

Statistical Review and A/B Testing for the taxi company project (Milestone 4)

Executive summary report
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Overview

The purpose of this project is to predict taxi cab fares before each ride. At this point, this project's focus is to find ways to generate more revenue for the taxi company cab drivers. This milestone examines the relationship between total fare amount and payment type.

Problem

Taxi cab drivers receive varying amount of tips. While examining the relationship between total fare amount and payment type, this project seeks to discover if customers who pay in credit card tend to pay a larger total fare amount than customers who pay in cash.

Solution

An A/B test was ran to analyze the relationship between credit card payment and total fare amount. The key business insight is that encouraging customers to pay with credit cards will likely generate more revenue for taxi drivers.

Details

Steps conducted in the A/B test

1. Collected sample data from an experiment in which customers are randomly selected and divided into two groups:
 - a. Customers who are required to pay with credit card.
 - b. Customers who are required to pay with cash. This enables us to draw causal conclusions about how payment method affects fare amount.
2. Computed descriptive statistics to better understand the average total fare amount for each payment method available to the customer.
3. Conducted a two-sample t-test to determine if there is a statistically significant difference in average total fare between customers who use credit cards and customers who use cash.

A/B test results

There is a statistically significant difference in the average total fare between customers who use credit cards and customers who use cash. Customers who used credit cards showed a higher total amount compared to cash.

Next Steps

It is recommended that the taxi company encourages customers to pay with credit cards, and create strategies to promote credit card payments. For example, the taxi company can install signs that read "Credit card payments are preferred" in their cabs, and implement a protocol that requires cab drivers to verbally inform customers that credit card payments are preferred.