

Maximizing Revenue For City Hotel

Revenue Optimization Strategy 2017-2018

Presented by Dooinn KIM



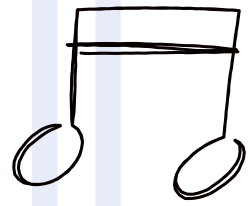
Agenda

“What are we going to cover?”

- 1 Dataset Overview
- 2 Revenue Overview
- 3 Identifying the Business Challenge
- 4 Customer Segmentation
- 5 Predicting Cancellations
- 6 Recommendations & Conclusion

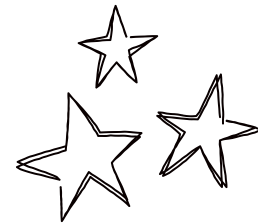
1. Dataset Overview

“What are we examining?”



Dataset Overview

- **Source:** City Hotel Booking System
- **Time Frame:** July 2015 -Aug 2017
- **Columns:** 119,390 rows & 36columns capturing various facets of a booking, including guest details, stay duration, booking status, and financials.

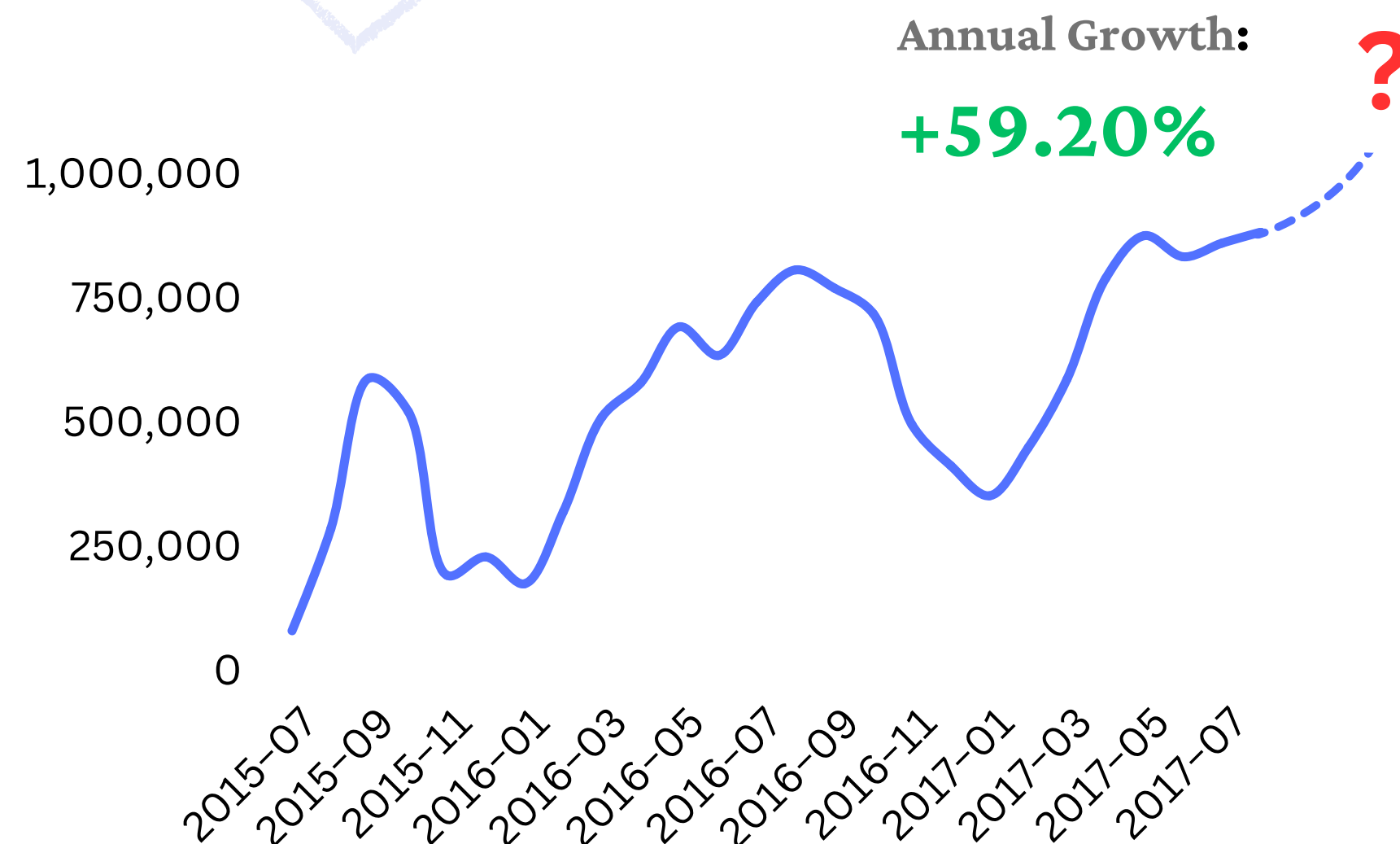


Key Features of the Dataset:

- **Booking Status ('is_canceled'):** Indicates whether a booking was canceled or not. This is critical feature, especially when analyzing how to reduce cancellations.
- **Guest Details:** Information about the guests, such as 'adults', 'children', and 'babies', allows for detailed customer segmentation.
- **Booking Details:** Columns like 'lead_time', 'arrival_date', and 'stay nights' provide insights into guest booking behaviors
- **Financials:** The 'total_rate' columns gives the revenue generated from each booking

2. Revenue Overview

“Where do we stand?”



