2011-01-06 -1.800694e+02
## dteday2011-01-07 -1.723292e+02
## dteday2011-01-08  0.000000e+00
## dteday2011-01-09 -2.275347e+02
## dteday2011-01-10 -1.911436e+02
## dteday2011-01-11 -1.905490e+02
## dteday2011-01-12  0.000000e+00
## dteday2011-01-13 -1.844364e+02
## dteday2011-01-14 -1.887543e+02
## dteday2011-01-15 -1.992022e+02
## dteday2011-01-16 -2.126398e+02
## dteday2011-01-17  0.000000e+00
## dteday2011-01-18 -2.444357e+02
## dteday2011-01-19 -1.672053e+02
## dteday2011-01-20 -1.424446e+02
## dteday2011-01-21 -1.714282e+02
## dteday2011-01-22 -2.136733e+02
## dteday2011-01-23 -2.139617e+02
## dteday2011-01-24 -1.800702e+02
## dteday2011-01-25 -1.345829e+02
## dteday2011-01-26 -2.386806e+02
## dteday2011-01-27 -2.801433e+02
## dteday2011-01-28  0.000000e+00
```

```
## dteday2011-01-29 -2.181712e+02
## dteday2011-01-30 -2.230135e+02
## dteday2011-01-31 -1.684861e+02
## dteday2011-02-01  0.000000e+00
## dteday2011-02-02 -1.749725e+02
## dteday2011-02-03 -1.797006e+02
## dteday2011-02-04 -1.611447e+02
## dteday2011-02-05 -2.187358e+02
## dteday2011-02-06  0.000000e+00
## dteday2011-02-07  0.000000e+00
## dteday2011-02-08  0.000000e+00
## dteday2011-02-09 -1.595445e+02
## dteday2011-02-10 -1.783807e+02
## dteday2011-02-11 -1.688200e+02
## dteday2011-02-12  0.000000e+00
## dteday2011-02-13  0.000000e+00
## dteday2011-02-14  0.000000e+00
## dteday2011-02-15 -1.665829e+02
## dteday2011-02-16 -1.470977e+02
## dteday2011-02-17 -1.304372e+02
## dteday2011-02-18 -9.981182e+01
## dteday2011-02-19 -1.925938e+02
## dteday2011-02-20 -1.706317e+02
## dteday2011-02-21 -2.109122e+02
## dteday2011-02-22 -1.896252e+02
## dteday2011-02-23 -1.594238e+02
## dteday2011-02-24 -1.578941e+02
## dteday2011-02-25 -1.920190e+02
## dteday2011-02-26 -1.562289e+02
## dteday2011-02-27 -1.270575e+02
## dteday2011-02-28  0.000000e+00
## dteday2011-03-01 -1.707706e+02
## dteday2011-03-02 -1.515632e+02
## dteday2011-03-03  0.000000e+00
## dteday2011-03-04 -1.504114e+02
## dteday2011-03-05 -1.497842e+02
## dteday2011-03-06  0.000000e+00
## dteday2011-03-07 -1.623936e+02
## dteday2011-03-08 -1.551526e+02
## dteday2011-03-09  0.000000e+00
## dteday2011-03-10 -2.726124e+02
## dteday2011-03-11  0.000000e+00
## dteday2011-03-12 -1.535938e+02
## dteday2011-03-13 -1.349182e+02
## dteday2011-03-14 -1.643902e+02
## dteday2011-03-15 -1.485340e+02
## dteday2011-03-16 -1.402788e+02
## dteday2011-03-17  0.000000e+00
## dteday2011-03-18  0.000000e+00
## dteday2011-03-19 -8.440524e+01
## dteday2011-03-20 -1.270902e+02
## dteday2011-03-21 -1.724808e+02
## dteday2011-03-22  0.000000e+00
## dteday2011-03-23 -1.600345e+02
```

```
## dteday2011-03-24 -1.759719e+02
## dteday2011-03-25 -1.581853e+02
## dteday2011-03-26 -1.360469e+02
## dteday2011-03-27  0.000000e+00
## dteday2011-03-28 -1.758290e+02
## dteday2011-03-29  0.000000e+00
## dteday2011-03-30 -2.106756e+02
## dteday2011-03-31 -1.746159e+02
## dteday2011-04-01 -1.522043e+02
## dteday2011-04-02  0.000000e+00
## dteday2011-04-03  0.000000e+00
## dteday2011-04-04  0.000000e+00
## dteday2011-04-05  0.000000e+00
## dteday2011-04-06 -1.266490e+02
## dteday2011-04-07 -1.066203e+02
## dteday2011-04-08 -2.225330e+02
## dteday2011-04-09 -1.408923e+02
## dteday2011-04-10  0.000000e+00
## dteday2011-04-11 -8.727779e+01
## dteday2011-04-12  0.000000e+00
## dteday2011-04-13 -1.711777e+02
## dteday2011-04-14 -1.016671e+02
## dteday2011-04-15 -9.930626e+01
## dteday2011-04-16 -2.724221e+02
## dteday2011-04-17  0.000000e+00
## dteday2011-04-18 -8.936907e+01
## dteday2011-04-19 -9.577522e+01
## dteday2011-04-20  0.000000e+00
## dteday2011-04-21  0.000000e+00
## dteday2011-04-22 -2.058229e+02
## dteday2011-04-23 -1.467207e+01
## dteday2011-04-24 -1.773538e+01
## dteday2011-04-25  0.000000e+00
## dteday2011-04-26  0.000000e+00
## dteday2011-04-27  0.000000e+00
## dteday2011-04-28 -2.886897e+01
## dteday2011-04-29  1.317201e+01
## dteday2011-04-30  7.844156e+01
## dteday2011-05-01  0.000000e+00
## dteday2011-05-02  7.153480e-01
## dteday2011-05-03  2.587392e+00
## dteday2011-05-04 -1.328554e+02
## dteday2011-05-05  2.399011e+00
## dteday2011-05-06  0.000000e+00
## dteday2011-05-07  0.000000e+00
## dteday2011-05-08 -2.075807e+01
## dteday2011-05-09 -1.382690e+01
## dteday2011-05-10  2.059100e+01
## dteday2011-05-11 -3.262412e+01
## dteday2011-05-12  0.000000e+00
## dteday2011-05-13 -2.040363e+01
## dteday2011-05-14  0.000000e+00
## dteday2011-05-15  1.095765e+01
## dteday2011-05-16  0.000000e+00
```

```
## dteday2011-05-17 -2.168714e+01
## dteday2011-05-18  0.000000e+00
## dteday2011-05-19  1.466825e+01
## dteday2011-05-20  3.185284e+01
## dteday2011-05-21  9.830482e+01
## dteday2011-05-22  0.000000e+00
## dteday2011-05-23  0.000000e+00
## dteday2011-05-24 -3.299933e+00
## dteday2011-05-25  2.524281e+01
## dteday2011-05-26 -6.548293e+00
## dteday2011-05-27  0.000000e+00
## dteday2011-05-28  5.791517e+00
## dteday2011-05-29  6.699995e+00
## dteday2011-05-30  0.000000e+00
## dteday2011-05-31  0.000000e+00
## dteday2011-06-01 -6.482234e+01
## dteday2011-06-02  1.531224e+01
## dteday2011-06-03  0.000000e+00
## dteday2011-06-04  5.064009e+01
## dteday2011-06-05  2.527986e+01
## dteday2011-06-06  0.000000e+00
## dteday2011-06-07  0.000000e+00
## dteday2011-06-08  0.000000e+00
## dteday2011-06-09 -7.984540e+01
## dteday2011-06-10  0.000000e+00
## dteday2011-06-11  1.055727e+01
## dteday2011-06-12 -2.736926e+01
## dteday2011-06-13  3.167675e+01
## dteday2011-06-14  2.129678e+01
## dteday2011-06-15  4.136325e+01
## dteday2011-06-16 -6.885956e+01
## dteday2011-06-17  0.000000e+00
## dteday2011-06-18  2.610316e+01
## dteday2011-06-19  4.369895e+00
## dteday2011-06-20 -4.767984e+01
## dteday2011-06-21  0.000000e+00
## dteday2011-06-22  0.000000e+00
## dteday2011-06-23  5.293187e+00
## dteday2011-06-24  0.000000e+00
## dteday2011-06-25  0.000000e+00
## dteday2011-06-26  3.668330e+01
## dteday2011-06-27  0.000000e+00
## dteday2011-06-28  0.000000e+00
## dteday2011-06-29  3.298685e+01
## dteday2011-06-30  5.654311e+01
## dteday2011-07-01  3.930828e+01
## dteday2011-07-02  1.482954e+01
## dteday2011-07-03 -7.149042e+00
## dteday2011-07-04  0.000000e+00
## dteday2011-07-05  0.000000e+00
## dteday2011-07-06 -1.927264e+01
## dteday2011-07-07 -2.664746e+01
## dteday2011-07-08 -5.547248e+01
## dteday2011-07-09  3.877660e+01
```

