

Feedback — Quiz 4 - ****Please Note: No Grace Period**** [Help](#)

You submitted this quiz on **Mon 26 Jan 2015 12:39 AM PST**. You got a score of **15.00** out of **15.00**.


Question 1

Load the vowel.train and vowel.test data sets:

```
library(ElemStatLearn)
data(vowel.train)
data(vowel.test)
```

Set the variable y to be a factor variable in both the training and test set. Then set the seed to 33833. Fit (1) a random forest predictor relating the factor variable y to the remaining variables and (2) a boosted predictor using the "gbm" method. Fit these both with the train() command in the caret package.

What are the accuracies for the two approaches on the test data set? What is the accuracy among the test set samples where the two methods agree?

| Your Answer | Score | Explanation |
|---|--|-------------|
| <input type="radio"/> RF Accuracy = 0.9881 GBM Accuracy = 0.8371 Agreement Accuracy = 0.9983 | | |
| <input type="radio"/> RF Accuracy = 0.6061 GBM Accuracy = 0.6518 Agreement Accuracy = 0.5325 | | |
| <input type="radio"/> RF Accuracy = 0.3233 GBM Accuracy = 0.8371 Agreement Accuracy = 0.9983 | | |
| <input checked="" type="radio"/> RF Accuracy = 0.6061 GBM Accuracy = 0.5325 Agreement Accuracy = 0.6518 |  3.00 | |

Total

3.00 / 3.00

Question 2

Load the Alzheimer's data using the following commands

```
library(caret)
library(gbm)
set.seed(3433)
library(AppliedPredictiveModeling)
data(AlzheimerDisease)
adData = data.frame(diagnosis,predictors)
inTrain = createDataPartition(adData$diagnosis, p = 3/4)[[1]]
training = adData[ inTrain,]
testing = adData[-inTrain,]
```

Set the seed to 62433 and predict diagnosis with all the other variables using a random forest ("rf"), boosted trees ("gbm") and linear discriminant analysis ("lda") model. Stack the predictions together using random forests ("rf"). What is the resulting accuracy on the test set? Is it better or worse than each of the individual predictions?

| Your Answer | Score | Explanation |
|---|-------------|-------------|
| <input type="radio"/> Stacked Accuracy: 0.76 is better than lda but not random forests or boosting. | | |
| <input checked="" type="radio"/> Stacked Accuracy: 0.79 is better than random forests and lda and the same as boosting. | ✓ 3.00 | |
| <input type="radio"/> Stacked Accuracy: 0.76 is better than random forests and boosting, but not lda. | | |
| <input type="radio"/> Stacked Accuracy: 0.79 is worse than all the other methods. | | |
| Total | 3.00 / 3.00 | |

Question 3

Load the concrete data with the commands:

```
set.seed(3523)
library(AppliedPredictiveModeling)
data(concrete)
inTrain = createDataPartition(concrete$CompressiveStrength, p = 3/4)[[1]]
training = concrete[ inTrain,]
testing = concrete[-inTrain,]
```

Set the seed to 233 and fit a lasso model to predict Compressive Strength. Which variable is the last coefficient to be set to zero as the penalty increases? (Hint: it may be useful to look up ? plot.enet).

| Your Answer | Score | Explanation |
|---|-------------|-------------|
| <input type="radio"/> Water | | |
| <input checked="" type="radio"/> Cement | ✓ 3.00 | |
| <input type="radio"/> FineAggregate | | |
| <input type="radio"/> Age | | |
| Total | 3.00 / 3.00 | |

Question 4

Load the data on the number of visitors to the instructors blog from here:

<https://d396qusza40orc.cloudfront.net/predmachlearn/gaData.csv>

Using the commands:

```
library(lubridate) # For year() function below
dat = read.csv("~/Desktop/gaData.csv")
training = dat[year(dat$date) < 2012,]
testing = dat[(year(dat$date)) > 2011,]
tstrain = ts(training$visitsTumblr)
```

Fit a model using the `bats()` function in the `forecast` package to the training time series. Then forecast this model for the remaining time points. For how many of the testing points is the true value within the 95% prediction interval bounds?

| Your Answer | Score | Explanation |
|--------------------------------------|-------------|-------------|
| <input checked="" type="radio"/> 96% | 3.00 | |
| <input type="radio"/> 93% | | |
| <input type="radio"/> 94% | | |
| <input type="radio"/> 100% | | |
| Total | 3.00 / 3.00 | |

Question 5

Load the concrete data with the commands:

```
set.seed(3523)
library(AppliedPredictiveModeling)
data(concrete)
inTrain = createDataPartition(concrete$CompressiveStrength, p = 3/4)[[1]]
training = concrete[ inTrain,]
testing = concrete[-inTrain,]
```

Set the seed to 325 and fit a support vector machine using the `e1071` package to predict Compressive Strength using the default settings. Predict on the testing set. What is the RMSE?

| Your Answer | Score | Explanation |
|---------------------------------------|-------------|-------------|
| <input type="radio"/> 6.93 | | |
| <input type="radio"/> 35.59 | | |
| <input checked="" type="radio"/> 6.72 | 3.00 | |
| <input type="radio"/> 107.44 | | |
| Total | 3.00 / 3.00 | |

