MATH 3070 Lab Project 14

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Contents

Remember: I expect to see commentary either in the text, in the code with comments created using `#`*, or (preferably) both!* ***Failing to do so may result in lost points!***

Problem 1 (Verzani problem 9.2)

The `samhda` *(**UsingR**) data set contains information on marijuana usage among children as collected at the Substance Abuse and Mental Health Data Archive. The variable* `marijuana` *indicates whether the individual has ever tried marijuana. A 1 means yes, a 2 no. If it used to be that 50% of the target population had tried marijuana, does this data indicate an increase in marijuana usage? Do a significance test of proportions to decide.*

```
# Your code here
```

Problem 2 (Verzani problem 9.4)

In the United States in 2007, the proportion of adults age 21-24 who had no medical insurance was 28.1 percent. A survey of 75 recent college graduates in this age range finds that 40 percent are without insurance. Does this support a difference from the nationwide proportion? Perform a test of significance and report the p-value. Is it significant? (Perform this test "by hand", not using `prop.test()`*.)*

```
# Your code here
```

Problem 3 (Verzani problem 9.14)

The data set `normtemp` *(**UsingR**) contains measurements of 130 healthy, randomly selected individuals. The variable* `temperature` *contains normal body temperature. Does the data appear to come from a Normal distribution? If so, perform a t-test to see if the commonly assumed value of 98.6 degrees fahrenheit is correct. (Studies have suggested that 98.2 degrees fahrenheit is more accurate.)*

```
# Your code here
```

Problem 4 (Verzani problem 9.16)

A one-sided, one-sample t-test will be performed. What sample size is needed to have a power of 0.80 for a significance level of 0.05 if `delta = 0.05` *and the population standard deviation is assumed to be 5?*

```
# Your code here
```

Problem 5 (Verzani problem 9.31)

For the `babies` *(**UsingR**) data set, the variable* `age` *contains the recorded mom's age and* `dage` *contains the dad's age for several cases in the sample. Do a significance test of the null hypothesis of equal ages against a one-sided alternative that the dads are older in the sampled population.*

```
# Your code here
```