```
## dteday2011-07-10 -2.145833e+00
## dteday2011-07-11 -6.799026e+01
## dteday2011-07-12  0.000000e+00
## dteday2011-07-13 -4.831807e+01
## dteday2011-07-14  2.430320e+01
## dteday2011-07-15  6.472159e+01
## dteday2011-07-16  0.000000e+00
## dteday2011-07-17  3.911292e+01
## dteday2011-07-18  0.000000e+00
## dteday2011-07-19 -3.640969e+01
## dteday2011-07-20 -5.349152e+01
## dteday2011-07-21  0.000000e+00
## dteday2011-07-22  0.000000e+00
## dteday2011-07-23 -1.561579e+02
## dteday2011-07-24  0.000000e+00
## dteday2011-07-25  0.000000e+00
## dteday2011-07-26 -2.860309e+01
## dteday2011-07-27 -2.474840e+01
## dteday2011-07-28 -4.936445e+01
## dteday2011-07-29  0.000000e+00
## dteday2011-07-30  0.000000e+00
## dteday2011-07-31 -6.110799e+01
## dteday2011-08-01  0.000000e+00
## dteday2011-08-02 -7.573756e+00
## dteday2011-08-03 -1.021886e+02
## dteday2011-08-04 -1.073594e+01
## dteday2011-08-05  2.021800e+00
## dteday2011-08-06 -3.580278e+01
## dteday2011-08-07 -9.549086e+01
## dteday2011-08-08  0.000000e+00
## dteday2011-08-09 -3.079104e+01
## dteday2011-08-10 -1.244086e+01
## dteday2011-08-11 -8.225716e+00
## dteday2011-08-12  0.000000e+00
## dteday2011-08-13 -4.587437e+01
## dteday2011-08-14 -7.101330e+01
## dteday2011-08-15  0.000000e+00
## dteday2011-08-16  0.000000e+00
## dteday2011-08-17 -1.551567e+01
## dteday2011-08-18 -8.989798e+01
## dteday2011-08-19  0.000000e+00
## dteday2011-08-20  2.736699e+01
## dteday2011-08-21 -8.208278e+01
## dteday2011-08-22  0.000000e+00
## dteday2011-08-23  0.000000e+00
## dteday2011-08-24  0.000000e+00
## dteday2011-08-25 -9.783016e+01
## dteday2011-08-26 -1.711688e+01
## dteday2011-08-27 -3.010282e+02
## dteday2011-08-28 -4.132050e+01
## dteday2011-08-29 -1.097299e+01
## dteday2011-08-30  3.697764e+01
## dteday2011-08-31  0.000000e+00
## dteday2011-09-01  0.000000e+00
```

```
## dteday2011-09-02  0.000000e+00
## dteday2011-09-03 -3.522616e+01
## dteday2011-09-04  0.000000e+00
## dteday2011-09-05 -1.136326e+02
## dteday2011-09-06 -1.375979e+02
## dteday2011-09-07 -2.139650e+02
## dteday2011-09-08  0.000000e+00
## dteday2011-09-09 -9.883864e+01
## dteday2011-09-10  4.233607e+01
## dteday2011-09-11  1.537658e+01
## dteday2011-09-12  0.000000e+00
## dteday2011-09-13 -6.727011e+00
## dteday2011-09-14  0.000000e+00
## dteday2011-09-15  0.000000e+00
## dteday2011-09-16  2.369761e+01
## dteday2011-09-17  5.238612e-01
## dteday2011-09-18  0.000000e+00
## dteday2011-09-19  0.000000e+00
## dteday2011-09-20 -8.191638e+01
## dteday2011-09-21 -2.390539e+01
## dteday2011-09-22  1.231220e+01
## dteday2011-09-23 -1.891518e+02
## dteday2011-09-24  7.056316e+01
## dteday2011-09-25  0.000000e+00
## dteday2011-09-26  9.146558e-01
## dteday2011-09-27  0.000000e+00
## dteday2011-09-28  0.000000e+00
## dteday2011-09-29  9.476845e+00
## dteday2011-09-30  4.763629e+01
## dteday2011-10-01 -1.528356e+02
## dteday2011-10-02 -1.049112e+02
## dteday2011-10-03  0.000000e+00
## dteday2011-10-04  8.226727e-01
## dteday2011-10-05  2.511072e+01
## dteday2011-10-06  2.193837e+01
## dteday2011-10-07  0.000000e+00
## dteday2011-10-08  6.928290e+01
## dteday2011-10-09  7.686268e+01
## dteday2011-10-10  4.722108e+01
## dteday2011-10-11  1.000242e+01
## dteday2011-10-12 -1.542975e+02
## dteday2011-10-13 -1.359831e+02
## dteday2011-10-14 -6.684222e+01
## dteday2011-10-15  6.002385e+01
## dteday2011-10-16  4.564165e+01
## dteday2011-10-17  0.000000e+00
## dteday2011-10-18  2.746380e+01
## dteday2011-10-19 -1.540104e+02
## dteday2011-10-20 -1.616207e+01
## dteday2011-10-21 -8.401535e+00
## dteday2011-10-22 -1.313333e+01
## dteday2011-10-23 -5.203267e+00
## dteday2011-10-24 -2.329458e+01
## dteday2011-10-25  0.000000e+00
```

```
## dteday2011-10-26 -3.957265e+01
## dteday2011-10-27 -1.444637e+02
## dteday2011-10-28 -3.316448e+01
## dteday2011-10-29 -2.722546e+02
## dteday2011-10-30 -8.151413e+01
## dteday2011-10-31 -5.520688e+01
## dteday2011-11-01 -2.288570e+01
## dteday2011-11-02 -1.148019e+01
## dteday2011-11-03 -3.249068e+01
## dteday2011-11-04 -1.025839e+01
## dteday2011-11-05 -2.783982e+01
## dteday2011-11-06 -5.540917e+01
## dteday2011-11-07 -2.620354e+01
## dteday2011-11-08 -1.402675e+01
## dteday2011-11-09 -2.106761e+01
## dteday2011-11-10  0.000000e+00
## dteday2011-11-11  0.000000e+00
## dteday2011-11-12  0.000000e+00
## dteday2011-11-13  0.000000e+00
## dteday2011-11-14  3.200521e+00
## dteday2011-11-15  0.000000e+00
## dteday2011-11-16 -1.979261e+02
## dteday2011-11-17 -8.913826e+01
## dteday2011-11-18 -6.919632e+01
## dteday2011-11-19 -4.991733e+01
## dteday2011-11-20  0.000000e+00
## dteday2011-11-21  0.000000e+00
## dteday2011-11-22 -2.124397e+02
## dteday2011-11-23 -1.403015e+02
## dteday2011-11-24  0.000000e+00
## dteday2011-11-25 -1.380131e+02
## dteday2011-11-26 -1.134425e+02
## dteday2011-11-27 -1.156372e+02
## dteday2011-11-28 -5.085792e+01
## dteday2011-11-29 -1.140849e+02
## dteday2011-11-30  0.000000e+00
## dteday2011-12-01  0.000000e+00
## dteday2011-12-02  0.000000e+00
## dteday2011-12-03 -4.886987e+01
## dteday2011-12-04 -6.236462e+01
## dteday2011-12-05 -2.801405e+01
## dteday2011-12-06 -1.222598e+02
## dteday2011-12-07 -2.804894e+02
## dteday2011-12-08 -6.585658e+01
## dteday2011-12-09  0.000000e+00
## dteday2011-12-10 -7.840632e+01
## dteday2011-12-11 -1.182438e+02
## dteday2011-12-12 -6.841541e+01
## dteday2011-12-13 -5.396741e+01
## dteday2011-12-14 -2.963581e+01
## dteday2011-12-15 -3.807097e+01
## dteday2011-12-16  0.000000e+00
## dteday2011-12-17  0.000000e+00
## dteday2011-12-18  0.000000e+00
```