Key Metrics (Year 2*)

- **Total Revenues:** \$8m (+59.20%)
- **Total Bookings:** 23,745 (+28.21%)
- **Total Cancellations:** 17,810 (+34.49%)
- **Average Cancellation Rate:** 42.86% (+0.17%)

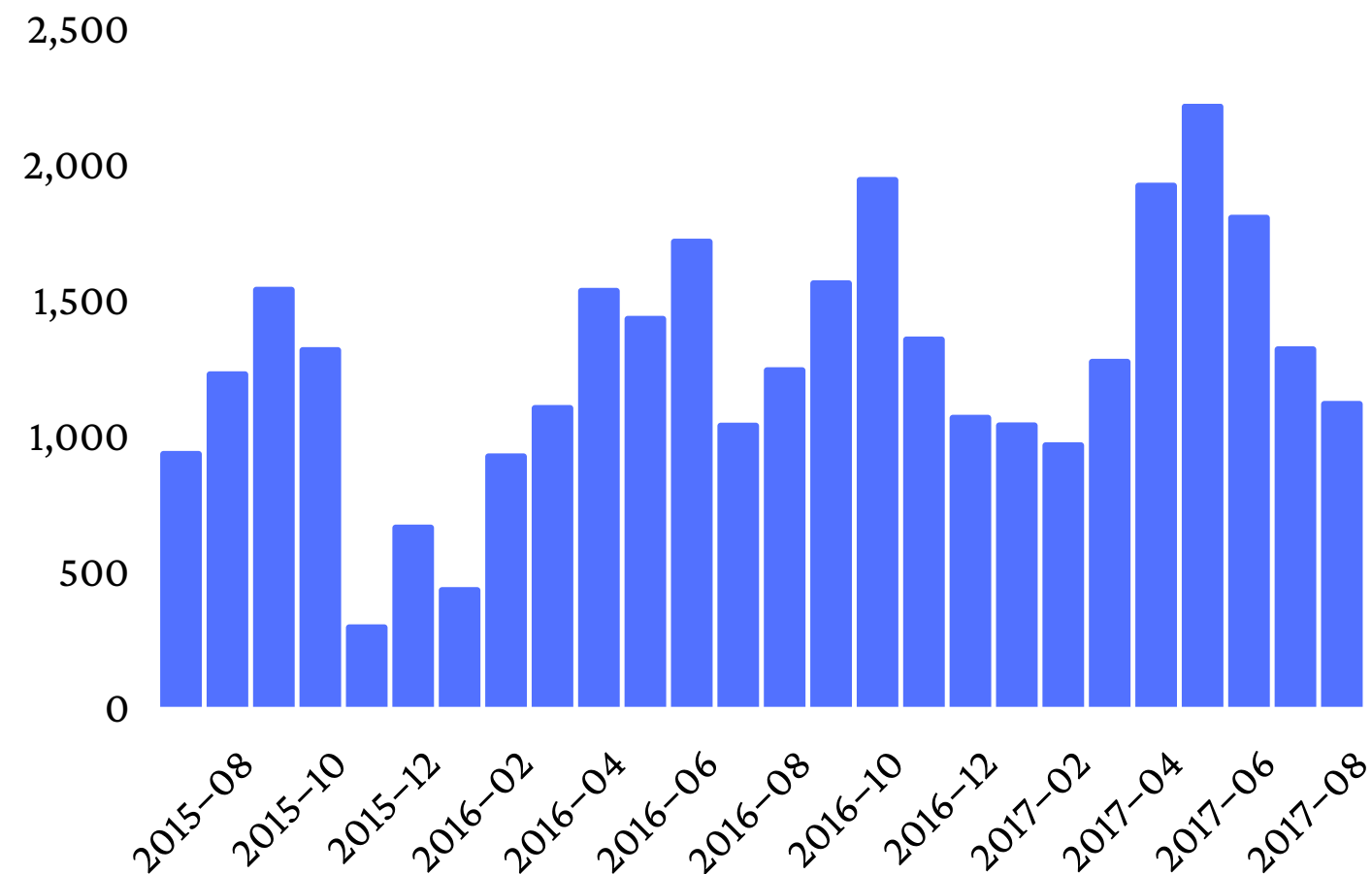
Note: While both revenues and the corresponding number of bookings have seen an uptrend, there has been a rise in cancellations as well, which aligns with typical industry patterns. Nonetheless, it's noteworthy that **the average cancellation rate has experienced a marginal uptick**

* The key metrics displayed represent aggregate figures for Year 2 (the period from August 2016 to August 2017), along with their growth rates compared to Year 1 (the previous year spanning from July 2015 to July 2016)

3. Identifing the Business Challenge

"How can we optimize revenues for August 2018 and beyond?"

