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Final Project: You and Data Science

An activity that I am passionate about is debate. I enjoy discussing about politics with others and using evidence to substantiate my arguments. Some of my favorite assignments in school have been writing persuasive essays. I started debating as a high school freshman and continued being a part of the team for four years. My parents encouraged me to join the debate team in high school because I was very shy in elementary school. Although I was very reluctant to join, I gradually became more confident in my speaking abilities. I am currently a debater on the Illini Forensics team and occasionally judge high school debate tournaments over the weekend.

A debate round consists of two teams: affirmative (aff) and negative (neg). The debate topic last year was about how the United States federal government should substantially increase criminal justice reform in forensic science, policing, or sentencing. For this topic, affirmative teams had to argue why criminal justice reform should be implemented, and the negative team had to argue why these reforms should not be enacted. Many people thought this topic was biased towards affirmative teams and that judges were less likely to vote for negative teams. With events such as the killing of George Floyd, many judges tend to be liberal on their views of criminal justice reform. It is generally accepted by the debate community that judges should not let their personal beliefs determine which team they vote for. However, people have implicit biases that they are not always aware about. For my project, I wanted to determine if judges were more likely to vote for affirmative teams on this topic using a hypothesis test.

Table

Description automatically generatedChart, bar chart

Description automatically generated For my dataset, I gathered the results from a national tournament and typed the data into an excel sheet. The dataset consists of the results from 90 different rounds. After I loaded up my dataframe, I created a new column in the dataset and converted the results into numbers using python. If the judge voted for the affirmative team, that was converted to 1. A vote for the negative team was converted to 0. The average of the new column was 0.52 which means that there were slightly more judges voting affirmative than negative. For this dataset, 47 judges voted affirmative, and 43 judges voted negative.

It can be seen from the bar graph that more judges voted for affirmative teams. However, I wanted to determine whether this difference was significant enough to show that judges were biased. For my hypothesis test, I set µ = 0.5 because this means that both the affirmative and negative have the same chances of winning. I used 5 percent as the default value for α. My null hypothesis was the chances of a judge voting affirmative is equal to µ which indicates that the judges were not biased. The alternative hypothesis was the chances of a judge voting affirmative is greater than µ which will show that judges were biased in their decisions. I used the binomial test to determine the p-value which came out to be 0.376. Since the p-value was greater than 5 percent, I concluded that there was not enough evidence to reject the null hypothesis. In other words, my analysis indicates that there is not enough evidence to show that judges were biased but demonstrates that the judges were neutral. Thus, judges were not more likely to vote a certain way and both teams had the same chances of winning.