HW

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Assignment

This homework includes problems that may require: T-tests, chi-square, linear regression, or multiple linear regression.

For each problem:

(1) Read in the data
(2) choose the correct test.
(3) write out the null and alternative hypotheses
(4) verify the assumptions are met
(5) conduct the test and report p-value
(6) Write out the result of the test.
(7) Write out a conclusion from the result.

For some problems you will also be asked to make a plot.

Problem 1

We conduct a survey and count the number of individuals for 6 different fish species from inside a marine reserve and from outside the marine reserve. We want to know if there is a difference. The data are found in "marinepark.csv".

Make a 2 panel barplot (use par(mfrow=c(2,1))) and plot the # of species for Inside the Marine Park and for Outside the Marine Park.

Problem 2

Every morning for two months we swim a transect and record the number of eels that we see. We do this in two locations. Inside and outside a marine park. We want to know if we see more eels in the marine park than outside. One of the assumptions will be that both sets of counts are normally distributed. The data are in "eels.csv".

Make 1 boxplot showing the data side by side for inside and outside the marine park.

Problem 3

We are curious as to if sea surface temperature or abundance of prey fish or the interaction between the two or some combination of the two are a better predictor of tuna abundance. Read in the data "tunacount.csv".

Plot the raw data and the best fit result.