



Hotel Cancellations Project

Elaine Wen
MGT 3745 Fall 2023

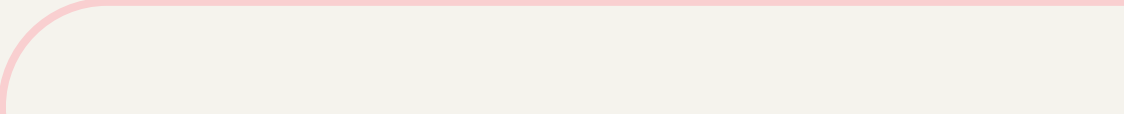


Table of contents

01

Introduction

02

Dataset Overview

03

Exploratory Data
Analysis

04

Conclusion



Introduction

In 2019, the share of direct booking revenue lost due to cancellations was 15%. In 2022, this figure skyrocketed with **20% of bookings canceling** – a 33% increase over 2019 for the same period.

Source: Allora AI

Project Introduction

- **Goal:** discover variables most important in determining hotel cancellations
- **Hypothesis :** Lead time, deposit type, and type of traveler will be the most important variables.





Dataset Overview

Cleaning Data

before cleaning:

- 119,390 data points
- 32 columns

after cleaning:

- removed null values
- 29 columns (removed agent, company, and country)

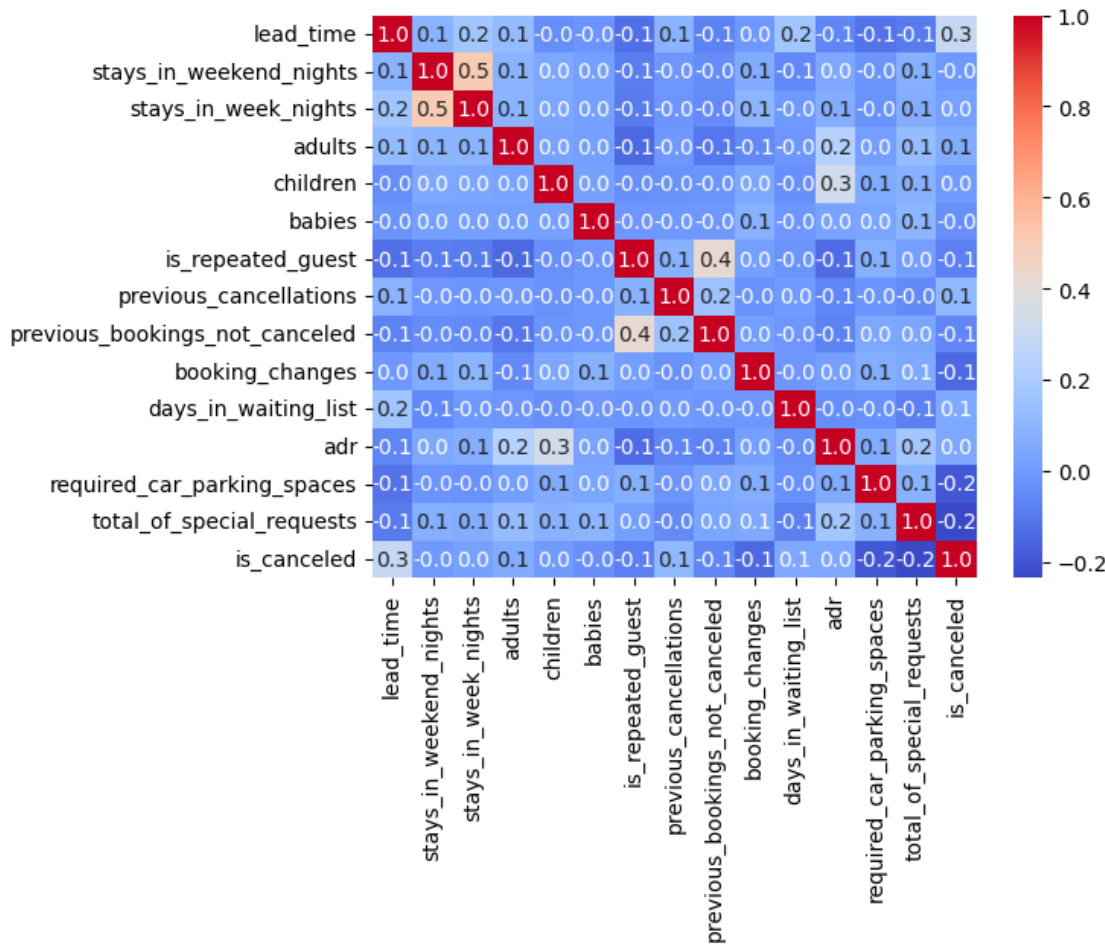


Column Information

- hotel type
- cancellation status
- lead time
- arrival date
- weekday nights
- weekend nights
- adults
- children
- babies
- meal
- country
- market segment
- distribution channel
- repeated guest status
- previous cancellations
- previous bookings not canceled
- reserved room type
- assigned room type
- booking changes
- days in waiting list
- customer type
- address
- required car parking spaces
- total of special requests
- reservation status
- reservation status date