```
## dteday2011-12-19 -6.099420e+01
## dteday2011-12-20 -3.790621e+01
## dteday2011-12-21  0.000000e+00
## dteday2011-12-22  0.000000e+00
## dteday2011-12-23 -1.583883e+02
## dteday2011-12-24  0.000000e+00
## dteday2011-12-25 -2.775865e+02
## dteday2011-12-26 -2.273793e+02
## dteday2011-12-27 -2.356097e+02
## dteday2011-12-28  0.000000e+00
## dteday2011-12-29 -1.331296e+02
## dteday2011-12-30 -8.836024e+01
## dteday2011-12-31  0.000000e+00
## dteday2012-01-01 -1.617254e+02
## dteday2012-01-02  0.000000e+00
## dteday2012-01-03  0.000000e+00
## dteday2012-01-04  0.000000e+00
## dteday2012-01-05 -6.828303e+01
## dteday2012-01-06 -1.591945e+00
## dteday2012-01-07  2.771557e+01
## dteday2012-01-08 -6.046674e+01
## dteday2012-01-09 -1.283745e+02
## dteday2012-01-10 -4.065796e+01
## dteday2012-01-11 -1.495691e+02
## dteday2012-01-12  6.429146e+00
## dteday2012-01-13 -6.388089e+01
## dteday2012-01-14 -1.233704e+02
## dteday2012-01-15  0.000000e+00
## dteday2012-01-16  0.000000e+00
## dteday2012-01-17  0.000000e+00
## dteday2012-01-18 -5.224875e+01
## dteday2012-01-19 -5.453462e+01
## dteday2012-01-20  0.000000e+00
## dteday2012-01-21 -2.100319e+02
## dteday2012-01-22 -1.504742e+02
## dteday2012-01-23 -1.207000e+02
## dteday2012-01-24  1.912823e+01
## dteday2012-01-25  1.828946e+01
## dteday2012-01-26  4.248784e+00
## dteday2012-01-27 -4.956496e+01
## dteday2012-01-28 -5.687888e+00
## dteday2012-01-29 -7.006897e+01
## dteday2012-01-30 -3.405428e+01
## dteday2012-01-31  2.920868e+01
## dteday2012-02-01  0.000000e+00
## dteday2012-02-02  0.000000e+00
## dteday2012-02-03  0.000000e+00
## dteday2012-02-04 -9.515583e+01
## dteday2012-02-05 -8.344368e+01
## dteday2012-02-06 -2.567610e+01
## dteday2012-02-07  1.522619e+01
## dteday2012-02-08 -9.789222e+01
## dteday2012-02-09 -2.012337e+01
## dteday2012-02-10  0.000000e+00
```

```
## dteday2012-02-11  0.000000e+00
## dteday2012-02-12 -1.958853e+02
## dteday2012-02-13 -5.174193e+01
## dteday2012-02-14  0.000000e+00
## dteday2012-02-15  0.000000e+00
## dteday2012-02-16 -8.978144e+01
## dteday2012-02-17 -3.167656e-01
## dteday2012-02-18  9.410899e+00
## dteday2012-02-19  0.000000e+00
## dteday2012-02-20 -7.637518e+01
## dteday2012-02-21  0.000000e+00
## dteday2012-02-22  4.839588e+01
## dteday2012-02-23  6.384693e+01
## dteday2012-02-24 -5.295090e+01
## dteday2012-02-25  0.000000e+00
## dteday2012-02-26  0.000000e+00
## dteday2012-02-27  1.403831e+01
## dteday2012-02-28  1.361740e+01
## dteday2012-02-29  0.000000e+00
## dteday2012-03-01  4.982635e+01
## dteday2012-03-02 -8.306575e+01
## dteday2012-03-03 -1.418190e+01
## dteday2012-03-04  0.000000e+00
## dteday2012-03-05 -6.614348e+01
## dteday2012-03-06 -1.581902e+01
## dteday2012-03-07  0.000000e+00
## dteday2012-03-08  8.492069e+01
## dteday2012-03-09  0.000000e+00
## dteday2012-03-10 -6.421790e+00
## dteday2012-03-11  5.303146e+01
## dteday2012-03-12  0.000000e+00
## dteday2012-03-13  1.154031e+02
## dteday2012-03-14  1.493838e+02
## dteday2012-03-15  1.414797e+02
## dteday2012-03-16  0.000000e+00
## dteday2012-03-17  0.000000e+00
## dteday2012-03-18  1.358172e+02
## dteday2012-03-19  1.431829e+02
## dteday2012-03-20  1.343823e+02
## dteday2012-03-21  1.419219e+02
## dteday2012-03-22  0.000000e+00
## dteday2012-03-23  0.000000e+00
## dteday2012-03-24  0.000000e+00
## dteday2012-03-25  4.895952e+01
## dteday2012-03-26  8.959908e+01
## dteday2012-03-27  0.000000e+00
## dteday2012-03-28  9.377383e+01
## dteday2012-03-29  1.295522e+02
## dteday2012-03-30  9.215156e+01
## dteday2012-03-31  1.557094e+02
## dteday2012-04-01  1.296179e+02
## dteday2012-04-02  1.144160e+02
## dteday2012-04-03  0.000000e+00
## dteday2012-04-04  1.402243e+02
```

```
## dteday2012-04-05  1.532905e+02
## dteday2012-04-06  0.000000e+00
## dteday2012-04-07  1.835044e+02
## dteday2012-04-08  3.011120e+01
## dteday2012-04-09  7.746418e+01
## dteday2012-04-10  1.085625e+02
## dteday2012-04-11  0.000000e+00
## dteday2012-04-12  7.099764e+01
## dteday2012-04-13  1.461384e+02
## dteday2012-04-14  2.310893e+02
## dteday2012-04-15  1.911128e+02
## dteday2012-04-16  0.000000e+00
## dteday2012-04-17  1.565724e+02
## dteday2012-04-18  0.000000e+00
## dteday2012-04-19  1.535490e+02
## dteday2012-04-20  2.171076e+02
## dteday2012-04-21  0.000000e+00
## dteday2012-04-22 -2.779280e+02
## dteday2012-04-23 -9.419717e+01
## dteday2012-04-24  0.000000e+00
## dteday2012-04-25  1.250248e+02
## dteday2012-04-26  3.621315e+01
## dteday2012-04-27  1.364350e+02
## dteday2012-04-28 -2.543515e+01
## dteday2012-04-29  1.340417e+02
## dteday2012-04-30  8.702391e+01
## dteday2012-05-01  8.003948e+01
## dteday2012-05-02  1.131197e+02
## dteday2012-05-03  1.449852e+02
## dteday2012-05-04  1.154810e+02
## dteday2012-05-05  0.000000e+00
## dteday2012-05-06  1.365580e+02
## dteday2012-05-07  0.000000e+00
## dteday2012-05-08  8.674494e+01
## dteday2012-05-09 -3.120128e+00
## dteday2012-05-10  1.555226e+02
## dteday2012-05-11  0.000000e+00
## dteday2012-05-12  0.000000e+00
## dteday2012-05-13  0.000000e+00
## dteday2012-05-14 -1.658023e+02
## dteday2012-05-15  2.588494e+01
## dteday2012-05-16  0.000000e+00
## dteday2012-05-17  2.124680e+02
## dteday2012-05-18  2.348467e+02
## dteday2012-05-19  0.000000e+00
## dteday2012-05-20  1.853977e+02
## dteday2012-05-21  0.000000e+00
## dteday2012-05-22  0.000000e+00
## dteday2012-05-23  0.000000e+00
## dteday2012-05-24  1.528669e+02
## dteday2012-05-25  1.456256e+02
## dteday2012-05-26  1.242901e+02
## dteday2012-05-27  1.280717e+02
## dteday2012-05-28  8.372941e+01
```

```
## dteday2012-05-29  0.000000e+00
## dteday2012-05-30  0.000000e+00
## dteday2012-05-31  0.000000e+00
## dteday2012-06-01 -6.593779e+01
## dteday2012-06-02  2.706549e+02
## dteday2012-06-03  2.273079e+02
## dteday2012-06-04  1.789798e+02
## dteday2012-06-05  1.952194e+02
## dteday2012-06-06  0.000000e+00
## dteday2012-06-07  2.171718e+02
## dteday2012-06-08  0.000000e+00
## dteday2012-06-09  0.000000e+00
## dteday2012-06-10  1.215288e+02
## dteday2012-06-11  1.462628e+02
## dteday2012-06-12  8.880844e+00
## dteday2012-06-13  0.000000e+00
## dteday2012-06-14  2.021731e+02
## dteday2012-06-15  2.276080e+02
## dteday2012-06-16  0.000000e+00
## dteday2012-06-17  1.684923e+02
## dteday2012-06-18  2.721164e+01
## dteday2012-06-19  1.496377e+02
## dteday2012-06-20  8.363527e+01
## dteday2012-06-21  4.832328e+01
## dteday2012-06-22  4.699495e+01
## dteday2012-06-23  1.921799e+02
## dteday2012-06-24  1.392199e+02
## dteday2012-06-25  1.426404e+02
## dteday2012-06-26  0.000000e+00
## dteday2012-06-27  1.902042e+02
## dteday2012-06-28  1.412631e+02
## dteday2012-06-29  6.859815e+00
## dteday2012-06-30  3.660878e+01
## dteday2012-07-01  1.797021e+01
## dteday2012-07-02  8.531014e+01
## dteday2012-07-03  0.000000e+00
## dteday2012-07-04  1.846290e+02
## dteday2012-07-05  7.624090e+01
## dteday2012-07-06  0.000000e+00
## dteday2012-07-07 -4.998906e+01
## dteday2012-07-08 -6.028696e+01
## dteday2012-07-09  1.358766e+02
## dteday2012-07-10  1.077632e+02
## dteday2012-07-11  1.830130e+02
## dteday2012-07-12  1.961980e+02
## dteday2012-07-13  2.066716e+02
## dteday2012-07-14  1.650790e+02
## dteday2012-07-15  6.907769e+01
## dteday2012-07-16  1.388253e+02
## dteday2012-07-17  1.254636e+02
## dteday2012-07-18  3.546153e+01
## dteday2012-07-19  1.157591e+02
## dteday2012-07-20  8.175097e+01
## dteday2012-07-21 -1.921727e+01
```

