ARE212: Section 02

Dan Hammer

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```
path <- "http://dl.dropbox.com/u/5365589/ARE212/auto.csv"
data <- read.csv(path, header=TRUE)
class(data)

 [1] "data.frame"

names(data)

 [1] "V1" "V2" "V3"

names(data) <- c("price", "mpg", "weight")

lm(price ~ 1 + mpg + weight, data=data)


 Call:
 lm(formula = price ~ 1 + mpg + weight, data = data)

 Coefficients:
 (Intercept)          mpg        weight
    1946.069      -49.512         1.747

head(data$mpg)

 [1] 22 17 22 20 15 18

attach(data)
head(mpg)

 [1] 22 17 22 20 15 18

y <- matrix(price)
X <- cbind(1, mpg, weight)

dim(X)[1] == nrow(y)

 [1] TRUE
```

```
beta <- solve(t(X) %*% X) %*% t(X) %*% y
print(beta)

                  [,1]
         1946.068668
 mpg       -49.512221
 weight      1.746559

n <- nrow(y)
M <- diag(n) - X %*% solve(t(X) %*% X) %*% t(X)
```