

EZ Car Rental Company

The EZ Car Rental Company has created a new contactless method of renting cars to customers, available 24/7 at many locations around the country. You have been provided with 2 datasets with information on their operations. For all tasks in this assignment, you can assume that this dataset represents the universe of operations for EZ. The datasets are described below:

journeys.csv

Trip ID Hash	Car ID Hash	Car Parking Address Postcode	Car Parking Address City	Trip Start At Local Time	Trip End At Local Time	Trip Created At Local Time	Trip Sum Trip Price
00010247034d 28272cf5e1e16 b43f52f	9ddac6a5fb0b3 962db3b2f42fd 31d3f9	94110	San Francisco	11/14/2017 22:15	11/15/2017 2:15	11/14/2017 20:32	\$20.00

utilization.csv

Car ID Hash	Car Hourly Utilization Aggregated At Time	Car Hourly Utilization Sum Available Minutes	Car Hourly Utilization Sum Utilized Minutes
001469b449411d522 06f2dc5e523664d	12/19/2017 12:00	60	0

Task 1: Descriptive Analytics

You have been asked to present to EZ leadership on demand patterns at EZ nationwide. Analyze the data available from this perspective. Create a slide deck for the presentation with data and visuals (no more than title slide + 3 slides). Share both the slide deck and code / files used to create the deck.

Task 2: Predictive Analytics

EZ currently uses a set of rules to determine its pricing for car rentals. For this task, focus only on the San Francisco locations of EZ. Develop a predictive model that mimics the current set of rules. Write a memo (not exceeding two pages, 11 pt. font single spaced) on why your model is appropriate, potential weaknesses in the model and the kind of data you would like to have to improve it. Share your memo and accompanying code.

You can choose to do either Task 3 or Task 4. Your choice of problem gives Andela a sense of your relative strengths. However, if you have the time and willingness to do both, that would be a bonus of course.

Task 3: Prescriptive Analytics

Although EZ has been using some common-sense rules in its pricing, it would like to improve its methodology. Formulate a mathematical model that allows EZ to optimize its prices given the data at hand. Using San Francisco location data, determine the optimal pricing strategy. Write a memo (not exceeding 2 pages, 11 pt. font single spaced) defending your approach. In your memo, include your thoughts on how you might collect data to make your model provide more meaningful results. Share your memo and code.

Task 4: Solution Design

EZ would like to implement its pricing rules in an API call that can render to their mobile app a price quote for a prospective trip. For this purpose, create a Python package whose inputs and outputs should be as follows:

Inputs: City name, Journey starting time, Journey starting date, Journey duration in hours

Output: Journey price quote

Create a diagram of the data pipeline with supporting information on the cadence at which you might run different pieces of code. Please share your diagram and the package code.