

Hotel Booking Demand

Jing Zhang

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Introduction

Motivation

- When booking a hotel, people consider many factors, such as the best time to book a hotel, the location of the hotel and so on. For the hotel manager, how to better attract customers to book the hotel?
- Now I want to explore this issue from a different perspective. I want to know how likely it is for people to choose to eat in hotels so as to provide some constructive suggestions for hotels to attract more customers.
- My final goal is to make predictions about the possibility that people will choose to eat in hotels.

Data preparation and description

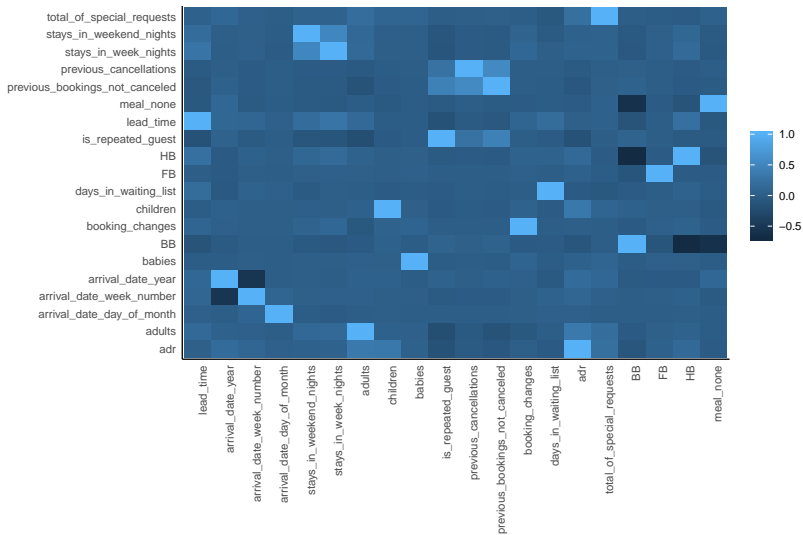
- This dataset comes from the Kaggle and contains booking information for a city hotel and a resort hotel, and includes information such as when the booking was made, length of stay, the number of adults, children, and/or babies, and the number of available parking spaces, among other things.

Table 1: Data summary

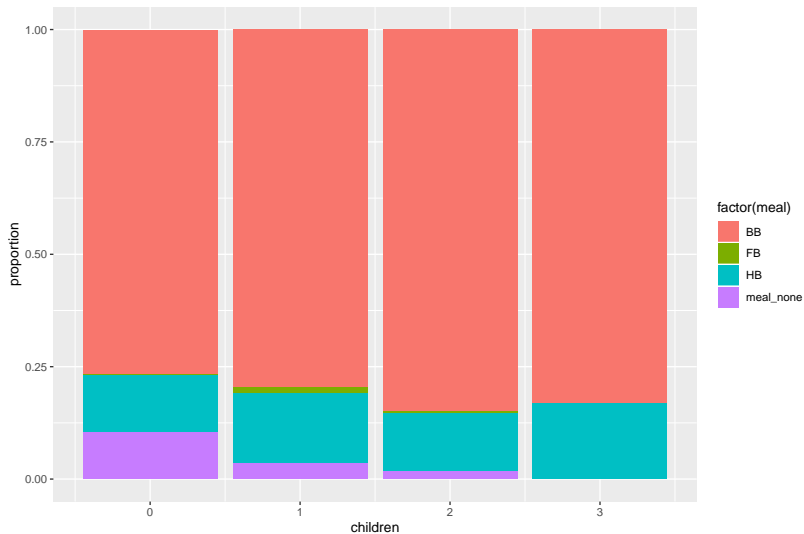
Name	hotel
Number of rows	119390
Number of columns	32
Column type frequency:	
factor	14
numeric	18
Group variables	None

Exploratory data analysis

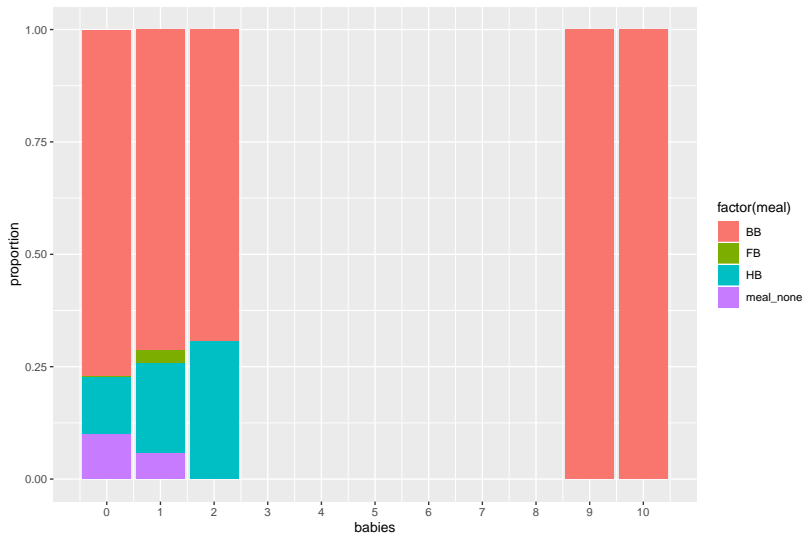
How the features are correlated to each other



