Week 9 - Discussion

Problem 1. You wonder if UCSD freshmen achieve same average GPA for 2021 Fall and Winter quarters. For 100 randomly chosen students, you get such data:

	2021 Fall	2021 Winter	Diffs
Mean	3.6	3.58	-0.02
SD	0.12	0.15	0.11
n	100	100	100

- a. Perform a HT to determine if UCSD freshmen get a close average GPA on 2021 Fall and Winter quarters based on $\alpha = 0.05$. [Table]
- b. Give one possible reason for the phenomenon implied by part (a).
- c. If you want to further compare the performance of UCSD freshman and UCB freshman on Fall 2021 quarter, you randomly chose 100 UCB freshman and find their average GPA is 3.62 and SD is 0.11. Do freshman of these two universities have a same average GAP for this specific quarter based on $\alpha = 0.05$.
- d. Propose one possible reason to show the HT of part (c) is imperfect.

Problem 2. Based on the problem 1, we want to compare the group of freshman from another university UCLA. Suppose, we still randomly choose 100 freshman students, and find the mean GAP for 2021 Fall of this sample is 3.615 and SD is 0.13.

a. Fulfill the below table:

Source	df	SS	MS	F	Р
Groups					
Error					

b. Do you think there is a difference in the mean GPA among these three universities based on $\alpha=0.05?$