Assignment 4 – Daniel Yim

For this assignment, you will answer a variety of questions related to A/B testing.  
*Note that you only need to submit a report with your responses for this assignment (no code is required).*

Please answer the following questions very briefly.

1. Can you run A/B tests on things other than Web pages?

Yes you can. They are used in scientific studies related to health, pharmaceuticals (drugs with placebo and drug), and psychology (I took Research Methods in Psychology so I definitely have some knowledge on this).

1. Explain the step-by-step process for A/B Testing?
2. Design the experiment
3. Randomly select a minimum sample from the population so that they are representative of the population. The greater the sample, the more accurate your results will be due to being more representative of the population.
4. Randomly assign an equal number of people to each group – the control group and the experimental group
5. Apply the control group Version/Variant 1 of the ad/website
6. For the experimental group apply Version/Variant 2 of the ad/website
7. Measure the results
8. Analyze and summarize using statistics and A/B testing (null and alternative hypothesis: H0 and HA) to determine if the results are statistically significant or not.
9. Give a few examples of generating hypotheses In A/B Testing?

Testing the effectiveness of an email campaign for political donations or clicks.

Testing which ads online are more effective in getting people to buy the service or product.

Testing which version of a website is more effective in getting people to buy or sign up.

1. How many variables should you test in A/B Testing?

Usually it should be testing two variables (but I believe you can have more, perhaps 3 or 4). The more variables that are involved, that more difficult it is to ascertain which variables are causing the change and to what extent. And it also is not possible to identify any interaction between variables. For example, if you were testing the drug and gave the person two different drugs, there may be an unforeseen drug interaction affecting the results.

1. What do you understand by data sampling in A/B Testing?

* A larger sample size improves the accuracy and reliability of the results.
* As an experiment runs longer, the sample size increases.
* You will need a very large sample if you are testing the overall effective and it’s hard to get people to voluntarily submit or respond to whether they like your ad/website or not.

1. What If I don’t have a control in AB testing?

I assume this means that if instead of having two groups you have one group and show the one group both versions (version A and version B).

* You could compare the difference before and after. For example: show the group the first version and measure the results. Then show everyone the second version and measure the results again. And then compare the results between the two versions. This is kind of similar to what we did in class this week when we were looking the two different ads.
* Try to ascertain again what it is you are looking for and identify the best measurable metrics to use.

1. What Is a null hypothesis AB Testing?

The null hypothesis is that there is no significant difference in between the two variables. For example, two different websites for the same company and product but with different wording, font and colour schemes may produce the same results (i.e., no difference in producing the desired result of someone liking it one more than the other or clicking/signing up/paying money for the product or service.