NetX

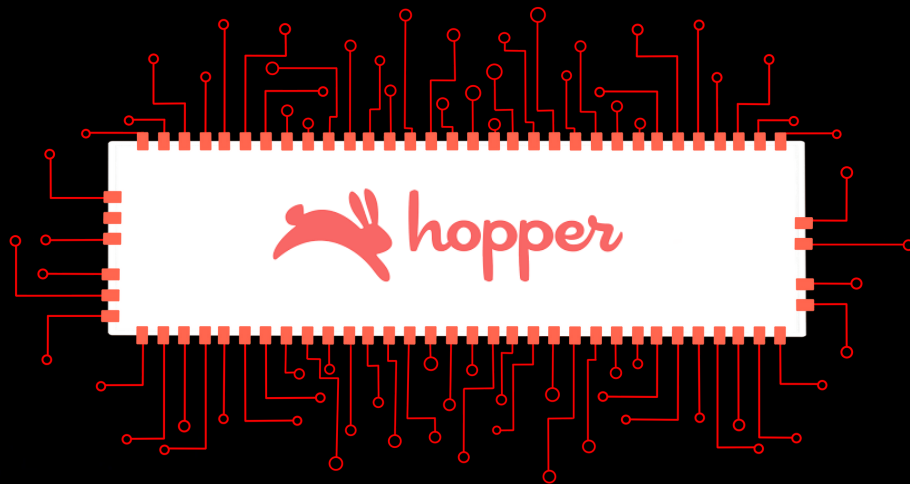Case Competition and Network Event

Case Study

hopper

Hopper Case Study

20ᵗʰ March 2021

OVERVIEW

Hopper is an app that seeks to use applied AI and data science to predict flight and hotel ticket prices. Based on past data, Hopper enables customers to secure bookings at the optimal time to save the most money. With so many booking agencies and sources to plan their next trip, customers can become overwhelmed with how to secure the best possible bang for their buck. Hopper simplifies the process for its customers with its robust prediction algorithms to alleviate stress and overhead.

Hopper's algorithms allow travelers to book the cheapest and cost-effective tickets available in that current market. Their algorithms are able to assess a myriad of data - which often have discrepancies - in a manner that allows for the resulting ticket(s) to be optimal for both the traveler and Hopper.

TASK OUTLINE

Hopper wishes to launch a new feature for their customers that will let them "price freeze" a ticket price for a set amount policy duration days based on revenue loss/gain due to possible fluctuations and demand for the ticket. This will allow customers flexibility and ease of mind in booking tickets without needing to make purchases immediately on the spot. To be able to accomplish this, Hopper will leverage prior information including the "Revenue Per Attach" (customer) for each customer purchase, the "Cost Per Attach" for each customer purchase, i.e due to the customer buying a ticket that would otherwise increase in price.

Additionally there is data regarding how many users purchase a ticket using this feature (as a percentage) and the net revenue for the company per user. The main problem lies in developing a reliable algorithm that minimizes losses for Hopper while maintaining as much customer flexibility in terms of days a ticket can be frozen for and the price for which it can be frozen. The objective is to attract new customers to increase the user base from which revenue can be generated while still maintaining reasonable ticket margins to make enough profit to sustain company growth.

DELIVERABLES OUTLINE

For your task, use the basic dataset provided to understand the results and patterns in customer behavior. Then provide an algorithm or mechanism to determine what fee should be reasonably charged based on the different permutations of post and revenue per attach. This process is inherently subjective in nature and we ask you to justify your decisions and your conclusions. Linear interpolation or similar algorithms used over a variety of different cases and scenarios for the charged fees and consequent comparisons may be a good place to start. An emphasis is placed on your results being visual so use relevant data visualization tools such as histograms or scatterplots or heat maps at your own discretion.

Use the data provided and appropriate Data Science & Data Algorithms techniques as you deem fit to produce a presentable set of results that satisfy the acceptance criteria above. Other technology may be used but a Jupyter notebook to illustrate results and run data while leveraging Python's tools for data science and AI/ML may be handy.

RESOURCES

- https://www.tableau.com **(Visualization)**
- https://numpy.org **(Python library for data science)**
- https://jupyter.org **(IDE)**

For the submission, please provide the code files for your model if applicable, as well as a slide deck. Refer to the Miro board regarding submission details and presentation guidelines.