Rotate Data Challenge

Rotate helps airlines turn data into action and improve day-to-day commercial decision-making. We combine state-of-the-art market data, cloud-based tools and analytics with expert support and training.

One of the core metrics used to decide on future investments by airlines, is the current available cargo capacity calculation. This is basically the total amount of cargo that can be shipped between different airports given the current flight paths and aircrafts.

We want to determine the actual cargo capacity from history data defined from 2 numbers

1. The number of flights that have traveled between different airports
2. the total amount of volume and/or weight that can be shipped if an aircraft would be fully packed

To get to this numbers we provide two data sets

1. *flights_events.zip:* this is a collection of events received from flightradar 24. More details about this data is available in flight_events_documenation.pdf
2. *airplane_details.json:* details about the individual aircrafts. The schema of this file is provided here:

field	Example	Description
code_iata	388	IATA Aircraft Type Designator
code_icao	A388	ICAO Aircraft Type Designator
full_name	Airbus A380-800	Full name of the aircraft
category	A380	The aircraft category group
average_speed_mph	550	Average cruise speed
volume	86.74944	The volume capacity of the aircraft in m3
payload	83417.6077	The weight capacity of the aircraft in kg

We need your help to calculate the total cargo capacity.

Question 1

Choose a method of accessing the data in the data zip file, this could be flat file based or loading the data into a database. Make sure to model the data so it becomes easy for you to access multiple times for your analyses. (hint play with the different data types)

Question 2

Create a capacity table that calculates the total available cargo capacity in weight and volume per flight.

Hint: The provided data is a subset of the real world data, so you are going to mis details write down what you noticed and how you decided to handle it.

Question 3

We want you to show us what you find interesting to work on so come with a way of presenting the data that shows this (please pick one don't try to do everything, be wary of your time).

For example:

1. Create an api endpoint that accepts two airports as input and returns the total capacity per day
2. Create a report/graph describing the capacity between the different airports for a given day (doesn't need to be pretty)
3. Build a model to predict the capacity per route
4. Surprise us…

Presenting

Whatever you build, be prepared to present it to our team in about 10 minutes the next time we meet. Secondly, we are very interested into how you came with the result so we will discuss this in the next 30 minutes.

Contact

If you have any questions, you can contact me and I'll try to answer it within an hour during working hours (Monday/Friday 9:00 till 17:00). Outside of working hours, I can't give you any guarantees ;).

- Hans@letsrotate.com Lead Data Engineer

Good luck,

Hans