CSE 312: Foundations of Computing II
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Lecture Topics: 8.1/8.2 Confidence Intervals

[**Tags:** Confidence Intervals, Hypothesis Testing]

1. Suppose William claims that the true average height of students in the Allen School is indeed 72 inches (6 feet), but Cooper thinks it's anything but that! Cooper samples 145 students and finds the sample average height to be 63.41 inches and a sample variance of 6.32^2 sq. inches.
    a. First, compute a 98% confidence interval for the true average height μ, where our estimate was $\hat{\mu} = \bar{x} = 63.41$ inches.
    b. Conduct a hypothesis test following the procedure in 8.4 at the $\alpha = 0.02$ significance level. You can actually compute a confidence interval instead of computing a p-value when you have a two-sided alternative like we do here!

[**Tags:** Hypothesis Testing]

2. Luxi wants to perform a magic trick for her CSE 312 co-TA's Aleks and Shreya as an audience. She announces that she currently has a hat with 20 green marbles and 9 blue marbles. Aleks and Shreya do not trust her one bit, and think the number of blue marbles is actually an **underestimate** (but they believe that there are 20 green marbles).

    They reach in a grab 8 marbles randomly (without replacement), and 7 of them are blue! Conduct a hypothesis test following the procedure in 8.4 at the $\alpha = 0.05$ significance level to determine whether or not Luxi is lying about the number of blue marbles.