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Which political party do you identify with?

There are many different kinds of studies done around the world that involve humans, animals, and the environment. Many researchers conduct studies to find more information on qualitative and quantitative studies, which can either involve an experiment or an observational study. In this particular study done at Longwood University of Spring 2019, 299 students taking Math 171, Introduction to Statistics, took an anonymous survey to answer questions based on their preference. From these results, we chose political parties and took a random sample of fifty students.

The individuals of the population are the 299 Math students currently taking Math 171, Introduction to Statistics, that participated in the online survey. On the other hand, the individuals of the sample that had to be taken are the fifty students that were chosen randomly. The difference between a population and a sample is that the population is the data from every individual; whereas, the sample is only some of the individuals who, in this case, were selected at random from Longwood University. As previously mentioned, the variable that was chosen were the political parties. The data collected from the individuals was qualitative because it can be arranged into categories and not by numerical measurements. In figure 2, it shows the data table of the frequencies for each party.

To determine the simple random sample of size fifty, the sample was gathered from a graphing calculator. First, hit the button MATH on the graphing calculator, then scroll to the right on the top until the cursor gets to PROB. Secondly, scroll down to randIntNoRep(), which is number eight on most calculators. The reason eight is used instead of randInt(), or number

five, is because this tool does not allow repeated numbers making it efficient and ultimately more random. Once ENTER is pushed, type in the lower limit ,1, and the upper limit, 299, because that is the population size. The final number to add is n, this stands for the sample size, in this case the sample size is fifty. For example, it should look like this if you have the TI-83 Plus: (1, 299, 50). Then, hit paste and ENTER. Keep in mind that not all the random numbers will be seen, so press STO->, 2ND L1, and ENTER. Next, hit STAT and then EDIT. Finally, all the random numbers for the sample should be seen in L1 on the table and can be shown in figure 1 below.

Furthermore, this sample is considered an observational study because students were asked to take an anonymous survey. It would not be an experiment because there was no treatment imposed that could have caused a change in their responses. Moreover, the study only represents students taking Math 171 in Spring of 2019. It does not represent all students of Longwood University, because the data was collected from a cluster of Math 171 students. It would not represent all college students in Virginia, USA, or the World, because a small sample of fifty cannot be generalized. There would have to be many samples and a larger sampling size from different cities or counties in Virginia for it to represent all college students in Virginia. Samples from different states could represent all college students in the United States, as well as samples from different countries could be generalized for around the world.

To conclude, we found that 48 percent of students identified with the Republican Party, while 22 percent identified with the Democratic Party. Moreover, there were 4 percent that identified with the Libertarian Party, 2 percent that identified with the Green Party, and 24 percent of students that chose “other”. This information is portrayed in a pie chart and bar chart,

as shown in figure 3 and 4 below. This shows that more students identified with the Republican Party than any other party based on the sample of 50. Nevertheless, we cannot generalize our findings based on our sample size of fifty. It only represents college students currently taking Math 171 at Longwood University.

Figure 1. **50 Random Number Samples**

283	272	44	154	122	220	14	102	298	60
239	285	67	111	3	280	33	2	165	256
293	84	83	37	16	216	4	126	92	291
9	251	185	62	295	217	91	75	283	277
13	35	209	295	190	94	26	299	60	120

Figure 2. **Data Table**

Categories	**Frequencies**
Republican	24
Democratic	11
Libertarian	2
Green	1
Other	12

Figure 3. **Pie Chart**

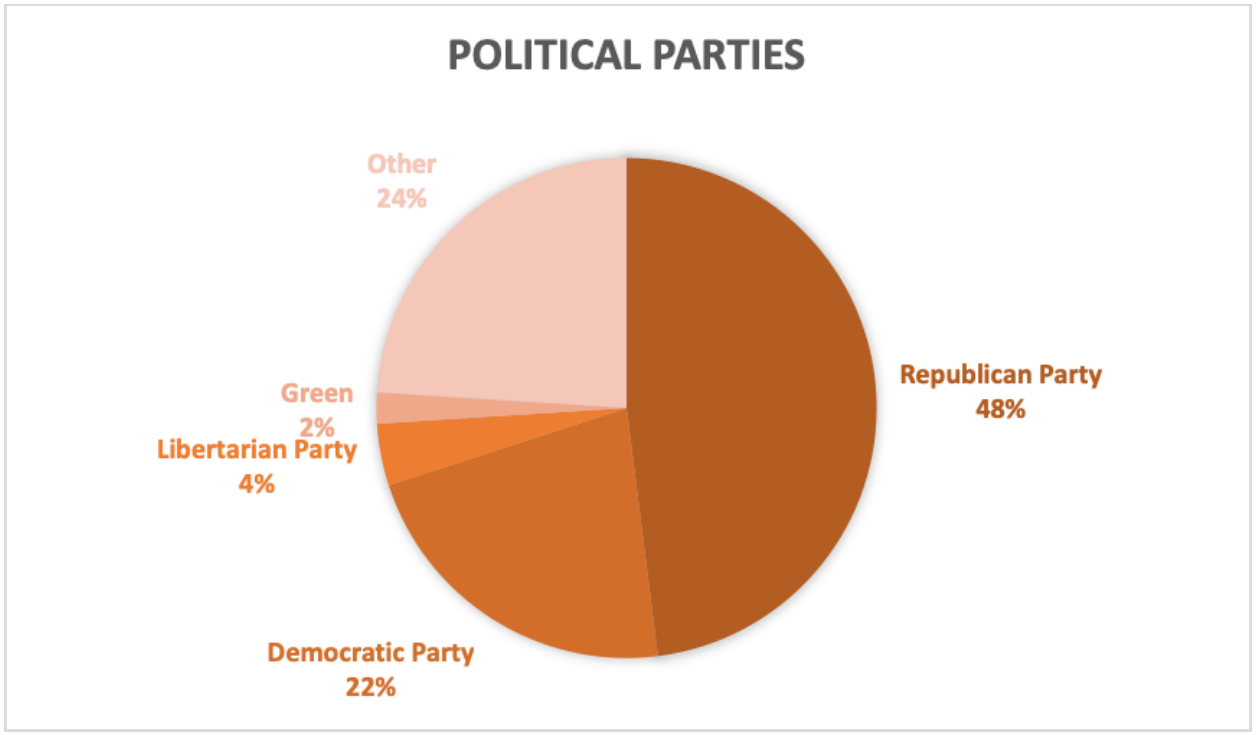

Figure 4. **Bar Chart**