```
## dteday2012-07-22   2.068521e+02
## dteday2012-07-23   1.532085e+02
## dteday2012-07-24   2.077534e+02
## dteday2012-07-25   0.000000e+00
## dteday2012-07-26   0.000000e+00
## dteday2012-07-27   0.000000e+00
## dteday2012-07-28   1.227443e+02
## dteday2012-07-29   1.200599e+02
## dteday2012-07-30   1.668523e+02
## dteday2012-07-31   1.787906e+02
## dteday2012-08-01   2.097240e+02
## dteday2012-08-02   1.757625e+02
## dteday2012-08-03   0.000000e+00
## dteday2012-08-04   1.332046e+02
## dteday2012-08-05   2.041284e+01
## dteday2012-08-06   1.659615e+02
## dteday2012-08-07   0.000000e+00
## dteday2012-08-08   2.105812e+02
## dteday2012-08-09   0.000000e+00
## dteday2012-08-10   6.628465e+01
## dteday2012-08-11   1.106600e+02
## dteday2012-08-12   1.153751e+02
## dteday2012-08-13   1.465516e+02
## dteday2012-08-14   1.385271e+02
## dteday2012-08-15   1.898656e+02
## dteday2012-08-16   2.078139e+02
## dteday2012-08-17   0.000000e+00
## dteday2012-08-18   2.343621e+02
## dteday2012-08-19   0.000000e+00
## dteday2012-08-20   1.385596e+02
## dteday2012-08-21   0.000000e+00
## dteday2012-08-22   0.000000e+00
## dteday2012-08-23   0.000000e+00
## dteday2012-08-24   2.181694e+02
## dteday2012-08-25   0.000000e+00
## dteday2012-08-26   2.830413e+01
## dteday2012-08-27   1.534135e+02
## dteday2012-08-28   1.616730e+02
## dteday2012-08-29   0.000000e+00
## dteday2012-08-30   0.000000e+00
## dteday2012-08-31   1.820909e+02
## dteday2012-09-01   0.000000e+00
## dteday2012-09-02   5.503674e+01
## dteday2012-09-03   7.274028e+01
## dteday2012-09-04   1.427883e+02
## dteday2012-09-05   0.000000e+00
## dteday2012-09-06   0.000000e+00
## dteday2012-09-07   1.991133e+02
## dteday2012-09-08   0.000000e+00
## dteday2012-09-09   2.689569e+02
## dteday2012-09-10   0.000000e+00
## dteday2012-09-11   2.309150e+02
## dteday2012-09-12   2.399177e+02
## dteday2012-09-13   2.304911e+02
```

```
## dteday2012-09-14  2.471239e+02
## dteday2012-09-15  3.090811e+02
## dteday2012-09-16  1.901194e+02
## dteday2012-09-17  1.685089e+02
## dteday2012-09-18 -7.187405e+01
## dteday2012-09-19  2.233713e+02
## dteday2012-09-20  2.314030e+02
## dteday2012-09-21  2.665801e+02
## dteday2012-09-22  2.819061e+02
## dteday2012-09-23  2.545490e+02
## dteday2012-09-24  2.172851e+02
## dteday2012-09-25  2.251625e+02
## dteday2012-09-26  2.349261e+02
## dteday2012-09-27  2.105125e+02
## dteday2012-09-28  2.165850e+02
## dteday2012-09-29  3.101136e+02
## dteday2012-09-30  1.648168e+02
## dteday2012-10-01  0.000000e+00
## dteday2012-10-02  1.730912e+00
## dteday2012-10-03  2.338118e+02
## dteday2012-10-04  2.110314e+02
## dteday2012-10-05  0.000000e+00
## dteday2012-10-06  2.654067e+02
## dteday2012-10-07 -9.485872e+01
## dteday2012-10-08  0.000000e+00
## dteday2012-10-09  0.000000e+00
## dteday2012-10-10  2.500100e+02
## dteday2012-10-11  0.000000e+00
## dteday2012-10-12  0.000000e+00
## dteday2012-10-13  2.054750e+02
## dteday2012-10-14  1.562065e+02
## dteday2012-10-15  1.014181e+02
## dteday2012-10-16  0.000000e+00
## dteday2012-10-17  2.332008e+02
## dteday2012-10-18  2.446673e+02
## dteday2012-10-19  0.000000e+00
## dteday2012-10-20  0.000000e+00
## dteday2012-10-21  1.733825e+02
## dteday2012-10-22  0.000000e+00
## dteday2012-10-23  2.226342e+02
## dteday2012-10-24  2.376415e+02
## dteday2012-10-25  2.258131e+02
## dteday2012-10-26  0.000000e+00
## dteday2012-10-27  2.699177e+02
## dteday2012-10-28  0.000000e+00
## dteday2012-10-29 -3.791477e+02
## dteday2012-10-30 -2.919030e+02
## dteday2012-10-31  9.249490e+01
## dteday2012-11-01  1.301541e+02
## dteday2012-11-02  1.114300e+02
## dteday2012-11-03  0.000000e+00
## dteday2012-11-04  4.633757e+01
## dteday2012-11-05  6.505364e+01
## dteday2012-11-06  0.000000e+00
```

```
## dteday2012-11-07  6.192846e+01
## dteday2012-11-08  6.587799e+01
## dteday2012-11-09  1.215429e+02
## dteday2012-11-10  1.576872e+02
## dteday2012-11-11  1.839042e+02
## dteday2012-11-12  0.000000e+00
## dteday2012-11-13 -2.467851e+01
## dteday2012-11-14  8.739899e+01
## dteday2012-11-15  8.816557e+01
## dteday2012-11-16  0.000000e+00
## dteday2012-11-17  9.148615e+01
## dteday2012-11-18  1.014104e+01
## dteday2012-11-19  9.043626e+01
## dteday2012-11-20  0.000000e+00
## dteday2012-11-21  4.418650e+01
## dteday2012-11-22 -1.924442e+02
## dteday2012-11-23 -6.972900e+01
## dteday2012-11-24 -1.891128e+02
## dteday2012-11-25  0.000000e+00
## dteday2012-11-26  4.229038e+01
## dteday2012-11-27 -3.268033e+01
## dteday2012-11-28  0.000000e+00
## dteday2012-11-29  6.810993e+01
## dteday2012-11-30  0.000000e+00
## dteday2012-12-01  0.000000e+00
## dteday2012-12-02  0.000000e+00
## dteday2012-12-03  0.000000e+00
## dteday2012-12-04  1.675070e+02
## dteday2012-12-05  9.820625e+01
## dteday2012-12-06  0.000000e+00
## dteday2012-12-07  5.590641e+01
## dteday2012-12-08  9.804610e+01
## dteday2012-12-09 -1.047739e+02
## dteday2012-12-10  6.133650e+01
## dteday2012-12-11  9.993465e+01
## dteday2012-12-12  0.000000e+00
## dteday2012-12-13  9.071177e+01
## dteday2012-12-14  1.000395e+02
## dteday2012-12-15  4.468682e+01
## dteday2012-12-16 -5.639587e+01
## dteday2012-12-17  1.134211e+01
## dteday2012-12-18  8.336761e+01
## dteday2012-12-19  6.560338e+01
## dteday2012-12-20 -2.539670e+01
## dteday2012-12-21 -4.342354e+01
## dteday2012-12-22 -2.108619e+02
## dteday2012-12-23 -2.161195e+02
## dteday2012-12-24  0.000000e+00
## dteday2012-12-25  0.000000e+00
## dteday2012-12-26  0.000000e+00
## dteday2012-12-27 -1.687266e+02
## dteday2012-12-28  0.000000e+00
## dteday2012-12-29 -2.410769e+02
## dteday2012-12-30 -2.078680e+02
```

```
## dteday2012-12-31 -1.177735e+02
## seasonWinter     -1.484612e+02
## seasonSpring      4.075695e+01
## seasonSummer      8.523617e+01
## seasonFall        2.254141e+01
## yr                1.623642e+02
## mnthJanuary      -1.467855e+02
## mnthFebruary     -1.153378e+02
## mnthMarch        -4.957509e+01
## mnthApril         1.015064e+01
## mnthMay           5.596269e+01
## mnthJune          8.213989e+01
## mnthJuly          6.046172e+01
## mnthAugust        5.286862e+01
## mnthSeptember     1.125706e+02
## mnthOctober       3.056863e+01
## mnthNovember     -1.398587e+01
## mnthDecember     -6.808203e+01
## holiday          -5.412815e+01
## weekdaySunday    -7.383264e+00
## weekdayMonday    -9.148638e+00
## weekdayTuesday    3.615156e+00
## weekdayWednesday  1.355347e+00
## weekdayThursday   1.295668e+01
## weekdayFriday     2.429976e+00
## weekdaySaturday  -4.265006e+00
## workingday        1.163317e+01
## weathersitClear   7.218293e+01
## weathersitLight  -4.568678e+01
## weathersitMedium -2.051479e+02
## weathersitHeavy   0.000000e+00
## temp              3.984474e+02
## atemp             4.597868e+02
## hum              -1.187704e+02
## windspeed        -3.568417e+02
## casual            1.233298e-01
## registered        8.128376e-02
## fahrenheit        2.213619e+02
```