Exploratory Data Analysis

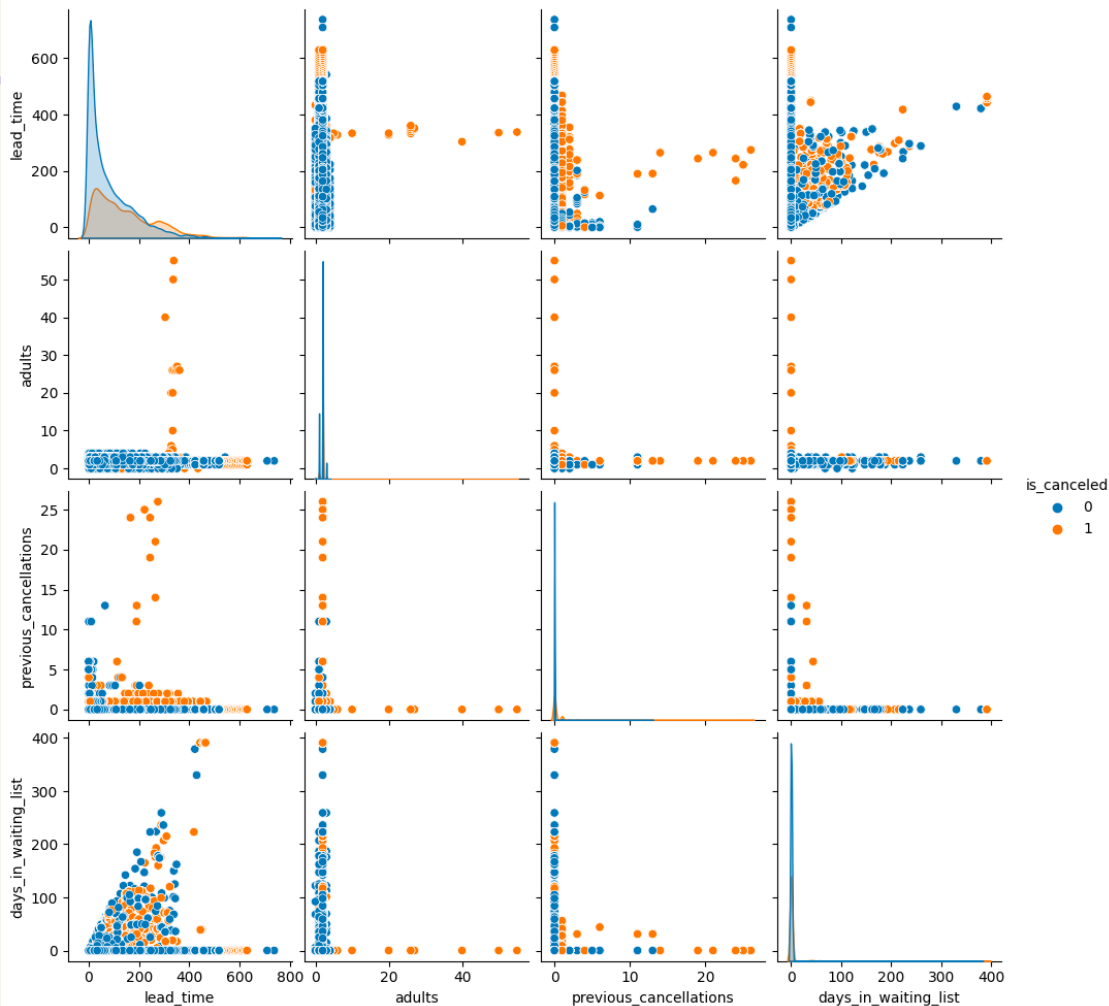


Correlations

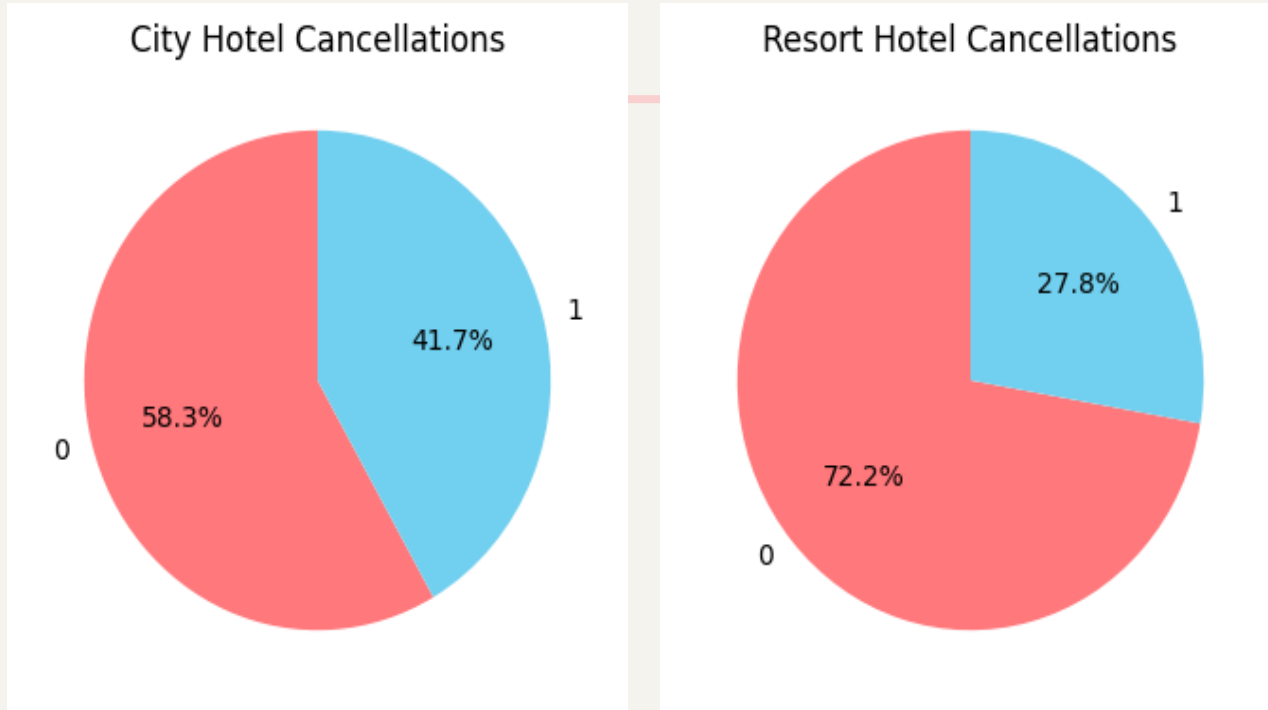
- Highest correlation with cancellations: lead time
- Smaller correlation: adults, previous cancellations, days in waiting list
- Opposite correlation (less likely to cancel): repeated guest, previous bookings not canceled, booking changes, car parking spaces, total number of special requests

Correlations

