

Exercise 3

```
##### k-Fold Cross-Validation #####
```

```
set.seed(17)
```

```
# Now we calculate the k-fold CV test error for polynomial regression models of degree 1,...,10.  
# Notice that the computation time is much shorter than that of LOOCV.
```

```
cv.error.10=rep(0,10)  
for (i in 1:10){  
  glm.fit=glm(mpg~poly(horsepower,i),data=Auto)  
  cv.error.10[i]=cv.glm(Auto,glm.fit,K=10)$delta[1] # Setting K=10 means 10-fold CV  
}  
cv.error.10
```

```
# Plot the results  
plot(cv.error.10~x, col="blue")  
lines(cv.error.10~x, col="blue")
```