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Analyze the Data

Primary Research Question

Which variable has the strongest linear relationship with Earnings: Ride Percentage or Cup Points?

Analysis

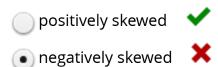
Let's break this analysis into the different steps that you will need to take to construct a complete answer. Be sure to:

- 1. Make a histogram to visualize the distribution of Earnings.
- 2. Generate the appropriate descriptive statistics for this distribution.
- 3. Make a correlation matrix for Earnings, RidePer and Cup Points.
- 4. Plot a scatterplot for Earnings with each variable of interest. **Put Earnings on the y-axis.** Check for outliers.
- 5. Determine which variable has the strongest linear relationship with *Earnings*.

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Earnings Distribution

What is the **shape** of the Earnings distribution?



What was the **average** amount earned by a bull rider? (Choose the appropriate measure of center; report without a \$ sign and round to the nearest whole number.)

111148

111148

Answer: 111148

What was the **highest** amount earned by a bullrider? (Report without a \$ sign and round to the nearest whole number.)

1464476

1464476

Answer: 1464476

Help

Hide Answer

You have used 1 of 1 submissions

(2/2 points)

Make a Scatterplot of Earnings and Ride Percentage

Does the scatterplot show a **linear** relationship?

Yes

What is the **correlation** of Earnings with Ride Percentage? (report to three decimal places)

0.619

0.619

Show Answer

You have used 1 of 1 submissions

(1/2 points)

Create a Scatterplot of Earnings and Cup Points

Does the scatterplot show a **linear** relationship?

No Yes

What is the **correlation** of Earnings with Cup Points? (report to three decimal places)

0.674

0.674

Answer: 0.674

Hide Answer

You have used 1 of 1 submissions

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(5/5 points)

Outliers and Influential Points

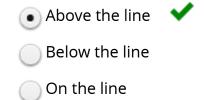
An outlier can have a significant impact on the correlation coefficient. Sometimes it is important to remove these points to examine the size of this impact. Run this code to **identify** the extreme data value in Earnings:

identify specific case
which(bull\$Earnings == max(bull\$Earnings))

The extreme earnings data point belonged to the rider that came in _____ Place. (Please spell your answer; do not use numerals.)

first

Where does this data point fall in the scatterplot? (Make sure that Earnings is on the y-axis)



Let's **remove** this data point from the dataset to assess what kind of impact, if any, it had on our correlation analysis. Run this code:

#Subset the data
nooutlier <-bull[-1,]</pre>

Then **rerun** the correlation matrix and the scatterplots to see the difference. Make sure to use the new dataframe (nooutlier) 03/10/2015 01:43 P

that you just created.

After removing the outlier, what was the **new correlation** of Earnings and Ride Percentage? (Round to three decimals)

0.814

Help

0.814

After removing the outlier, what was the **new correlation** of Earnings and Cup Points? (Round to three decimals)

0.904

0.904

We would say that this data point was an **influential point** because it

- caused the underlying relationship to be non-linear.
- inflated the relationship between Earnings and the other variables.
- made the earnings of the other bull riders look less impressive than they really were.
- lacktriangle masked the strength of the relationships between Earnings and the other variables lacktriangle



Show Answer

You have used 1 of 1 submissions





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