

## Meets Specifications

**General Review:** CONGRATULATIONS !!!! You passed this project.

Good links:

<https://adespresso.com/guides/facebook-ads-optimization/ab-testing/>

<https://www.designforfounders.com/ab-testing-examples/>

<https://www.optimizely.com/optimization-glossary/ab-testing/>

Some stats on A/B testing:

<https://www.abtasty.com/blog/learn-from-5-ab-test-case-studies/>

Khan Academy videos on Hypothesis: <https://www.khanacademy.org/math/statistics-probability/significance-tests-one-sample/more-significance-testing-videos/v/hypothesis-testing-and-p-values>

[\*OLS Regression: Scikit vs. Statsmodels?\*](#)

[\*Interpreting Results from Linear Regression\*](#)

## Code Quality

**All code cells can be run without error.**

**Review:** Perfect!!

**Docstrings, comments, and variable names enable readability of the code.**

**Review:** PART - 1

1. Every thing is fine.
2. good work using `df2.drop_duplicates`

**Review:** PART - 2

When possible, it is always more computationally efficient to use numpy built-in operations over explicit for loops. The short reason is that numpy -based operations attack a computational problem based on vectors by computing large chunks simultaneously.

Additionally, using loops to simulate 10000 can take a considerable amount of time vs using numpy <https://softwareengineering.stackexchange.com/questions/254475/how-do-i-move-away-from-the-for-loop-school-of-thought>

Fast code:

```
new_converted_simulation = np.random.binomial(n_new, p_new, 10000)/n_new
old_converted_simulation = np.random.binomial(n_old, p_old, 10000)/n_old
p_diffs = new_converted_simulation - old_converted_simulation
```

**Review:** PART - 3

All Good!!

INTERPRETING LOGISTIC REGRESSION

COEFFICIENTS: <http://www.juanshishido.com/logisticcoefficients.html>

## Statistical Analyses

**All results from different analyses are correctly interpreted.**

**Review:** The null and the alternative hypothesis are appropriate.

Considering the results of the statistical test (p-value) and the suggested p-critical. Since p-value > p-critical, we can't reject the

null. <http://www.itl.nist.gov/div898/handbook/prc/section1/prc131.htm>

**For all numeric values, you should provide the correct results of the analysis.**

**Review:** AWESOME

Getting the stats calculations for both the simulation and z-test correct is difficult at this stage. Great work.

**Conclusions should include not only statistical reasoning, but also practical reasoning for the situation.**

**Review:** Spot On!!! Great intuition with the relationship between the different hypotheses statements.

- Part iii is a two-tailed test and Part ii is a one-tail test, can you convert the p-values between each other?  
One-Tailed and Two-Tailed Results  
<https://stats.idre.ucla.edu/other/mult-pkg/faq/pvalue-htm/>