Consider the `Cars93` dataframe from `library(MASS)`. It is of interest to predict the city mileage of a car based on the following predictors

- x_1: number of cylinders
- x_2: engine size
- x_3: horse power
- x_4: RPM
- x_5: number of passengers
- x_6: weight

To make such a prediction, build a regression model as follows

1. Find correlation among all variables. Which predictors are more correlated?
2. Fit a full linear regression model. Verify regression assumptions and identify outliers.
3. Interpret the regression equation.
4. Interpret the model adequacy values (MSE, R^2)
5. Estimate the mean city mileage of a 4-cylinder car with 2.3 engine size, 5500 RPM, 2950 pounds, 4 passengers, and 200 horse power. Also construct a 90% confidence interval for that mean city mileage
6. Predict the city mileage of a 4-cylinder car with 3.1 engine size, 6000 RPM, 3150 pounds, 5 passengers, and 225 horse power. Also construct a 95% prediction interval for that exact price
7. Use `regsubsets()` from library `leaps` to find the best set of predictors suggested by adjusted-R^2
8. Use `set.seed(12)` to divide the data set into a training and a test set. Compare the MSPE of the full model and the model with the (adjusted-R^2) best predictors
9. Find the best set of predictors suggested by AIC. Compare its MSPE with that of the (adjusted-R^2) best predictors.