```r
as.matrix(coef(ridge_mod, s = "lambda.1se"))
```

```
##                             1
## (Intercept)      -3.306589e+03
## instant           3.796743e-01
## dteday2011-01-01 -2.188737e+02
## dteday2011-01-02 -2.323449e+02
## dteday2011-01-03 -1.832695e+02
## dteday2011-01-04  0.000000e+00
## dteday2011-01-05 -1.690196e+02
## dteday2011-01-06 -1.702807e+02
## dteday2011-01-07 -1.640431e+02
## dteday2011-01-08  0.000000e+00
## dteday2011-01-09 -2.153870e+02
## dteday2011-01-10 -1.812788e+02
```

```
## dteday2011-01-11 -1.810954e+02
## dteday2011-01-12  0.000000e+00
## dteday2011-01-13 -1.750295e+02
## dteday2011-01-14 -1.787086e+02
## dteday2011-01-15 -1.887302e+02
## dteday2011-01-16 -2.006359e+02
## dteday2011-01-17  0.000000e+00
## dteday2011-01-18 -2.307924e+02
## dteday2011-01-19 -1.590145e+02
## dteday2011-01-20 -1.360895e+02
## dteday2011-01-21 -1.630710e+02
## dteday2011-01-22 -2.024645e+02
## dteday2011-01-23 -2.027639e+02
## dteday2011-01-24 -1.711619e+02
## dteday2011-01-25 -1.289747e+02
## dteday2011-01-26 -2.268372e+02
## dteday2011-01-27 -2.629649e+02
## dteday2011-01-28  0.000000e+00
## dteday2011-01-29 -2.059208e+02
## dteday2011-01-30 -2.101981e+02
## dteday2011-01-31 -1.607711e+02
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## dteday2011-02-03 -1.702180e+02
## dteday2011-02-04 -1.533792e+02
## dteday2011-02-05 -2.069549e+02
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## dteday2011-02-07  0.000000e+00
## dteday2011-02-08  0.000000e+00
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## dteday2011-02-10 -1.691008e+02
## dteday2011-02-11 -1.598136e+02
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## dteday2011-02-13  0.000000e+00
## dteday2011-02-14  0.000000e+00
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## dteday2011-02-16 -1.392213e+02
## dteday2011-02-17 -1.230650e+02
## dteday2011-02-18 -9.431537e+01
## dteday2011-02-19 -1.811553e+02
## dteday2011-02-20 -1.611972e+02
## dteday2011-02-21 -1.997545e+02
## dteday2011-02-22 -1.793493e+02
## dteday2011-02-23 -1.508254e+02
## dteday2011-02-24 -1.501447e+02
## dteday2011-02-25 -1.815284e+02
## dteday2011-02-26 -1.478958e+02
## dteday2011-02-27 -1.205412e+02
## dteday2011-02-28  0.000000e+00
## dteday2011-03-01 -1.610570e+02
## dteday2011-03-02 -1.430228e+02
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## dteday2011-03-04 -1.429372e+02
## dteday2011-03-05 -1.418988e+02
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## dteday2011-03-08 -1.461029e+02
## dteday2011-03-09  0.000000e+00
## dteday2011-03-10 -2.556810e+02
## dteday2011-03-11  0.000000e+00
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## dteday2011-03-14 -1.545937e+02
## dteday2011-03-15 -1.408072e+02
## dteday2011-03-16 -1.330220e+02
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## dteday2011-03-18  0.000000e+00
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## dteday2011-03-21 -1.616407e+02
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## dteday2011-03-25 -1.483926e+02
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## dteday2011-03-28 -1.645890e+02
## dteday2011-03-29  0.000000e+00
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## dteday2011-04-03  0.000000e+00
## dteday2011-04-04  0.000000e+00
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## dteday2011-04-15 -9.308519e+01
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## dteday2011-04-21  0.000000e+00
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## dteday2011-04-24 -1.710831e+01
## dteday2011-04-25  0.000000e+00
## dteday2011-04-26  0.000000e+00
## dteday2011-04-27  0.000000e+00
## dteday2011-04-28 -2.734832e+01
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## dteday2011-05-07  0.000000e+00
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## dteday2011-05-11 -2.992855e+01
## dteday2011-05-12  0.000000e+00
## dteday2011-05-13 -1.972901e+01
## dteday2011-05-14  0.000000e+00
## dteday2011-05-15  9.583104e+00
## dteday2011-05-16  0.000000e+00
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## dteday2011-05-18  0.000000e+00
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## dteday2011-05-20  2.965893e+01
## dteday2011-05-21  9.164591e+01
## dteday2011-05-22  0.000000e+00
## dteday2011-05-23  0.000000e+00
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## dteday2011-05-30  0.000000e+00
## dteday2011-05-31  0.000000e+00
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## dteday2011-06-21  0.000000e+00
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## dteday2011-06-25  0.000000e+00
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## dteday2011-06-27  0.000000e+00
## dteday2011-06-28  0.000000e+00
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## dteday2011-07-04  0.000000e+00
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## dteday2011-08-19  0.000000e+00
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## dteday2011-08-23  0.000000e+00
## dteday2011-08-24  0.000000e+00
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## dteday2012-01-16  0.000000e+00
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## dteday2012-02-02  0.000000e+00
## dteday2012-02-03  0.000000e+00
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## dteday2012-02-05 -7.981760e+01
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## dteday2012-03-22   0.000000e+00
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## dteday2012-03-27   0.000000e+00
## dteday2012-03-28   8.750977e+01
## dteday2012-03-29   1.207169e+02
## dteday2012-03-30   8.498329e+01
## dteday2012-03-31   1.438582e+02
## dteday2012-04-01   1.201825e+02
## dteday2012-04-02   1.065688e+02
## dteday2012-04-03   0.000000e+00
## dteday2012-04-04   1.313947e+02
## dteday2012-04-05   1.429294e+02
## dteday2012-04-06   0.000000e+00
## dteday2012-04-07   1.710851e+02
## dteday2012-04-08   2.953044e+01
## dteday2012-04-09   7.275645e+01
## dteday2012-04-10   1.014203e+02
## dteday2012-04-11   0.000000e+00
## dteday2012-04-12   6.633618e+01
## dteday2012-04-13   1.364259e+02
## dteday2012-04-14   2.152964e+02
## dteday2012-04-15   1.788642e+02
## dteday2012-04-16   0.000000e+00
## dteday2012-04-17   1.468057e+02
## dteday2012-04-18   0.000000e+00
## dteday2012-04-19   1.436222e+02
## dteday2012-04-20   2.023283e+02
## dteday2012-04-21   0.000000e+00
## dteday2012-04-22  -2.584857e+02
## dteday2012-04-23  -8.791121e+01
## dteday2012-04-24   0.000000e+00
## dteday2012-04-25   1.170774e+02
## dteday2012-04-26   3.413826e+01
## dteday2012-04-27   1.271673e+02
## dteday2012-04-28  -2.327557e+01
## dteday2012-04-29   1.253345e+02
## dteday2012-04-30   8.097110e+01
## dteday2012-05-01   7.562916e+01
## dteday2012-05-02   1.064842e+02
## dteday2012-05-03   1.353892e+02
## dteday2012-05-04   1.091326e+02
## dteday2012-05-05   0.000000e+00
## dteday2012-05-06   1.276729e+02
## dteday2012-05-07   0.000000e+00
## dteday2012-05-08   8.139374e+01
## dteday2012-05-09  -1.597003e+00
## dteday2012-05-10   1.453479e+02
```

