homewos03

Lee JongCheol

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202482123 이종철 과제3

```
library(tree)
```

```
## Warning:    'tree'  R    4.4.2
```

```
library(ISLR)
data(Auto)
x <- scale(Auto[,3:7])
y <- Auto$mpg
```

```
summary(cbind(x,target=y))
```

```
##   displacement       horsepower          weight         acceleration
##  Min.   :-1.2080   Min.   :-1.5190   Min.   :-1.6065   Min.   :-2.73349
##  1st Qu.:-0.8544   1st Qu.:-0.7656   1st Qu.:-0.8857   1st Qu.:-0.64024
##  Median :-0.4149   Median :-0.2850   Median :-0.2049   Median :-0.01498
##  Mean   : 0.0000   Mean   : 0.0000   Mean   : 0.0000   Mean   : 0.00000
##  3rd Qu.: 0.7773   3rd Qu.: 0.5594   3rd Qu.: 0.7501   3rd Qu.: 0.53778
##  Max.   : 2.4902   Max.   : 3.2613   Max.   : 2.5458   Max.   : 3.35597
##       year              target
##  Min.   :-1.62324   Min.   : 9.00
##  1st Qu.:-0.80885   1st Qu.:17.00
##  Median : 0.00554   Median :22.75
##  Mean   : 0.00000   Mean   :23.45
##  3rd Qu.: 0.81993   3rd Qu.:29.00
##  Max.   : 1.63432   Max.   :46.60
```

```
dim(cbind(x,target=y))
```

```
## [1] 392   6
```

- 5 predictors and 1 target variable.
- 392 samples

mpg(target): 연비
displacement: 배기량
horsepower: 마력
weight: 차량 무게 (파운드)
acceleration: 가속도 (0-60mph 도달 시간)
year: 제조 연도 (마지막 두 자리 숫자)

5-fold CV setting

```
set.seed(13579)
gr <- sample(rep(seq(5), length=length(y)))
```

```
table(gr)
```

```
## gr
##  1  2  3  4  5
## 79 79 78 78 78
```

R-squared function

```
R_squared <- function(y_pred, y_actual) {
  rss <- sum((y_actual - y_pred)^2)
  tss <- sum((y_actual - mean(y_actual))^2)
  rsq <- 1-(rss/tss)
  return(rsq)
}
```