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Pre-Lab due May 03, 2016 at 17:00 UTC

#### Lab

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Reflect on the Question

Analyze the Data

Draw Conclusions

## Pre-Lab 2: Bull Rider Data



Over 1,200 bull riders from around the world are members of Professional Bull Riders (PBR) and compete in the more than 300 PBR affiliated bull riding events per year. This data set includes information about the top 50 ranked bull riders for the 2013, according to the PBR standings reported in July of 2013. Rankings are based on a system which awards points for qualified rides at events throughout the season.

## Primary Research Question

Lab due May 03, 2016  
at 17:00 UTC

### Problem Set

Problem Set due May  
03, 2016 at 17:00 UTC

The average American adult man weighs 190 pounds. Do professional bull riders from the US weigh the same?

## Check the Data

Let's begin by examining our data in R.

1. Open RStudio. Make sure you've installed the SDSFoundations package.
2. Type `library(SDSFoundations)`. This will automatically load the data for the labs.
3. Type `bull <- BullRiders`. This will assign the data to your Workspace.
4. Look at the spreadsheet view of the data to answer the following questions.

**Alternatively**, you can use follow the steps in the "Importing a Data Frame" R tutorial video, and use the BullRiders.csv file. (Right-click and "Save As.") Make sure to **name** the dataframe "bull" when importing.

1. Open RStudio.
2. Click on "Import Dataset" button at the top of the workspace window. Choose *"from text file."*
3. Click on the location of the BullRiders.csv file you just downloaded.
4. Click on the BullRiders.csv file. Then, click Upload.
5. Look at the spreadsheet view of the data to answer the following questions.

(2/2 points)

## Check the Variables of Interest

Let's find the variables we need to answer the question.

1a. Which variable tells us how much the rider **weighs**? The variable name in the dataset is:



Answer: Weight

1b. What type of variable is this?



Answer: Quantitative

[Click here for a video explanation of how to answer this question.](#)

*You have used 1 of 1 submissions*

(3/3 points)

## Reflect on the Method

*Which method should we be using for this analysis and why?*

2a. We will use a **one-sample t-test** to help us answer this lab question. Why?

- ☒ We want to compare the average weight of these bull riders to a claimed value. ✓
- ☐ We want to compare the distributions of two numeric variables.
- ☐ We want to see how much professional bull riders weigh.
- ☐ We want to determine if there is any kind of relationship between a rider's weight and his PBR rank.

2b. We want to test a hypothesis that professional bull riders weigh 190 pounds on average. What will the **null hypothesis** look like for this one-sample t-test?

- ☒  $\mu=190$  pounds ✓
- ☐ The average weight of a bull rider in this sample is not 190 pounds.
- ☐ The average weight of a bull-rider in this sample is 190 pounds.
- ☐  $\mu \neq 190$

2c. The formula to calculate a **t-statistic** is below. What does the **denominator** of this test tell us?

$$t = (\bar{x} - \mu) / SE?$$

- ☐ the center of the sampling distribution
- ☒ the difference you would expect, based on chance alone ✓
- ☐ the sample size
- ☐ the size of a statistically significant difference

*You have used 1 of 1 submissions*

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