

Econ 573: Problem Set 2

Due date: 2/5

Spring 2025

The problem set is due **before** 11:59 PM. Instructions: give a justification to all of your answers. Make sure to submit all the relevant files. For the empirical exercise you can find the data following this link:

<https://www.statlearning.com>.

Please make sure that you are using the second edition of the textbook.

Part I

Ex 1, 3, 4, from Chapter 3 of ISL.

Part II

Ex. 8, 9, 13, 15 from Chapter 3 of ISL.

Part III

We'll be modeling log home value, and whether or not the buyer had at least 20% down. Data is in `homes2004.csv`, with variable dictionary in `homes2004code.txt`. Primer is in `homes2004_start.R`.

1. Plot some relationships and tell a story.
2. Regress log value onto all but mortgage and purchase \$.
 - How many coefficients are jointly significant at 10%?
 - Re-run regression with only the significant covariates, and compare R^2 to the full model.
3. Fit a regression for whether the buyer had $\geq 20\%$ down (again, onto everything but AMMORT and LPRICE).

- Interpret effects for 1st home buyers and # of bathrooms.
 - Add + describe interaction for 1st home-buyers and #baths.
4. Re-fit your model from Q3 for only homes worth $> 100k$. Compare in-sample fit to R^2 for predicting homes worth $< 100k$.