```
## dteday2012-05-11  0.000000e+00
## dteday2012-05-12  0.000000e+00
## dteday2012-05-13  0.000000e+00
## dteday2012-05-14 -1.520704e+02
## dteday2012-05-15  2.551883e+01
## dteday2012-05-16  0.000000e+00
## dteday2012-05-17  1.987393e+02
## dteday2012-05-18  2.194446e+02
## dteday2012-05-19  0.000000e+00
## dteday2012-05-20  1.738689e+02
## dteday2012-05-21  0.000000e+00
## dteday2012-05-22  0.000000e+00
## dteday2012-05-23  0.000000e+00
## dteday2012-05-24  1.439137e+02
## dteday2012-05-25  1.374288e+02
## dteday2012-05-26  1.178661e+02
## dteday2012-05-27  1.213822e+02
## dteday2012-05-28  8.012318e+01
## dteday2012-05-29  0.000000e+00
## dteday2012-05-30  0.000000e+00
## dteday2012-05-31  0.000000e+00
## dteday2012-06-01 -5.913381e+01
## dteday2012-06-02  2.527716e+02
## dteday2012-06-03  2.127423e+02
## dteday2012-06-04  1.676924e+02
## dteday2012-06-05  1.818227e+02
## dteday2012-06-06  0.000000e+00
## dteday2012-06-07  2.033067e+02
## dteday2012-06-08  0.000000e+00
## dteday2012-06-09  0.000000e+00
## dteday2012-06-10  1.157013e+02
## dteday2012-06-11  1.375508e+02
## dteday2012-06-12  9.965788e+00
## dteday2012-06-13  0.000000e+00
## dteday2012-06-14  1.896001e+02
## dteday2012-06-15  2.131775e+02
## dteday2012-06-16  0.000000e+00
## dteday2012-06-17  1.584087e+02
## dteday2012-06-18  2.655663e+01
## dteday2012-06-19  1.413003e+02
## dteday2012-06-20  8.094366e+01
## dteday2012-06-21  4.865672e+01
## dteday2012-06-22  4.710996e+01
## dteday2012-06-23  1.811891e+02
## dteday2012-06-24  1.323824e+02
## dteday2012-06-25  1.348778e+02
## dteday2012-06-26  0.000000e+00
## dteday2012-06-27  1.789562e+02
## dteday2012-06-28  1.341994e+02
## dteday2012-06-29  1.047320e+01
## dteday2012-06-30  3.738789e+01
## dteday2012-07-01  2.030003e+01
## dteday2012-07-02  8.229500e+01
## dteday2012-07-03  0.000000e+00
```

```
## dteday2012-07-04  1.741628e+02
## dteday2012-07-05  7.447054e+01
## dteday2012-07-06  0.000000e+00
## dteday2012-07-07 -4.208686e+01
## dteday2012-07-08 -5.188337e+01
## dteday2012-07-09  1.278678e+02
## dteday2012-07-10  1.020949e+02
## dteday2012-07-11  1.722451e+02
## dteday2012-07-12  1.846119e+02
## dteday2012-07-13  1.939506e+02
## dteday2012-07-14  1.551543e+02
## dteday2012-07-15  6.713652e+01
## dteday2012-07-16  1.316964e+02
## dteday2012-07-17  1.198864e+02
## dteday2012-07-18  3.646991e+01
## dteday2012-07-19  1.105210e+02
## dteday2012-07-20  7.745672e+01
## dteday2012-07-21 -1.731984e+01
## dteday2012-07-22  1.935687e+02
## dteday2012-07-23  1.448644e+02
## dteday2012-07-24  1.953014e+02
## dteday2012-07-25  0.000000e+00
## dteday2012-07-26  0.000000e+00
## dteday2012-07-27  0.000000e+00
## dteday2012-07-28  1.170031e+02
## dteday2012-07-29  1.142179e+02
## dteday2012-07-30  1.574040e+02
## dteday2012-07-31  1.683298e+02
## dteday2012-08-01  1.970104e+02
## dteday2012-08-02  1.659443e+02
## dteday2012-08-03  0.000000e+00
## dteday2012-08-04  1.267611e+02
## dteday2012-08-05  2.211422e+01
## dteday2012-08-06  1.561817e+02
## dteday2012-08-07  0.000000e+00
## dteday2012-08-08  1.974942e+02
## dteday2012-08-09  0.000000e+00
## dteday2012-08-10  6.363043e+01
## dteday2012-08-11  1.046449e+02
## dteday2012-08-12  1.099539e+02
## dteday2012-08-13  1.387476e+02
## dteday2012-08-14  1.312712e+02
## dteday2012-08-15  1.786390e+02
## dteday2012-08-16  1.955112e+02
## dteday2012-08-17  0.000000e+00
## dteday2012-08-18  2.197926e+02
## dteday2012-08-19  0.000000e+00
## dteday2012-08-20  1.300803e+02
## dteday2012-08-21  0.000000e+00
## dteday2012-08-22  0.000000e+00
## dteday2012-08-23  0.000000e+00
## dteday2012-08-24  2.043733e+02
## dteday2012-08-25  0.000000e+00
## dteday2012-08-26  2.797972e+01
```

```
## dteday2012-08-27  1.448548e+02
## dteday2012-08-28  1.526400e+02
## dteday2012-08-29  0.000000e+00
## dteday2012-08-30  0.000000e+00
## dteday2012-08-31  1.718840e+02
## dteday2012-09-01  0.000000e+00
## dteday2012-09-02  5.401919e+01
## dteday2012-09-03  7.044209e+01
## dteday2012-09-04  1.354679e+02
## dteday2012-09-05  0.000000e+00
## dteday2012-09-06  0.000000e+00
## dteday2012-09-07  1.875500e+02
## dteday2012-09-08  0.000000e+00
## dteday2012-09-09  2.517337e+02
## dteday2012-09-10  0.000000e+00
## dteday2012-09-11  2.165651e+02
## dteday2012-09-12  2.248644e+02
## dteday2012-09-13  2.163495e+02
## dteday2012-09-14  2.317758e+02
## dteday2012-09-15  2.890075e+02
## dteday2012-09-16  1.789166e+02
## dteday2012-09-17  1.579027e+02
## dteday2012-09-18 -6.460005e+01
## dteday2012-09-19  2.091551e+02
## dteday2012-09-20  2.167684e+02
## dteday2012-09-21  2.494626e+02
## dteday2012-09-22  2.638000e+02
## dteday2012-09-23  2.378665e+02
## dteday2012-09-24  2.032876e+02
## dteday2012-09-25  2.105931e+02
## dteday2012-09-26  2.199731e+02
## dteday2012-09-27  1.970886e+02
## dteday2012-09-28  2.024818e+02
## dteday2012-09-29  2.893148e+02
## dteday2012-09-30  1.549466e+02
## dteday2012-10-01  0.000000e+00
## dteday2012-10-02  2.129861e+00
## dteday2012-10-03  2.181923e+02
## dteday2012-10-04  1.972260e+02
## dteday2012-10-05  0.000000e+00
## dteday2012-10-06  2.475792e+02
## dteday2012-10-07 -8.706999e+01
## dteday2012-10-08  0.000000e+00
## dteday2012-10-09  0.000000e+00
## dteday2012-10-10  2.329548e+02
## dteday2012-10-11  0.000000e+00
## dteday2012-10-12  0.000000e+00
## dteday2012-10-13  1.914813e+02
## dteday2012-10-14  1.462390e+02
## dteday2012-10-15  9.493965e+01
## dteday2012-10-16  0.000000e+00
## dteday2012-10-17  2.172628e+02
## dteday2012-10-18  2.273875e+02
## dteday2012-10-19  0.000000e+00
```

```
## dteday2012-10-20  0.000000e+00
## dteday2012-10-21  1.621291e+02
## dteday2012-10-22  0.000000e+00
## dteday2012-10-23  2.080672e+02
## dteday2012-10-24  2.221935e+02
## dteday2012-10-25  2.102644e+02
## dteday2012-10-26  0.000000e+00
## dteday2012-10-27  2.509399e+02
## dteday2012-10-28  0.000000e+00
## dteday2012-10-29 -3.512006e+02
## dteday2012-10-30 -2.698943e+02
## dteday2012-10-31  8.583147e+01
## dteday2012-11-01  1.205762e+02
## dteday2012-11-02  1.036570e+02
## dteday2012-11-03  0.000000e+00
## dteday2012-11-04  4.343861e+01
## dteday2012-11-05  6.051856e+01
## dteday2012-11-06  0.000000e+00
## dteday2012-11-07  5.670294e+01
## dteday2012-11-08  6.152418e+01
## dteday2012-11-09  1.131493e+02
## dteday2012-11-10  1.471279e+02
## dteday2012-11-11  1.713743e+02
## dteday2012-11-12  0.000000e+00
## dteday2012-11-13 -2.317273e+01
## dteday2012-11-14  8.110368e+01
## dteday2012-11-15  8.148612e+01
## dteday2012-11-16  0.000000e+00
## dteday2012-11-17  8.524517e+01
## dteday2012-11-18  9.822362e+00
## dteday2012-11-19  8.366094e+01
## dteday2012-11-20  0.000000e+00
## dteday2012-11-21  4.182113e+01
## dteday2012-11-22 -1.771086e+02
## dteday2012-11-23 -6.316643e+01
## dteday2012-11-24 -1.748104e+02
## dteday2012-11-25  0.000000e+00
## dteday2012-11-26  3.991729e+01
## dteday2012-11-27 -3.076124e+01
## dteday2012-11-28  0.000000e+00
## dteday2012-11-29  6.352749e+01
## dteday2012-11-30  0.000000e+00
## dteday2012-12-01  0.000000e+00
## dteday2012-12-02  0.000000e+00
## dteday2012-12-03  0.000000e+00
## dteday2012-12-04  1.559611e+02
## dteday2012-12-05  9.153704e+01
## dteday2012-12-06  0.000000e+00
## dteday2012-12-07  5.130118e+01
## dteday2012-12-08  9.059809e+01
## dteday2012-12-09 -9.711113e+01
## dteday2012-12-10  5.669013e+01
## dteday2012-12-11  9.194089e+01
## dteday2012-12-12  0.000000e+00
```

