Kacy Lloyd, Sara Jones, Maddie Foster

Dr. Emerson-Stonnell

MATH-171

23 October 2019

Individuals in this study are students at Longwood in classes Math 171 and Math 301. Our question was "do you consider yourself to be more of a cat person, a dog person, both, or neither?" We chose this question because the three of us like both dogs and cats. We were interested to see where other people stood. Our hypothesis was: the majority of people are dog people. We think the majority of people will like dogs because we are dog people, and we think most people like dogs as well because you can play with them more than cats. A simple random sample of thirty was taken from 325 students who answered the survey.

There are 325 students in total who answered the survey. A simple random sample of thirty was taken from the data. This was done on a TI-84 calculator. The data was listed and numbered in an Excel spreadsheet. All 325 pieces of data were entered into L1 in the calculator. Next press the MATH button and then arrow over to the fourth column labeled PROB. Under PROB press 5 for the fifth input: randInt(. Next enter a lower of 1, an upper of 325, and a sample (n) of 30, after enter is pressed we received our sample. Our sample was {149, 260, 102, 193, 2, 240, 159, 17, 200, 20, 4, 81, 152, 39, 280, 125, 263, 165, 49, 42, 254, 175, 227, 271, 299, 105, 256, 243, 75, and 26}.

A majority of people are dog people at Longwood. 17 students are dog people in the simple random sample of students in Math 171 and Math 301. 56.67% of Math 171 and Math 301 students like dogs out of our sample. 17 were dog people, 2 people were cat people, there were 10 people who prefer both, and 1 person chose neither. The significance level we chose is 95%.

For step one, the hypothesis, we stated that H_o: $p \leq 17$ and H_a: $p > 17$. In our bell curve, Ha is located on the small part of the far-right side with an area of .05 due to the fact that our significance level is .05. Everything else on the bell curve is believed to be Ho. For step two, μ= the proportion of students in Math 171 and Math 301 who like dogs. As for step three, our test, we chose a T-test. There was a simple random sample and we did not see a strong skew in our histogram nor any outliers in our boxplot. However, our histogram was not normal. Sigma was not known. In step four, μ_{θ} equaled 17, x bar equaled 149.4118, Sx equaled 102.420, n equaled 30 and our significance level equaled .05. In step five, we found our p-value and t. The p-value equaled .99997 and our t came out to be 7.0811. For this reason, we believe Ha. Finally, there is significant evidence that the mean number of students in Math 171 and Math 301 likes dogs. There was one problem in our SRS; not all the groups were fairly represented in our data.

To conclude, we took a simple random sample of thirty from the data that was given to us. Our hypothesis that we wanted to test was that the majority of people are dog people. In order to test this, we had to perform a T-test and concluded that the majority of people did like dogs.

Appendix:

Number	Sex	Official Class	Dog, Cat person, both, or neither?
149	Female	Sophomore	Dog
260	Male	Junior	Dog
102	Female	Freshman	Dog
193	Female	Sophomore	Dog
2	Female	Sophomore	Both
240	Female	Junior	Both
159	Female	Sophomore	Both
17	Female	Sophomore	Dog
200	Female	Sophomore	Neither
20	Female	Freshman	Both
4	Male	Junior	Dog
81	Female	Freshman	Dog
152	Male	Freshman	Cat
39	Male	Sophomore	Dog
280	Female	Junior	Both
125	Male	Junior	Dog
263	Female	Sophomore	Dog
165	Female	Freshman	Dog
49	Male	Sophomore	Dog

42	Female	Freshman	Both
254	Female	Freshman	Dog
175	Female	Freshman	Both

227	Female	Sophomore	Both
271	Female	Freshman	Dog
299	Female	Freshman	Dog
105	Male	Junior	Both
256	Female	Senior	Both
243	Male	Senior	Dog
75	Male	Freshman	Cat
26	Female	Junior	Dog