Reflect on the Question | Analyze the Data | Draw Conclusions

Lab 8: Bull Rider Data

Help

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. More information available at: http://www.pbr.com/en/bfts/standings/riders.aspx.

Primary Research Question

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

Check the Data

Help

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 points possible)

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?

Quantitative

Help

Hide Answer *You have used 0 of 2 submissions*

(3 points possible)

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.

CORRECT. THE ONE-SAMPLE T-TEST IS USED TO DETERMINE WHETHER A PARTICULAR SAMPLE STATISTIC COULD OCCUR BY CHANCE GIVEN THAT THE ASSUMPTION OF THE NULL HYPOTHESIS IS TRUE.

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?

Help

- μ=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.
- μ≠190

CORRECT. THIS NULL HYPOTHESIS STATES THE ASSUMPTION THAT THE AVERAGE WEIGHT OF THE BULL RIDERS IN OUR POPULATION IS 190 POUNDS.

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

t=($\bar{x}$-μ)/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

CORRECT. SE IS CALLED THE STANDARD ERROR, AND IS EQUAL TO THE SAMPLE STANDARD DEVIATION DIVIDED BY THE SQUARE ROOT OF THE SAMPLE SIZE. IT INDICATES THE VARIABILITY IN VALUES WE CAN EXPECT DUE TO PROBABILITY GIVEN THAT OUR NULL HYPOTHESIS IS TRUE.

Help

Hide Answer

You have used 0 of 2 submissions

Help