- Highest correlation with cancellations: lead time
- Smaller correlation: adults, previous cancellations, days in waiting list
- Opposite correlation (less likely to cancel): repeated guest, previous bookings not canceled, booking changes, car parking spaces, total number of special requests



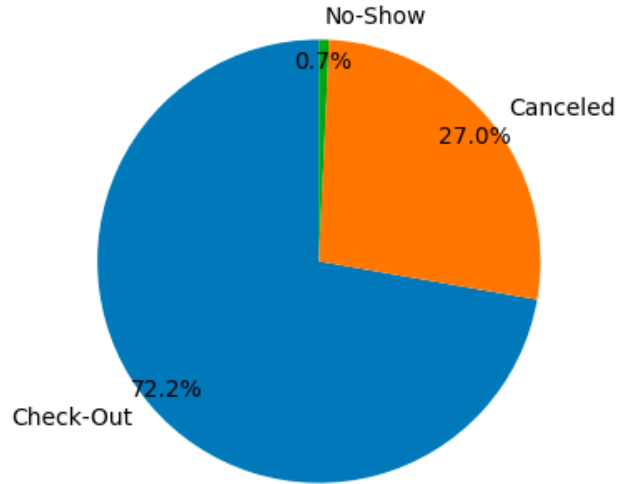
City vs. Resort Hotel



There is a higher percentage of city hotel cancellations than resort hotel cancellations.

