

# Homework 5

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- Note: For each question, include R code and output *pertinent* to your answers.

This exercise involves the Boston housing dataset in ISLR2. Assume that we are interested in median home values, `medv`.

1. Examine `medv` as a function of `chas` in a simple linear regression model with an intercept. Notice the nature of `chas` for its use in this and following models. What hypothesis are you testing with each coefficient in lay terms? Given the results of the hypothesis testing, what do the coefficients mean?
2. Examine `medv` as a function of `chas` and `indus` in a multiple linear regression. What do the coefficients mean?
3. Given the results from #1 and #2, what do you conclude about `chas` and `indus` in relation to `medv`? Support your conclusion with a visualization.
4. You think that the proportion of non-retail business acres may have a different impact on the expected average median home values in towns bordering the Charles River vs. those that don't. Fit a linear regression model with an interaction term to assess this. What do you observe? Support your observations with a visualization.