7.SP – Offensive Linemen

Task

College football teams are grouped with similar teams into "divisions" (and in some cases, "subdivisions") based on many factors such as game attendance, level of competition, athletic department resources, and so on. Schools from the Football Bowl Subdivision (FBS, formerly known as Division 1-A) are typically much larger schools than schools of any other division in terms of enrollment and revenue. "Division III" is a division of schools with typically smaller enrollment and resources.

One particular position on a football team is called "offensive lineman," and it is generally believed that the offensive linemen of FBS schools are heavier on average than the offensive linemen of Division III schools.

For the 2012 season, the University of Mount Union Purple Raiders football team won the Division III National Football Championship while the University of Alabama Crimson Tide football team won the FBS National Championship. Below are the weights of the offensive linemen for both teams from that season.
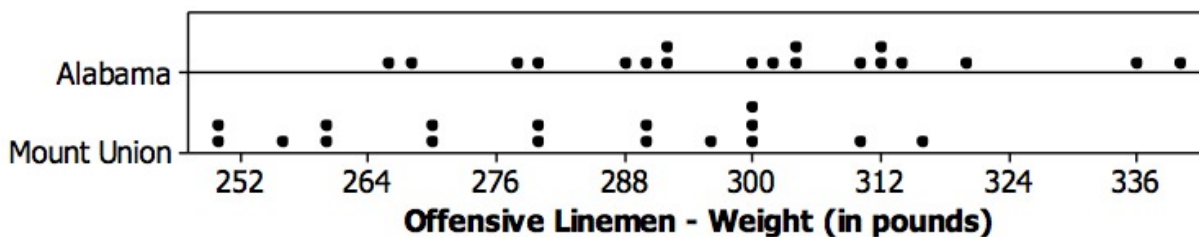
(Accessed at http://athletics.mountunion.edu/sports/fball/2012-13/roster, http://www.rolltide.com/sports/m-footbl/mtt/alab-m-footbl-mtt.html on 1/14/13)

Alabama
277
265
292
303

303
320
300
313
267
288
311
280
302
335
310
290
312
340
292

Mount Union
250
250
290
260

270
270
310
290
280
315
280
295
300
300
260
255
300

a. Based on visual inspection of the dotplots, which group appears to have the larger average weight? Does one group seem to have greater variability in its weights than the other, or do the two groups look similar in that regard?

b. Compute the mean and mean absolute deviation (MAD) for each group. Do your

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measures support your answers in part (a)?

c. Choose from the following to fill in the blank: "The average Alabama offensive lineman's weight is about _____ than the average Mount Union offensive lineman's weight."

      i. 20 pounds lighter

      ii. 15 pounds lighter

      iii. 15 pounds heavier

      iv. 20 pounds heavier

"This difference in average weights is approximately _____ of either team."

      i. About half of the MAD

      ii. Slightly more than 1 MAD

      iii. Twice the MAD

d. The offensive linemen on the Alabama team are not a random sample from all FBS offensive linemen. Similarly, the offensive linemen on the Mount Union Team are not a random sample from all Division III offensive linemen. However, for purposes of this task, suppose that these two groups can be regarded as random samples of offensive linemen from their respective divisions/subdivisions. If these were random samples, would you think that offensive linemen from FBS schools are typically heavier than offensive linemen from Division III schools? Explain your decision using answers to the previous questions and/or additional analysis.