

Cross-Validation-in-R.R

patriciamaya

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```
library(ISLR)

## Warning: package 'ISLR' was built under R version 4.0.2

data("Carseats")
attach(Carseats)

High <- as.factor(ifelse(Sales >= 8, "YES", "NO"))
Data <- data.frame(Carseats, High)
Data <- Data[-1]
colnames(Data)[11] <- "Target"

Data <- Data[sample(nrow(Data)), ]

k <- 10
nmethod <- 1
folds <- cut(seq(1,nrow(Data)),breaks=k,labels=FALSE)
model.err <- matrix(-1, k, nmethod, dimnames=list(paste0("Fold", 1:k), c("LogitReg")))

for(i in 1:k)
{
  testindexes <- which(folds==i, arr.ind=TRUE)
  test <- Data[testindexes, ]
  train <- Data[-testindexes, ]

  LogitModel<- glm(Target~., data = train, family = "binomial")
  predicted <- predict(LogitModel, newdata = test, type = "response")
  pred_class <- as.factor(ifelse(predicted >= 0.5,"YES", "NO"))
  model.err[i] <- mean(test$Target != pred_class)
}

model.err

##           LogitReg
## Fold1      0.050
## Fold2      0.100
## Fold3      0.125
## Fold4      0.200
## Fold5      0.075
## Fold6      0.150
```

```
## Fold7      0.050
## Fold8      0.075
## Fold9      0.150
## Fold10     0.100
```

```
mean(model.err)
```

```
## [1] 0.1075
```