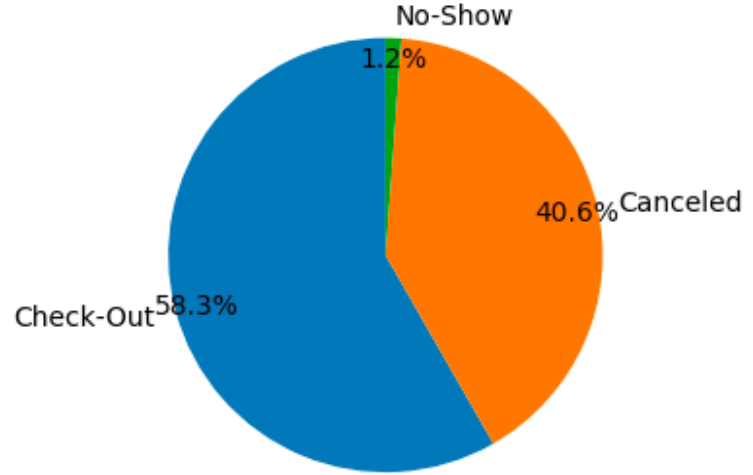
Reservation Status

Resort Hotel Reservation Status



check-out: 72.2%
no show: 0.7%
canceled: 27%

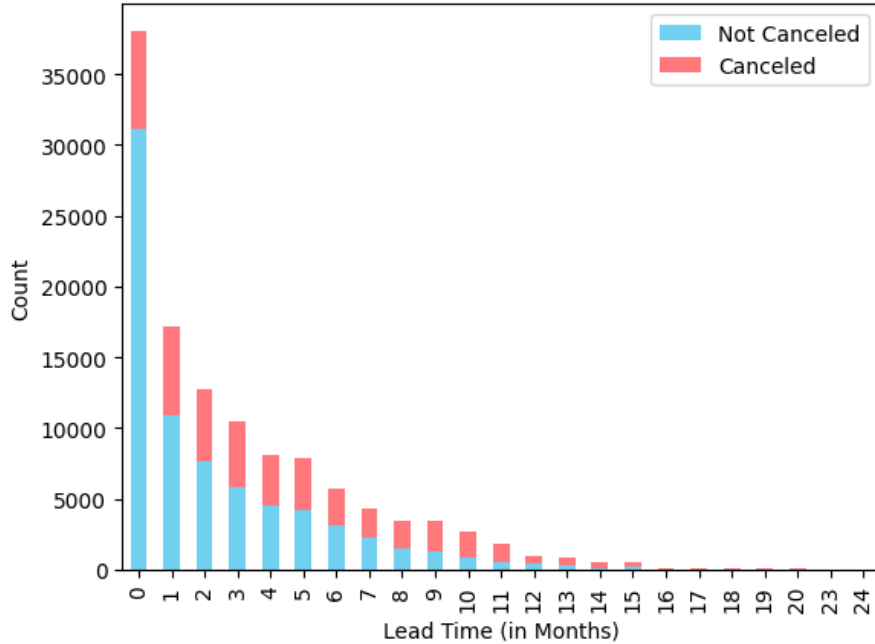
City Hotel Reservation Status



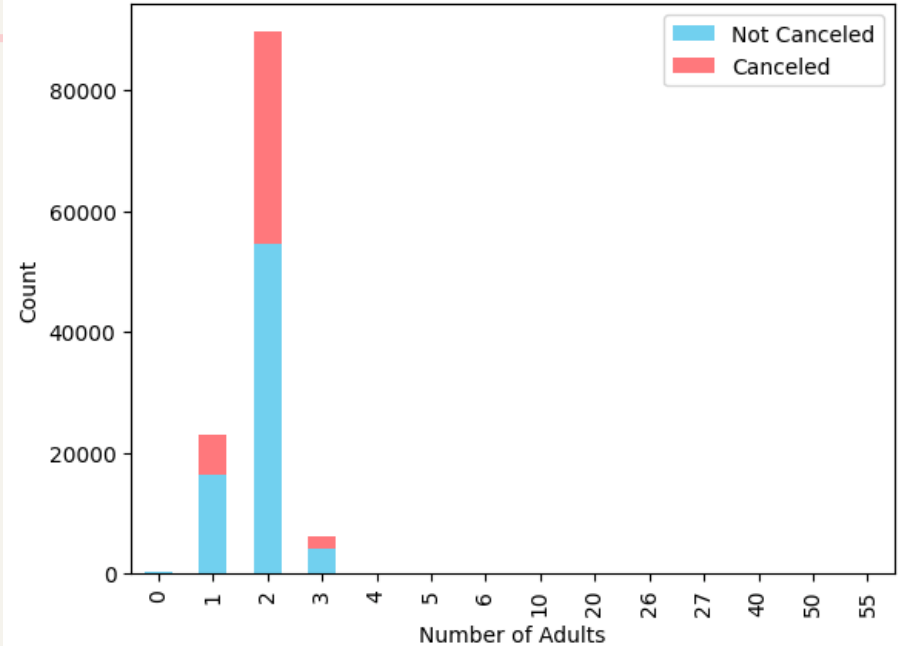
check-out: 58.3%
no show: 1.2%
canceled: 40.6%

Further Analysis

