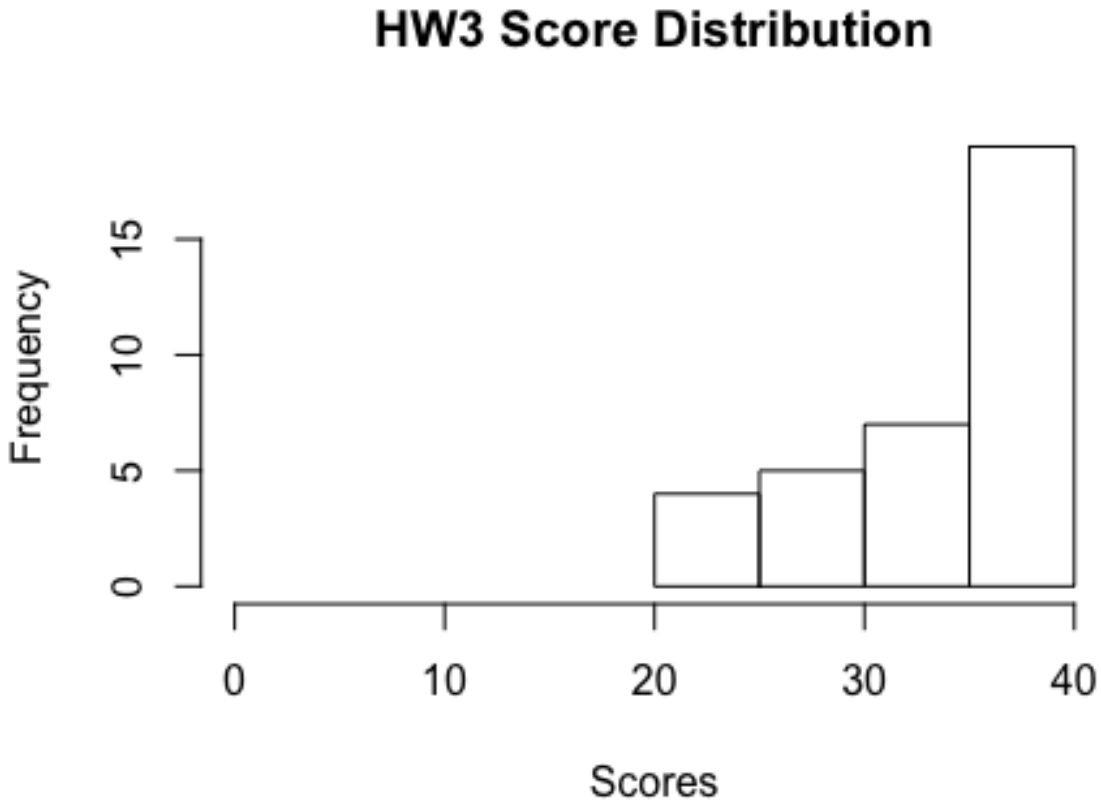
Statistics

Week 13 Recitation

ESD, SUTD

Term 5, 2017

Homework 3



Grading details are available on eDimension if you submitted your homework online.

Homework 3

Question 2. While trying to find the least square regression line for some data points (x_i, y_i), a drunk statistician used the points (y_i, x_i) instead.

(a) Does the correlation coefficient of the resulting regression line agree with the correct r?

(b) What about the slope of the resulting regression line: is it the same as the correct $\hat{\beta}_1$, or is it $\hat{\beta}_1$ flipped around the line $y = x$, or does something else happen?

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Question 8 & 9.
Permutation and boostraping, find p-value and CI.

Question - Maximum Likelihood

Let $x_1, x_2, x_3 ... x_n$ be n iid observations from a Bernoulli distribution.

The probability mass function for a Bernoulli random variable with probability of success θ may be written as

$$f(x|\theta) = \theta^x (1-\theta)^{1-x},$$

where x is either 0 or 1.

Find the maximum likelihood estimate for θ.
Is the estimator unbiased?

Please complete the course survey!!!