```
## dteday2012-12-13   8.417194e+01
## dteday2012-12-14   9.264158e+01
## dteday2012-12-15   4.173640e+01
## dteday2012-12-16  -5.233436e+01
## dteday2012-12-17   1.044532e+01
## dteday2012-12-18   7.780157e+01
## dteday2012-12-19   6.101287e+01
## dteday2012-12-20  -2.360323e+01
## dteday2012-12-21  -4.171828e+01
## dteday2012-12-22  -1.962800e+02
## dteday2012-12-23  -2.006856e+02
## dteday2012-12-24   0.000000e+00
## dteday2012-12-25   0.000000e+00
## dteday2012-12-26   0.000000e+00
## dteday2012-12-27  -1.578946e+02
## dteday2012-12-28   0.000000e+00
## dteday2012-12-29  -2.245568e+02
## dteday2012-12-30  -1.934872e+02
## dteday2012-12-31  -1.106045e+02
## seasonWinter      -1.408909e+02
## seasonSpring       3.839214e+01
## seasonSummer       8.175345e+01
## seasonFall         2.080615e+01
## yr                 1.523176e+02
## mnthJanuary       -1.394459e+02
## mnthFebruary      -1.096998e+02
## mnthMarch         -4.754237e+01
## mnthApril          9.393054e+00
## mnthMay            5.278501e+01
## mnthJune           7.815944e+01
## mnthJuly           5.853539e+01
## mnthAugust         5.103711e+01
## mnthSeptember      1.061033e+02
## mnthOctober        2.848045e+01
## mnthNovember      -1.322616e+01
## mnthDecember      -6.423374e+01
## holiday           -5.006890e+01
## weekdaySunday     -6.529487e+00
## weekdayMonday     -8.613074e+00
## weekdayTuesday     3.345819e+00
## weekdayWednesday   1.190486e+00
## weekdayThursday    1.206586e+01
## weekdayFriday      2.131849e+00
## weekdaySaturday   -4.044464e+00
## workingday         1.063834e+01
## weathersitClear    6.798168e+01
## weathersitLight   -4.320864e+01
## weathersitMedium  -1.919627e+02
## weathersitHeavy    0.000000e+00
## temp               3.788195e+02
## atemp              4.369180e+02
## hum               -1.103187e+02
## windspeed         -3.361577e+02
## casual             1.161072e-01
```

```
## registered        7.630663e-02
## fahrenheit        2.104564e+02
```

- Lambda.min esxcludes 226 variables by giving them a 0 coefficient, compared to lambda.1se, which excludes 228 variables. Other than that I don't notice any obvious differences between the two lambda variable coefficients.

k. Lasso Model - YEEEEHAWWW!!

```
lasso_mod <- cv.glmnet(cnt ~ .,
                       data = bike_train,
                       alpha = 1)
```

l. Lasso Model's variables

```
as.matrix(coef(lasso_mod, s = "lambda.min"))
```

```
##                            1
## (Intercept)      130.6370953
## instant            0.0000000
## dteday2011-01-01   0.0000000
## dteday2011-01-02   0.0000000
## dteday2011-01-03   0.0000000
## dteday2011-01-04   0.0000000
## dteday2011-01-05   0.0000000
## dteday2011-01-06   0.0000000
## dteday2011-01-07   0.0000000
## dteday2011-01-08   0.0000000
## dteday2011-01-09   0.0000000
## dteday2011-01-10   0.0000000
## dteday2011-01-11   0.0000000
## dteday2011-01-12   0.0000000
## dteday2011-01-13   0.0000000
## dteday2011-01-14   0.0000000
## dteday2011-01-15   0.0000000
## dteday2011-01-16   0.0000000
## dteday2011-01-17   0.0000000
## dteday2011-01-18   0.0000000
## dteday2011-01-19   0.0000000
## dteday2011-01-20   0.0000000
## dteday2011-01-21   0.0000000
## dteday2011-01-22   0.0000000
## dteday2011-01-23   0.0000000
## dteday2011-01-24   0.0000000
## dteday2011-01-25   0.0000000
## dteday2011-01-26   0.0000000
## dteday2011-01-27   0.0000000
## dteday2011-01-28   0.0000000
## dteday2011-01-29   0.0000000
## dteday2011-01-30   0.0000000
## dteday2011-01-31   0.0000000
## dteday2011-02-01   0.0000000
```

```
## dteday2011-02-02   0.0000000
## dteday2011-02-03   0.0000000
## dteday2011-02-04   0.0000000
## dteday2011-02-05   0.0000000
## dteday2011-02-06   0.0000000
## dteday2011-02-07   0.0000000
## dteday2011-02-08   0.0000000
## dteday2011-02-09   0.0000000
## dteday2011-02-10   0.0000000
## dteday2011-02-11   0.0000000
## dteday2011-02-12   0.0000000
## dteday2011-02-13   0.0000000
## dteday2011-02-14   0.0000000
## dteday2011-02-15   0.0000000
## dteday2011-02-16   0.0000000
## dteday2011-02-17   0.0000000
## dteday2011-02-18   0.0000000
## dteday2011-02-19   0.0000000
## dteday2011-02-20   0.0000000
## dteday2011-02-21   0.0000000
## dteday2011-02-22   0.0000000
## dteday2011-02-23   0.0000000
## dteday2011-02-24   0.0000000
## dteday2011-02-25   0.0000000
## dteday2011-02-26   0.0000000
## dteday2011-02-27   0.0000000
## dteday2011-02-28   0.0000000
## dteday2011-03-01   0.0000000
## dteday2011-03-02   0.0000000
## dteday2011-03-03   0.0000000
## dteday2011-03-04   0.0000000
## dteday2011-03-05   0.0000000
## dteday2011-03-06   0.0000000
## dteday2011-03-07   0.0000000
## dteday2011-03-08   0.0000000
## dteday2011-03-09   0.0000000
## dteday2011-03-10   0.0000000
## dteday2011-03-11   0.0000000
## dteday2011-03-12   0.0000000
## dteday2011-03-13   0.0000000
## dteday2011-03-14   0.0000000
## dteday2011-03-15   0.0000000
## dteday2011-03-16   0.0000000
## dteday2011-03-17   0.0000000
## dteday2011-03-18   0.0000000
## dteday2011-03-19   0.0000000
## dteday2011-03-20   0.0000000
## dteday2011-03-21   0.0000000
## dteday2011-03-22   0.0000000
## dteday2011-03-23   0.0000000
## dteday2011-03-24   0.0000000
## dteday2011-03-25   0.0000000
## dteday2011-03-26   0.0000000
## dteday2011-03-27   0.0000000
```

```
## dteday2011-03-28    0.0000000
## dteday2011-03-29    0.0000000
## dteday2011-03-30    0.0000000
## dteday2011-03-31    0.0000000
## dteday2011-04-01    0.0000000
## dteday2011-04-02    0.0000000
## dteday2011-04-03    0.0000000
## dteday2011-04-04    0.0000000
## dteday2011-04-05    0.0000000
## dteday2011-04-06    0.0000000
## dteday2011-04-07    0.0000000
## dteday2011-04-08    0.0000000
## dteday2011-04-09    0.0000000
## dteday2011-04-10    0.0000000
## dteday2011-04-11    0.0000000
## dteday2011-04-12    0.0000000
## dteday2011-04-13    0.0000000
## dteday2011-04-14    0.0000000
## dteday2011-04-15    0.0000000
## dteday2011-04-16    0.0000000
## dteday2011-04-17    0.0000000
## dteday2011-04-18    0.0000000
## dteday2011-04-19    0.0000000
## dteday2011-04-20    0.0000000
## dteday2011-04-21    0.0000000
## dteday2011-04-22    0.0000000
## dteday2011-04-23    0.0000000
## dteday2011-04-24    0.0000000
## dteday2011-04-25    0.0000000
## dteday2011-04-26    0.0000000
## dteday2011-04-27    0.0000000
## dteday2011-04-28    0.0000000
## dteday2011-04-29    0.0000000
## dteday2011-04-30    0.0000000
## dteday2011-05-01    0.0000000
## dteday2011-05-02    0.0000000
## dteday2011-05-03    0.0000000
## dteday2011-05-04    0.0000000
## dteday2011-05-05    0.0000000
## dteday2011-05-06    0.0000000
## dteday2011-05-07    0.0000000
## dteday2011-05-08    0.0000000
## dteday2011-05-09    0.0000000
## dteday2011-05-10    0.0000000
## dteday2011-05-11    0.0000000
## dteday2011-05-12    0.0000000
## dteday2011-05-13    0.0000000
## dteday2011-05-14    0.0000000
## dteday2011-05-15    0.0000000
## dteday2011-05-16    0.0000000
## dteday2011-05-17    0.0000000
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## dteday2012-11-08    0.0000000
## dteday2012-11-09    0.0000000
## dteday2012-11-10    0.0000000
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## dteday2012-12-27    0.0000000
## dteday2012-12-28    0.0000000
## dteday2012-12-29    0.0000000
## dteday2012-12-30    0.0000000
## dteday2012-12-31    0.0000000
## seasonWinter        0.0000000
## seasonSpring        0.0000000
## seasonSummer        0.0000000
```