Cancellations by Lead Time (in Months)



Cancellations by Number of Adults

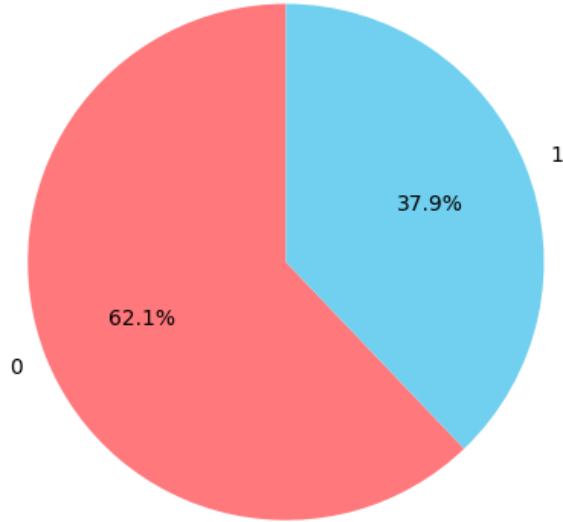


The longer the lead time, the less likely a cancellation will occur.

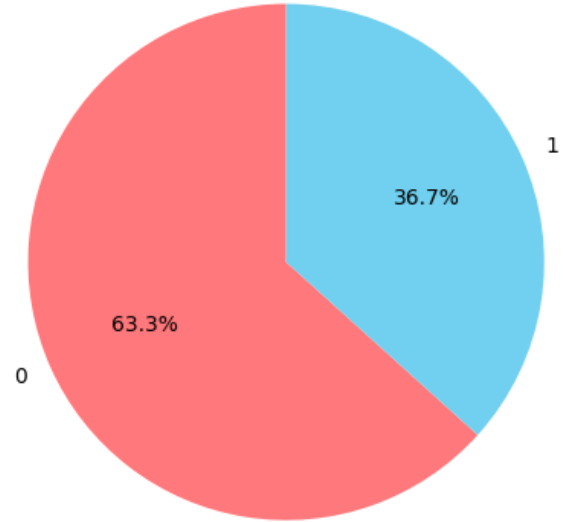
Couples are more likely to cancel than solo travelers or groups of 3 or more, proving previous research to be accurate.

