CASE

Marketing Data Analytics Engineer

Hi!

FedEx is the largest shipping company in the US, delivering more than 15 million packages per day by using more than 210.000 motorized vehicles.

On the consumer market FedEx is having a market share larger than 40%. More and more of the recipients of packages delivered by FedEx want to monitor the process by recieving (or requesting) Track & Trace information. Traditionally FedEx pushes SMS notifications to update recipients of their shipment.

To have recipients more engaged with FedEx there is a mobile app. This app offers recipients functionalities to have an overview of all packages and also offers push notifications. Next to the advantage for consumers using the app there is also a cost efficiency for FedEx being able to reach those consumers by push notifications instead of traditional SMS.

In essence, FedEx wants to stimulate customer to do the tracking of packages via the mobile app rather than via the web.

As the Marketing Data Analist, you are tasked with analyzing datasets of the Mobile app and Website to gather actionable insights that will form the foundation of our advice if it is feasible to implement a data driven campaign addressing a significant volume of non-app users.

The team wants to understand the possible business opportunity of a campaign to non-app users. As they don't have many insights yet, you will be performing some essential groundwork in this assignment.

We challenge you to:

- Explore the dataset (dummy data provided via csv).
- Create a data warehouse from this set
- Do an initial analysis to understand how the consumers are interacting with FedEx.com and the Mobile-app.
- Draw conclusions and present your findings to us.

This case offers you the opportunity to demonstrate both your technical and marketing skills.

If you have any questions, don't hesitate to ask.
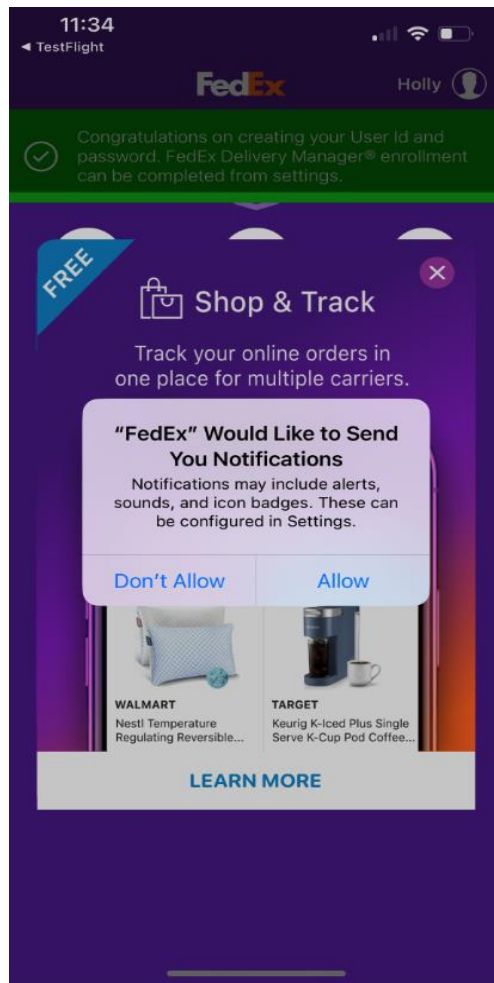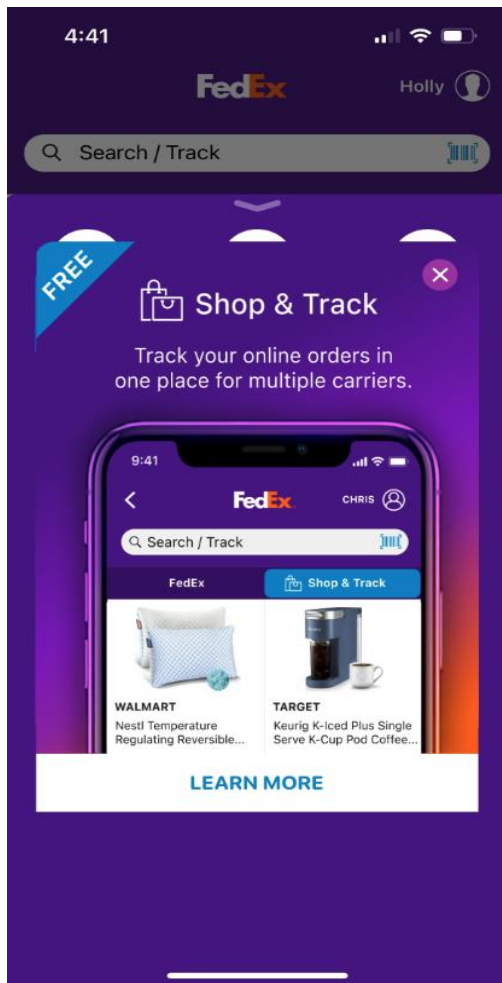
Images: FedEx Mobile App (ios)

THE ASSIGNMENT

What do we expect from you?

Since you're conducting an exploration of the dataset, we're interested in your findings and (more importantly) in understanding how you found them. What we would like to see and understand is your approach.

Tell us what you have observed and describe the decisions and choices you made while exploring the data. You can demonstrate your findings and approach by walking us through the data and analysis you performed in DBT. We also ask you to create a brief presentation (e.g., Powerpoint) to demonstrate your findings.

The solution must perform the following actions:

- Cleaning, validating, and thoroughly exploring the raw dataset in search of valuable insights to share with the digital marketing automation team.
- Create data warehouse structured in Kimball star schema that enables marketeers to do analysis (written in SQL/DBT).
- Adding some testing on your data models to ensure consistent data quality.
- Present your findings using a visualization tool (feel free to choose any open-source tool) and a (short) Powerpoint where you sum up your conclusions. What do you advise us to do, based on your analysis?
- Lead us through your data models building process and explain your choices of each step.

ATTACHMENT

Next to this document you will receive a ZIP-file with two dummy datasets in CSV format.

Data Provided (sample) – 7 days (22 November 2023 till 28 November 2023)

1. **FedEx.com hit-level Web Data (case_data_analist_sample_web_20240514)**

   This table contains a sample of webdata collected on fedex.com. User_id is the id of logged in users.

2. **FedEx.com hit-level Website Data (case_data_analist_sample_app_20240514)**

3. This table contains a sample of app data collected via the mobile FedEx app. User_id is the id of logged in users.

Requirements

This assessment focus on providing a mini case that we expect from the Marketing Data Analytics Engineer role, you need to showcase your skills on data exploration, cleaning, validating, and in the end transforming it into a usable data warehouse by using Kimball methodology.

This exercise is intended to test your hands-on skills on building a easy to use data set using Kimball dimensional modeling. Please try to make clean fact and dimension table(s) (if possible) tidy, clean, and easy to understand so that our marketeers can do analysis effortlessly.

The solution has to perform the following actions:

- Cleaning, validating, and exploring the raw dataset.
- Present your findings using a visualization tool but don't spend too much time on this (feel free to choose any open source tool).
- Demonstrate that you understand Kimball star schema that enables marketeers to do analysis (written in SQL/DBT).
- Adding some testing on your data models to ensure consistent data quality.
- Lead us through your data models building process and explain your choices of each step.
- Using DBT to construct this project

Notes and requirements:

- Optional: deploy the data models on a public cloud provider
- During the interview you will be requested to give a presentation of your solution to explain your choices in 1 hour.
- The expected preparation time is approximately 4-6 hours. Should you not be able to finish in this time, we value also the thought process how you thought of the architecture, approach and any future improvements you could make.