

```

> library(caret)
> data(iris)
> dim(iris)
[1] 150 5
> head(iris)
  Sepal.Length Sepal.Width Petal.Length Petal.Width Species
1         5.1         3.5         1.4         0.2  setosa
2         4.9         3.0         1.4         0.2  setosa
3         4.7         3.2         1.3         0.2  setosa
4         4.6         3.1         1.5         0.2  setosa
5         5.0         3.6         1.4         0.2  setosa
6         5.4         3.9         1.7         0.4  setosa
> unique(iris$Species)
[1] setosa  versicolor virginica
Levels: setosa versicolor virginica
> iris <- iris[-which(iris$Species=='setosa'),]
> dim(iris)
[1] 100 5
> head(iris)
  Sepal.Length Sepal.Width Petal.Length Petal.Width Species
51         7.0         3.2         4.7         1.4 versicolor
52         6.4         3.2         4.5         1.5 versicolor
53         6.9         3.1         4.9         1.5 versicolor
54         5.5         2.3         4.0         1.3 versicolor
55         6.5         2.8         4.6         1.5 versicolor
56         5.7         2.8         4.5         1.3 versicolor
> y <- iris$Species
> set.seed(2, sample.kind = "Rounding")
Warning message:
In set.seed(2, sample.kind = "Rounding") :
  non-uniform 'Rounding' sampler used
> test_index <- createDataPartition(y,times=1,p=0.5,list=FALSE)
Warning message:
In createDataPartition(y, times = 1, p = 0.5, list = FALSE) :
  Some classes have no records ( setosa ) and these will be ignored
> train <- iris[-test_index, ]
> test <- iris[test_index, ]
> dim(train)
[1] 50 5
> dim(test)
[1] 50 5
>
>
> range(iris$Sepal.Length)
[1] 4.9 7.9
> range(iris$Sepal.Width)
[1] 2.0 3.8
> range(iris$Petal.Length)
[1] 3.0 6.9
> range(iris$Petal.Width)
[1] 1.0 2.5
> head(train[, -5])
  Sepal.Length Sepal.Width Petal.Length Petal.Width
54         5.5         2.3         4.0         1.3
56         5.7         2.8         4.5         1.3
58         4.9         2.4         3.3         1.0
61         5.0         2.0         3.5         1.0
62         5.9         3.0         4.2         1.5
65         5.6         2.9         3.6         1.3
> foo <- function(x){
+   rangedValues <- seq(range(x)[1],range(x)[2],by=0.1)
+   sapply(rangedValues,function(i){
+     y_hat <- ifelse(x>i,'virginica','versicolor')
+     mean(y_hat==train$Species)
+   })

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+ }
> predictions <- apply(train[,-5],2,foo)
> sapply(predictions, max)
Sepal.Length Sepal.Width Petal.Length Petal.Width
      0.84      0.68      0.92      0.92
>
>
> predictions <- foo(train[,3])
> rangedValues <- seq(range(train[,3])[1],range(train[,3])[2],by=0.1)
> cutoffs <-rangedValues[which(predictions==max(predictions))]
>
> y_hat <- ifelse(test[,3]>cutoffs[1],'virginica','versicolor')
> mean(y_hat==test$Species)
[1] 0.94
>

```