BAN 501

Module 9 Project

Project Name	A/B Testing – Web Purchases
Project Due Date	Sunday by 11:59pm

Requirements

In this project, you will perform A/B testing on datasets that include data on consumers and web purchases. You will use descriptive statistics, box plots, hypothesis testing, and t-tests to analyze the data. You will also calculate a required sample size and calculate and report an effect size.

Imagine that you conducted an experiment to determine if emailing discount codes for online orders increases the number of web-based purchases (NumWebPurchases). Use what you learned about A/B Testing to analyze the data and make conclusions. (web_purchase_A is the control group, web_purchase_B is the treatment group)

Requirements:

1. Define and print your null and alternative hypotheses about this experiment which involves determining if emailed discount codes for online purchases leads to an increase in the number of online purchases (NumWebPurchases).
2. Use a power analysis to calculate the minimum number of observations you will need in each group. Use alpha = .05, effect = .8, and power = .8 for the parameters of your power analysis. Print a comment about and the number of observations you will need.
3. Read in the web_purchase_A.csv and the web_purchase_B.csv files into your Python project. These files include data on consumers and their web purchases. The A group is the control group. The B group is the group that received online discount codes by email.
4. Generate descriptive statistics of the two groups.
5. Generate box plots showing the comparison of NumWebPurchases for the two groups.
6. Conduct a t-test to determine whether there is a significant difference in the number of web purchases between groups A and B.
7. Interpret the results of the t-test, including the p-value, and draw conclusions about whether the hypotheses are supported or rejected. Print your interpretations and conclusions in the output window.
8. Calculate and report the effect size (Cohen's d). Print an interpretation of your observed effect size.

Completion

Successful completion of this program and all the requirements will result in high marks. You are welcome to add additional functionality and to utilize your creativity in making the program even better.

Deliverable

Submit your Python file to Canvas.