Title

New York TLC Hypothesis Testing Project

Overview

This project aims to conduct a hypothesis testing, which is the A/B test. The A/B test results should aim to find ways to generate more revenue for taxi cab drivers.

Objective

The goal is to apply descriptive statistics and hypothesis testing in Python. The goal for this A/B test is to sample data and analyze whether there is a relationship between **payment type** and **fare amount**. Particularly, we want to determine whether the customers who use credit card pay higher fare amount than customers who use cash. We'll compute by using the two-sample t-test.

Results

- The average fare amount of customers who use credit card is higher than those who use cash, which is 1.21 percentage points (13.43 vs. 12.22 respectively).
- From the A/B test results, the p-value is 0.000…679 (or 6.79…e-12), which is smaller than the significance level of 0.05 (5%).
- Based on the result, it clearly shows that there is a statistically significant difference of the average fare amount between customers who use credit cards and customers who use cash.
- Also, we can reject the null hypothesis that there is no significant difference between the average fare amount between customers who use credit cards and customers who use cash.
- Note that while conducting this A/B test, we assume that the customers who will use credit cards and cash as their primary payment types, which is counterintuitive, and in fact that there are multiple payment types included in the dataset. Nonetheless, the payment type has the effect to the fare amount, which customers use credit cards pay higher amount.

Next Steps

- Since the test result is statistically significant, we might recommend to encourage customers to use credit card more often, since this payment type mainly generates the revenue to the taxi cab drivers.
- We might want to take measures, or special offers to the customers. Also, along with the advantages and conveniences of using credit card as their primary/preferred type of payment.