```
## seasonFall           0.0000000
## yr                    0.0000000
## mnthJanuary           0.0000000
## mnthFebruary          0.0000000
## mnthMarch             0.0000000
## mnthApril             0.0000000
## mnthMay               0.0000000
## mnthJune              0.0000000
## mnthJuly              0.0000000
## mnthAugust            0.0000000
## mnthSeptember         0.0000000
## mnthOctober           0.0000000
## mnthNovember          0.0000000
## mnthDecember          0.0000000
## holiday               0.0000000
## weekdaySunday         0.0000000
## weekdayMonday         0.0000000
## weekdayTuesday        0.0000000
## weekdayWednesday      0.0000000
## weekdayThursday       0.0000000
## weekdayFriday         0.0000000
## weekdaySaturday       0.0000000
## workingday            0.0000000
## weathersitClear       0.0000000
## weathersitLight       0.0000000
## weathersitMedium      0.0000000
## weathersitHeavy       0.0000000
## temp                  0.0000000
## atemp                 0.0000000
## hum                   0.0000000
## windspeed             0.0000000
## casual                0.9473542
## registered            0.9764899
## fahrenheit            0.0000000
```

```r
as.matrix(coef(lasso_mod, s = "lambda.1se"))
```

```
##                             1
## (Intercept)       130.6370953
## instant             0.0000000
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## dteday2011-01-02    0.0000000
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## dteday2011-01-05    0.0000000
## dteday2011-01-06    0.0000000
## dteday2011-01-07    0.0000000
## dteday2011-01-08    0.0000000
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## dteday2011-01-10    0.0000000
## dteday2011-01-11    0.0000000
## dteday2011-01-12    0.0000000
## dteday2011-01-13    0.0000000
## dteday2011-01-14    0.0000000
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## dteday2011-01-15    0.0000000
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## dteday2011-01-18    0.0000000
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## dteday2011-03-09    0.0000000
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## dteday2011-05-02    0.0000000
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## dteday2012-03-31   0.0000000
## dteday2012-04-01   0.0000000
## dteday2012-04-02   0.0000000
## dteday2012-04-03   0.0000000
## dteday2012-04-04   0.0000000
## dteday2012-04-05   0.0000000
## dteday2012-04-06   0.0000000
## dteday2012-04-07   0.0000000
## dteday2012-04-08   0.0000000
## dteday2012-04-09   0.0000000
## dteday2012-04-10   0.0000000
## dteday2012-04-11   0.0000000
## dteday2012-04-12   0.0000000
## dteday2012-04-13   0.0000000
## dteday2012-04-14   0.0000000
## dteday2012-04-15   0.0000000
## dteday2012-04-16   0.0000000
## dteday2012-04-17   0.0000000
## dteday2012-04-18   0.0000000
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## dteday2012-04-26   0.0000000
## dteday2012-04-27   0.0000000
## dteday2012-04-28   0.0000000
## dteday2012-04-29   0.0000000
## dteday2012-04-30   0.0000000
## dteday2012-05-01   0.0000000
## dteday2012-05-02   0.0000000
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## dteday2012-05-12   0.0000000
## dteday2012-05-13   0.0000000
## dteday2012-05-14   0.0000000
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## dteday2012-05-15    0.0000000
## dteday2012-05-16    0.0000000
## dteday2012-05-17    0.0000000
## dteday2012-05-18    0.0000000
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## dteday2012-07-06    0.0000000
## dteday2012-07-07    0.0000000
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## dteday2012-07-08    0.0000000
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## dteday2012-08-29    0.0000000
## dteday2012-08-30    0.0000000
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## dteday2012-08-31   0.0000000
## dteday2012-09-01   0.0000000
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## dteday2012-09-11   0.0000000
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## dteday2012-09-29   0.0000000
## dteday2012-09-30   0.0000000
## dteday2012-10-01   0.0000000
## dteday2012-10-02   0.0000000
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## dteday2012-10-04   0.0000000
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## dteday2012-10-16   0.0000000
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## dteday2012-10-21   0.0000000
## dteday2012-10-22   0.0000000
## dteday2012-10-23   0.0000000
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## dteday2012-10-24    0.0000000
## dteday2012-10-25    0.0000000
## dteday2012-10-26    0.0000000
## dteday2012-10-27    0.0000000
## dteday2012-10-28    0.0000000
## dteday2012-10-29    0.0000000
## dteday2012-10-30    0.0000000
## dteday2012-10-31    0.0000000
## dteday2012-11-01    0.0000000
## dteday2012-11-02    0.0000000
## dteday2012-11-03    0.0000000
## dteday2012-11-04    0.0000000
## dteday2012-11-05    0.0000000
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## dteday2012-11-21    0.0000000
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## dteday2012-11-24    0.0000000
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## dteday2012-11-27    0.0000000
## dteday2012-11-28    0.0000000
## dteday2012-11-29    0.0000000
## dteday2012-11-30    0.0000000
## dteday2012-12-01    0.0000000
## dteday2012-12-02    0.0000000
## dteday2012-12-03    0.0000000
## dteday2012-12-04    0.0000000
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## dteday2012-12-06    0.0000000
## dteday2012-12-07    0.0000000
## dteday2012-12-08    0.0000000
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## dteday2012-12-10    0.0000000
## dteday2012-12-11    0.0000000
## dteday2012-12-12    0.0000000
## dteday2012-12-13    0.0000000
## dteday2012-12-14    0.0000000
## dteday2012-12-15    0.0000000
## dteday2012-12-16    0.0000000
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## dteday2012-12-17    0.0000000
## dteday2012-12-18    0.0000000
## dteday2012-12-19    0.0000000
## dteday2012-12-20    0.0000000
## dteday2012-12-21    0.0000000
## dteday2012-12-22    0.0000000
## dteday2012-12-23    0.0000000
## dteday2012-12-24    0.0000000
## dteday2012-12-25    0.0000000
## dteday2012-12-26    0.0000000
## dteday2012-12-27    0.0000000
## dteday2012-12-28    0.0000000
## dteday2012-12-29    0.0000000
## dteday2012-12-30    0.0000000
## dteday2012-12-31    0.0000000
## seasonWinter        0.0000000
## seasonSpring        0.0000000
## seasonSummer        0.0000000
## seasonFall          0.0000000
## yr                  0.0000000
## mnthJanuary         0.0000000
## mnthFebruary        0.0000000
## mnthMarch           0.0000000
## mnthApril           0.0000000
## mnthMay             0.0000000
## mnthJune            0.0000000
## mnthJuly            0.0000000
## mnthAugust          0.0000000
## mnthSeptember       0.0000000
## mnthOctober         0.0000000
## mnthNovember        0.0000000
## mnthDecember        0.0000000
## holiday             0.0000000
## weekdaySunday       0.0000000
## weekdayMonday       0.0000000
## weekdayTuesday      0.0000000
## weekdayWednesday    0.0000000
## weekdayThursday     0.0000000
## weekdayFriday       0.0000000
## weekdaySaturday     0.0000000
## workingday          0.0000000
## weathersitClear     0.0000000
## weathersitLight     0.0000000
## weathersitMedium    0.0000000
## weathersitHeavy     0.0000000
## temp                0.0000000
## atemp               0.0000000
## hum                 0.0000000
## windspeed           0.0000000
## casual              0.9473542
## registered          0.9764899
## fahrenheit          0.0000000
```

- Lasso with lambda = lambda.min uses only the variables: casual = 0.9473542 and registered =

0.9764899 (format: variable = coefficient)

- Lasso with lambda = lambda.1se uses only the variables: casual = 0.9473542 and registered = 0.9764899
- So, each version of the model uses 2 variables.

m. Ridge or Lasso? Which to use here?

- Ridge is generally used when your data has a lot of variables, with each of them having a slight significant impact on the outcome of the model, whereas Lasso is generally used when you have a few big-boy variables with a large significant impact on the model's outcome.
- Here, I would definitely use a ridge model, becasue there are so many variables in this data set, and they all seem to hold a good amount of significance when we plotted them, even as lambda grew / shrunk. Lasso would exclude these important variables from the model, and in this case we should keep them by using Ridge.