ECE 341 - Homework #13

t-Tests. Due Wednesday, June 10th

Test of a Single Population: Full-House in Draw Poker

The calculated odds of a full house in 5-card draw are p = 0.013245. Verify whether this is / is not correct with a probability of 90%

1) Run a Monte Carlo simulation to determine the odds of getting a full-house in 5-card draw

- Each simulation goes through 10,000 hands (# of full houses in 1,000 hands of poker)
- Run the simulation 5 times
- data = { x1, x2, x3, x4, x5 }

From this, determine the 90% confidence interval for the actual odds of getting a full-house with 5-card draw.

- if p = 0.013245 is in this interval, you cannot reject this answer with a probability of 90%

2) The height three people can jump is recorded (units = meters)

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A:  0.413, 0.370, 0.345, 0.328, 0.424, 0.276, 0.494, 0.306, 0.419, 0.405
B:  0.390, 0.411, 0.543, 0.370, 0.425, 0.387, 0.556, 0.557, 0.603, 0.497
C:  0.649, 0.605, 0.628, 0.603, 0.645, 0.593, 0.637, 0.687, 0.635, 0.687
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- What is the 90% confidence interval for A? (two tails)
- What is minimum height A will jump 90% of the time? (one tail)

Test of Two Populations

3) For the data set in problem #2:

- What is the probability that A will jump higher then B the next time they jump?
- What is the probability that B's average is larger than A's average?

The reflex time of a person before and after drinking 2 shots is measured

Trial	Person A		Person B		Person C	
	sober	2 drinks	sober	2 drinks	sober	2 drinks
#1	0.2253	0.2559	0.1924	0.2721	0.2419	0.3012
#2	0.1923	0.3488	0.1893	0.2197	0.1976	0.2556
#3	0.1854	0.244	0.2081	0.2438	0.3063	0.2451

4) What is the probability that A has a faster reaction time then B?

5) What is the probability that your reaction time after drinking 2 shots increases?

6) Hector airport has been recording weather in Fargo since 1942.

http://www.bisonacademy.com/ECE111/Code/Fargo_Weather_Monthly_Avg.txt

Determine the probability that (April, 2000 - 2020) is warmer than (April, 1942 - 1962)