BACS-hw16-107070004

```
# Load the data and remove missing values
cars <- read.table("auto-data.txt", header=FALSE, na.strings = "?")
names(cars) <- c("mpg", "cylinders", "displacement", "horsepower", "weight", "acceleration",
                 "model_year", "origin", "car_name")
cars$car_name <- NULL
cars <- na.omit(cars)
# Shuffle the rows of cars
set.seed(27935752)
cars <- cars[sample(1:nrow(cars)),]
# Create a log transformed dataset also
cars_log <- with(cars, data.frame(log(mpg), log(cylinders), log(displacement), log(horsepower), log(wei
# Linear model of mpg over all the variables that don't have multicollinearity
cars_lm <- lm(mpg ~ weight + acceleration + model_year + factor(origin), data=cars)
# Linear model of log mpg over all the log variables that don't have multicollinearity
cars_log_lm <- lm(log.mpg. ~ log.weight. + log.acceleration. + model_year + factor(origin),
                  data=cars_log)
# Linear model of log mpg over all the log variables, including multicollinear terms!
cars_log_full_lm <- lm(log.mpg. ~ log.cylinders. + log.displacement. + log.horsepower. +
                       log.weight. + log.acceleration. + model_year + factor(origin),
                       data=cars_log)
```

```
cars_log_full_lm$call
```

```
## lm(formula = log.mpg. ~ log.cylinders. + log.displacement. +
##     log.horsepower. + log.weight. + log.acceleration. + model_year +
##     factor(origin), data = cars_log)
```