

# Statistical Review and A/B Testing for New York City TLC Project

Executive summary report

Commission Prepared by **Automatidata**

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## Overview

The goal of this project is to predict taxi cab fares for every trip. In this phase, the focus is on finding ways to increase revenue for taxi drivers in New York City. This part of the project examines the relationship between fare amount and payment type.

## Problem

Taxi drivers receive different amounts of tips. To understand the relationship between fare amount and payment type, this project aims to see whether customers using credit cards tend to pay higher fares compared to those paying with cash.

## Solution

The Automatidata team performed an A/B test to analyze the relationship between paying with a credit card and the fare amount. The key idea is that encouraging customers to pay with credit cards is more likely to increase revenue for taxi drivers.

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## Details

### Steps conducted in the A/B test:

1. Collected sample data from a trial where customers were randomly chosen and divided into two groups:
  - a. Customers who paid with credit cards.
  - b. Customers who paid with cash. This allowed us to see how the payment method affects the fare amount.
2. Used descriptive statistics to better understand the average fare amount for each payment method available to customers.
3. Conducted a two-sample t-test to evaluate whether there is a statistically significant difference in the mean fare amount between customers who pay with credit cards and those who pay with cash.

### A/B Test Results:

There is a statistically significant difference in the average fare amount between customers who used credit cards and those who paid with cash. Customers paying by credit card showed higher fare amounts than those paying with cash.

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## Next Steps

The Automatidata data team recommends that New York City TLC encourage customers to pay with credit cards and develop strategies to support this. For example, TLC could install signs in taxis stating "Credit card payments are preferred" and implement a protocol requiring drivers to inform customers that credit card payment is preferred.

