

A/B Test Analysis

Statistical Testing for the NYC Taxi & Limousine Commission (TLC)

Project Overview

This project explores whether customers who pay with a credit card pay significantly higher taxi fares than those who pay with cash. An A/B test (two-sample t-test) was conducted using cleaned data from the 2017 NYC Yellow Taxi Trip dataset.

Key Insights

- A statistically significant difference was found in fare amounts between credit card and cash-paying customers
- On average, credit card users paid \$13.43, while cash users paid \$12.22.
- The p-value from the t-test was < 0.0001 , leading to the rejection of the null hypothesis.

Details

Settings Help

AB Testing .ipynb 2017_Yellow_Taxi_Trip_Data.c: X +

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```
### IMPORT ALL THE NECESSARY PACKAGES AND LIBRARIES

•[8]: import pandas as pd
      import numpy as np
      from scipy import stats
      import matplotlib.pyplot as plt
      import seaborn as sns

### LOAD THE DATASET

•[12]: file_path = r"C:\Users\bpmog\anaconda_projects\AB Testing Model\2017_Yellow_Taxi_Trip_Data.csv"
      df = pd.read_csv(file_path)

[13]: df.head()
```

[13]:

Image Alt-Text Here

	RatecodeID	store_and_fwd_flag	PULocationID	DOLocationID	payment_type	fare_amount	
e	4	1	N	100	231	1	13.0
	0	1	N	186	43	1	16.0
	0	1	N	262	236	1	6.5

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Next Steps

- Promote credit card payments through marketing or incentive programs.
- Investigate why credit card payments are associated with higher fares (e.g., distance, tipping behavior).
- Explore additional customer segments and payment types for deeper insights.