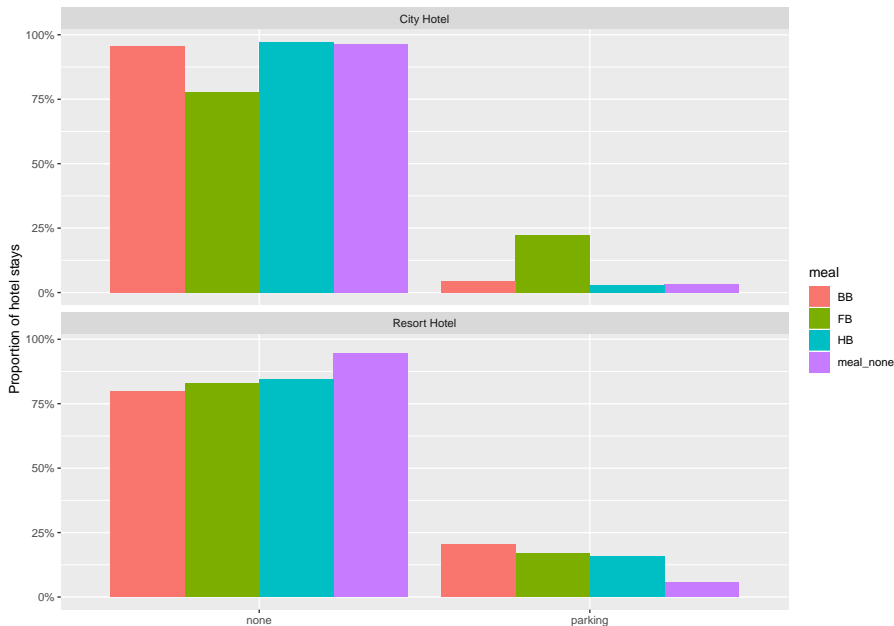
Do elders with children choose to eat in hotels?



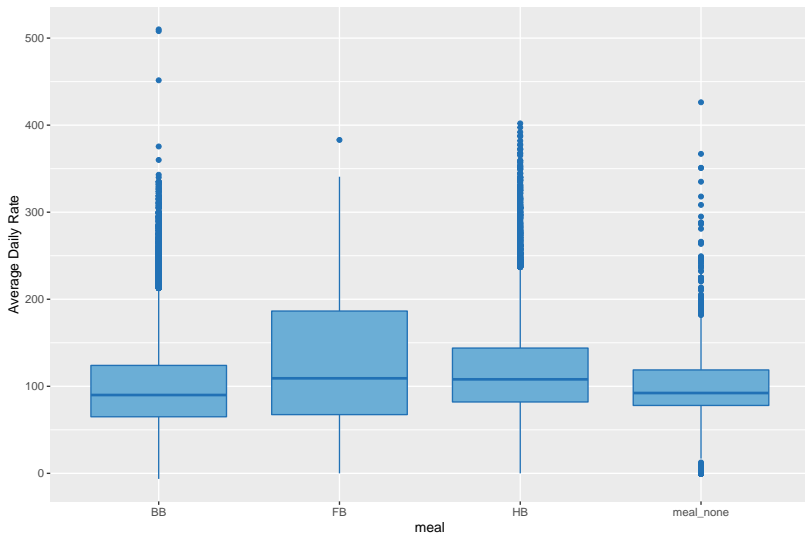
Do elders with babies choose to eat in hotels?



How about availability of parking?

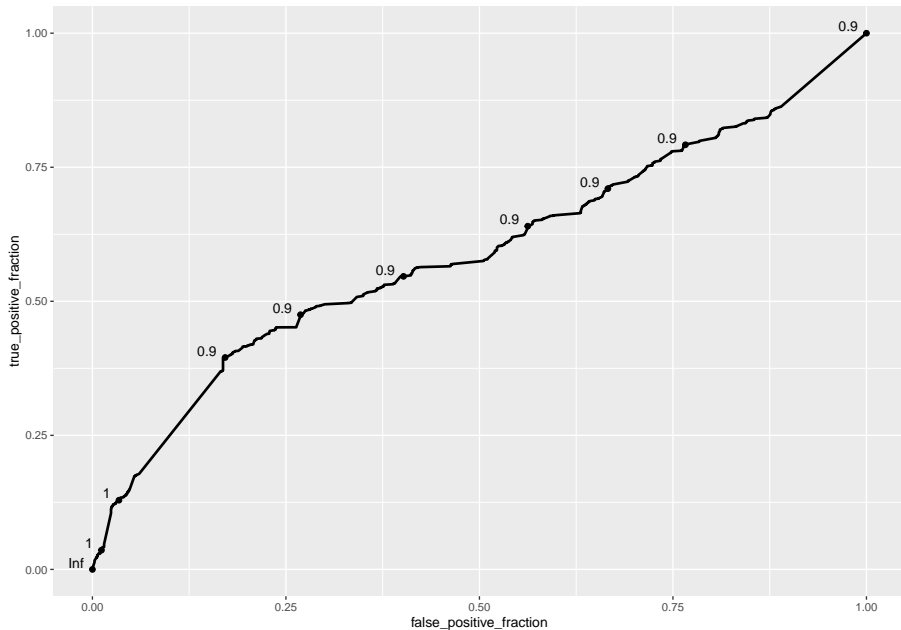


Does the average daily rate affect people's choice to eat in hotels?



Formal Modeling

Logistic Regression



Model

$$\hat{h}_{\theta}(z) = \frac{1}{1 + \exp(-z)}$$

$$z = \hat{\theta}^T x$$

$$\hat{\theta} = (3.684, -1.366, 0.433, 1.062, -0.003)^T$$

$$x = (x_0, x_{children}, x_{babies}, x_{park}, x_{adr})^T$$

Future Analysis

- Use different methods to make predictions, such as decision tree, SVM and so on.
- Compare the used methods and analyze their pros and cons.
- Choose the best model to make predictions.

The end

Thank you!