Scenario

Your team at Automatidata is nearing the midpoint of their project for the New York City Taxi & Limousine Commission (TLC). So far, you've completed a project proposal and used Python to explore and analyze the TLC dataset. You've also used both Python and Tableau to create data visualizations. The next step is to use statistical methods to analyze and interpret your data.

You receive a new email from Uli King, Automatidata's project manager. Uli tells your team about a new request from the New York City TLC: to analyze the relationship between fare amount and payment type. You also discover follow-up emails from three other team members: Deshawn Washington, Luana Rodriguez, and Udo Bankole. These emails discuss the details of the analysis. A final email from Luana includes your specific assignment: to conduct an A/B test.

Notes on the fictional nature of this project and data assumptions:

Please note the following considerations when preparing your project. When making data-driven inferences in your professional lives, you will need to perform comprehensive Exploratory Data Analysis and cross-check your own data sources and self-made assumptions. As outlined in the following notes, there is often a gap between theory and practice.

The team member names used in this workplace scenario are fictional and are not representative of the New York City TLC.

The following scenario asks you to conduct an A/B test. An A/B test can only be performed in an experiment with randomly selected groups. In this scenario, this project makes the claim that (fictitiously) randomly grouped riders were asked to pay with a certain payment type in order to make data-driven inferences.

All riders are assumed to be able to pay with cash or card (in practice, riders might not carry cash and have to pay with card, or vice versa).

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Email from Uli King, Senior Project Manager

Subject: New TLC Request - Taxi Tips Data

From: "Uli King" Uli@automatidata

Cc: "Deshawn Washington," Deshawn@automatidata; "Udo Bankole," Udo@automatidata; "Luana Rodriguez" Luana@automatidata

Hello Data Team!

Really excellent work so far. Everyone over at New York City TLC is impressed with the results–especially the analysis on the last report! Thanks so much for the hard work.

On that note, they have requested an additional item to be added to the initial project scope. They would like a detailed statistical analysis of payment type. That is, do the customers who use a credit card pay higher fare amounts than those who use cash?

That said, the New York City TLC team is asking us to consider the following:

The relationship between fare amount and payment type.

Test the hypothesis that customers who use a credit card pay higher fare amounts.

Should you conclude that there is a statistically significant relationship between credit card payment and fare amount, discuss what the next steps should be: what are your thoughts on strategies our team could implement to encourage customers to pay with credit card?

Many thanks!

Uli King

Senior Project Manager

Automatidata

Email from Deshawn Washington, Data Analysis Manager

Subject: RE: New TLC Request - Taxi Tips Data

From: "Deshawn Washington," Deshawn@automatidata

Cc:; "Udo Bankole," Udo@automatidata; "Luana Rodriguez" Luana@automatidata; "Uli King" Uli@automatidata

Thanks, Uli.

It's great to hear the client is happy. I'm reminded again what a great data team we have!

If you would, please tell the client we will be providing them with this analysis in two weeks' time.

@Luana, my initial thought is for us to conduct an A/B test to analyze the relationship between fare amount and payment type. What do you think?

Thanks,

Deshawn Washington

Data Analysis Manager

Automatidata

Email from Luana Rodriguez, Senior Data Analyst

Subject: RE: New TLC Request - Taxi Tips Data

From: "Luana Rodriguez" Luana@automatidata;

Cc: "Udo Bankole," Udo@automatidata; "Uli King" Uli@automatidata; "Deshawn Washington," Deshawn@automatidata

Hi all,

@Deshawn, I agree with you on the A/B testing. We'll share a summary of the results with Uli before he presents it to the client.

We'll get started right away.

Thank you,

Luana Rodriguez

Senior Data Analyst

Automatidata

Email from Udo Bankole, Senior Data Analyst

Subject: RE: New TLC Request - Taxi Tips Data

From: "Udo Bankole," Udo@automatidata;

Cc: "Uli King" Uli@automatidata; "Deshawn Washington," Deshawn@automatidata; "Luana Rodriguez" Luana@automatidata;

I support the path forward. Thank you all.

Udo Bankole

Senior Data Analyst

Automatidata

Email from Luana Rodriguez, Senior Data Analyst

Subject: RE: New TLC Request - Taxi Tips Data

From: "Luana Rodriguez" Luana@automatidata;

Cc:

Hi there, fellow data virtuoso!

You've been handling all of this work really well, by the way. Excellent job.

I was wondering if you'd like to try the A/B test on the TLC data yourself? Based on what you've shared with me, I have every confidence you already have all the skills and experience needed for this task.

What do you think? Would you like to give it a go?

Also, like I said in my email to Deshawn, you'll need to write an executive summary of the results so we can present it to Udo before he shares it with the client.

Thanks so much!

Luana Rodriguez

Senior Data Analyst

Automatidata

Project background

Automatidata is working on the TLC project. The following tasks are needed at this stage of the project:
- Explore the project data
- Implement a hypothesis test

- Communicate insights with team members and TLC stakeholders

Your assignment

You will conduct hypothesis testing on the data for the TLC data. You've been asked to investigate TLC's dataset to determine which hypothesis testing method best serves the data and the TLC project.

Specific project deliverables

With this end-of-course project, you will gain valuable practice of your new skills as you complete the following deliverables:
- Complete a PACE Strategy Document to consider questions, details, and action items for each stage of the project scenario.
- Answer the questions in the Jupyter notebook project file
- Statistical testing
- Report results in executive summary

Good luck in your role! Automatidata looks forward to seeing how you communicate your creative work and approach problem-solving!