Math 58B, Spring 2023
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WU # 9
Tuesday, Feb 14, 2023

Your Name: _____

Names of people you worked with: _____

Task: The example below allows for a comparison between two athletes based on speed and strength. The following information is provided about the sample of individuals who were measured:

- Speed is measured by the time required to run a distance of 40 yards, with smaller times indicating more desirable (faster) speeds. From the data, the times to run 40 yards have a mean of 4.60 seconds and a standard devotion of 0.15 seconds.
- Strength is measured by the amount of weight lifted, with more weight indicating more desirable (greater) strength From the data, the amount of weight lifted has a mean of 310 pounds and a standard deviation of 25 pounds.
- The following information is provided about the distribution of runs and lifts across all the players:

	mean	std dev
Time to run 40 yards	4.60 sec	0.15 sec
Amount lifted	310 lbs	25 lbs

1. Terrible holiday: yes or no?
2. I have met with the people in my learning community: TRUE or FALSE
3. Calculate Z scores for the following two players and each of the tasks (4 total Z scores):

	Player A	Player B
Time to run 40 yards	4.42 sec	4.57 sec
Amount lifted	370 lbs	375 lbs

4. Based only on the Z scores, and considering both athletic characteristics as equally valuable, which player which you rather choose for your team? Explain.

Solution:

$$Z_{Aspeed} = \frac{4.42 - 4.6}{0.15} = -1.2 \qquad Z_{Astrength} = \frac{370 - 310}{25} = 2.4$$
$$Z_{Bspeed} = \frac{4.57 - 4.6}{0.15} = -0.2 \qquad Z_{Bstrength} = \frac{375 - 310}{25} = 2.6$$

After calculating Z scores, it is found that Player B is only slightly stronger than Player A, but Player A is considerably faster than Player B. Because the question advised us to consider both criteria as equally valuable, Player A is the better choice.