Weeknight vs. Weekend Stays

Cancellations on Weeknight Stays

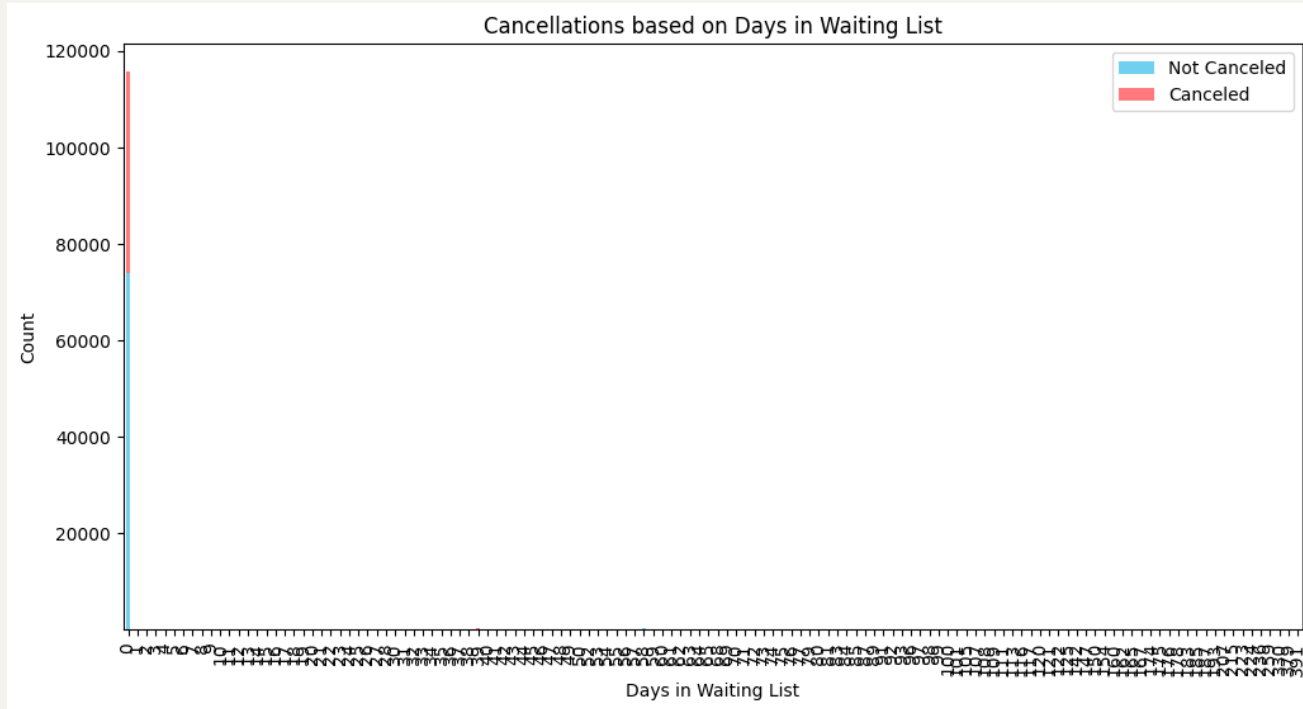


Cancellations on Weekend Stays



Weekend stays are slightly less likely to be canceled on. This might be because business travelers are more likely to cancel their stays while weekend stays are more likely to be vacations.

Waiting List



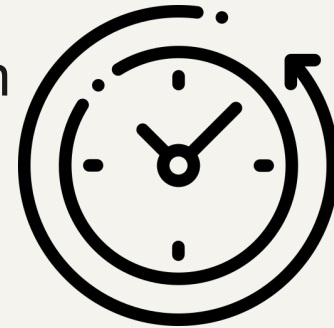
Days in waiting list proved to be an unhelpful variable in determining cancellations, since there are no bookings that had to be put on a waiting list.



Conclusion

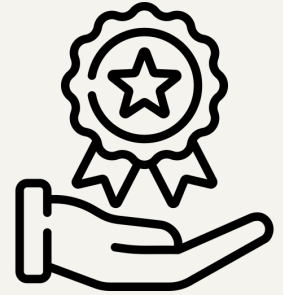
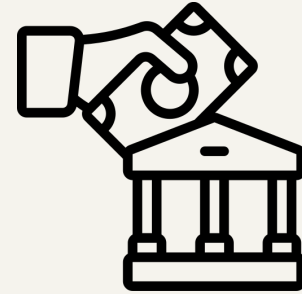
Overall Findings

- Couples are more likely to cancel than solo travelers or groups of 3 or more adults.
- Weeknight stays are more likely to cancel than weekend stays.
- The variable with highest correlation to cancellations is lead time.
- The longer the lead time, the less likely a cancellation will occur.



Recommendations

- For couples, set a higher deposit amount than other types of travelers.
- Add an incentive for business travelers (usually during the week) in the form of hotel rewards points for not cancelling.
- Do further analysis on the exact number of days in lead time where travelers cancel, and send out a hotel rewards incentive for travelers below that lead time to prevent cancellations.



Thanks!

Do you have any
questions?

