Lab INFSCI 0401 – 50 points

Problem 1

Let’s say that you run an e-commerce store that sells high-end, complicated hardware for tech-savvy customers. In an attempt to increase conversions, you have the idea to implement an FAQ below your product page.

After a week, **you do not notice any difference** in conversions: both versions seem to convert at the same rate and you start questioning your assumption. Three days later, you stop the test and keep your product page as it is.

At this point, you assume that adding an FAQ to your store didn’t have any effect on conversions.

Two weeks later, you hear that a competitor has implemented an FAQ at the same time and observed tangible gains in conversions. You decide to re-run the test for a month in order to get more statistically relevant results based on an increased level of confidence (say 95%).

After a month – surprise – **you discover positive gains in conversions for the variation (B)**. Adding an FAQ at the bottom of your product page has indeed brought your company more sales than the control version.

What type of error did you make?\_\_\_2\_\_\_\_\_\_\_\_\_

Explain you answer:

A type 2 error is a false negative. In this experiment, the FAQ seems to not have any influence on the conversions when it does. The test is negative but there are positive gains in conversions: a false negative.

Problem 2

Let’s say that you want to increase conversions on a banner displayed on your website. For that to work out, you’ve planned on adding an image to see if it increases conversions or not.

You start your A/B test running a control version (A) against your variation (B) that contains the image. After 5 days, the variation (B) outperforms the control version by a staggering 25% increase in conversions with an 85% level of confidence.

You stop the test and implement the image in your banner. However, after a month, you noticed that your month-to-month conversions have actually decreased.

But your variation didn’t actually beat your control version in the long run.

What type error did you make \_\_\_1\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Explain your answer:

A Type 1 error is a false positive. In this experiment, there is indication that variation B outperforms variation A. However, over time, this is seen to be incorrect. Therefore, the test is positive but variation B is not better: a false positive.