Monthly Booking Cancellation



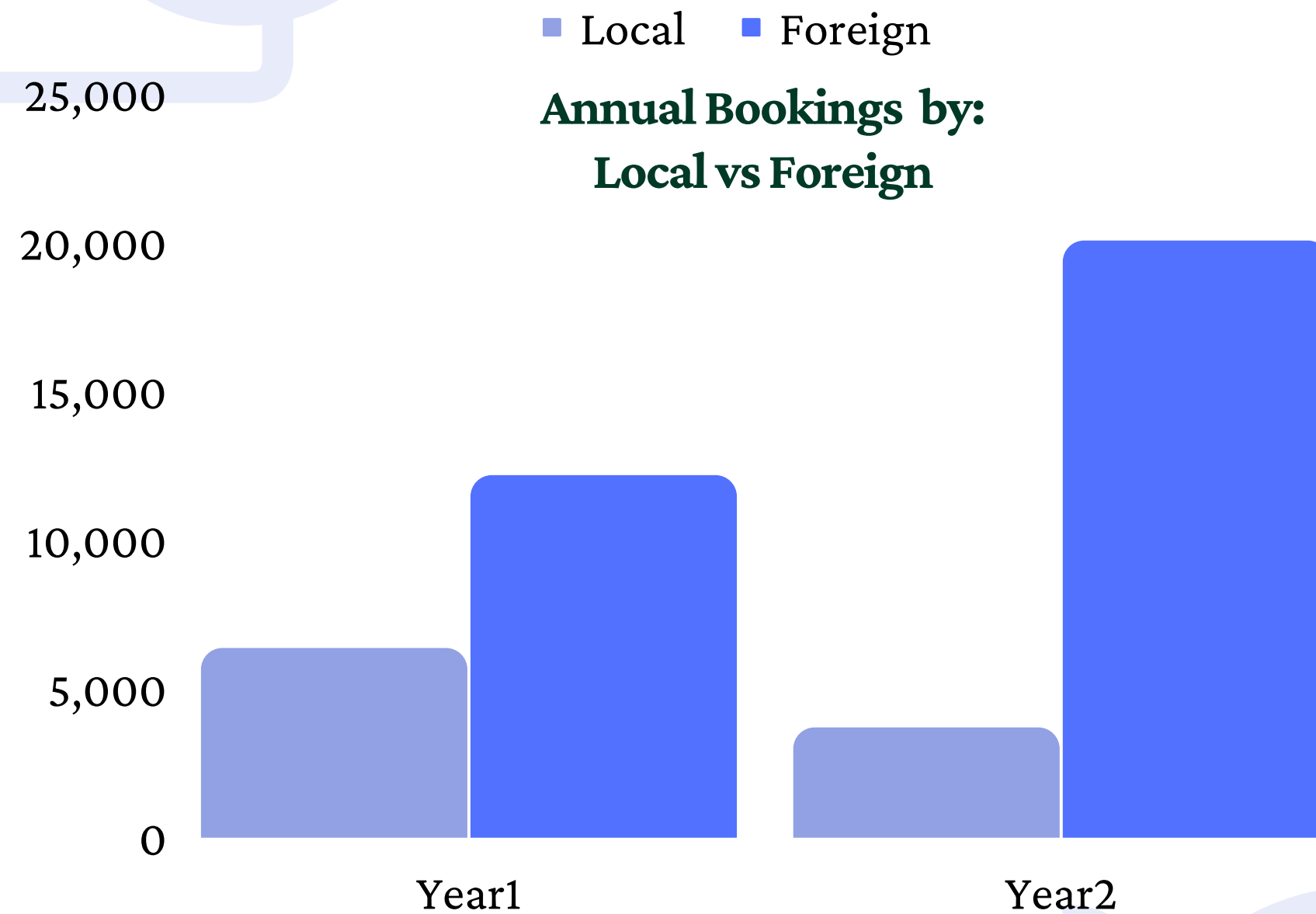
“Reduce Booking Cancellations”

The Importance of Addressing Cancellations:

- Cancellations represent potential revenue loss.
- High cancellation rates can indicate underlying issues with the booking process, customer satisfaction, or market targeting.

4. Customer Segmentaion

"Who are our customers and who tends to cancel bookings?"



- Foreign Bookings: **+64.84%**
- Local Bookings: **-41.81%**



Local

64.9% Canceled



- Median Lead time: 94.5 Days
- Average Nights Stayed: 2.5 nights
- Average Total Spent per booking: \$204.2



Foreign

26.9% Canceled



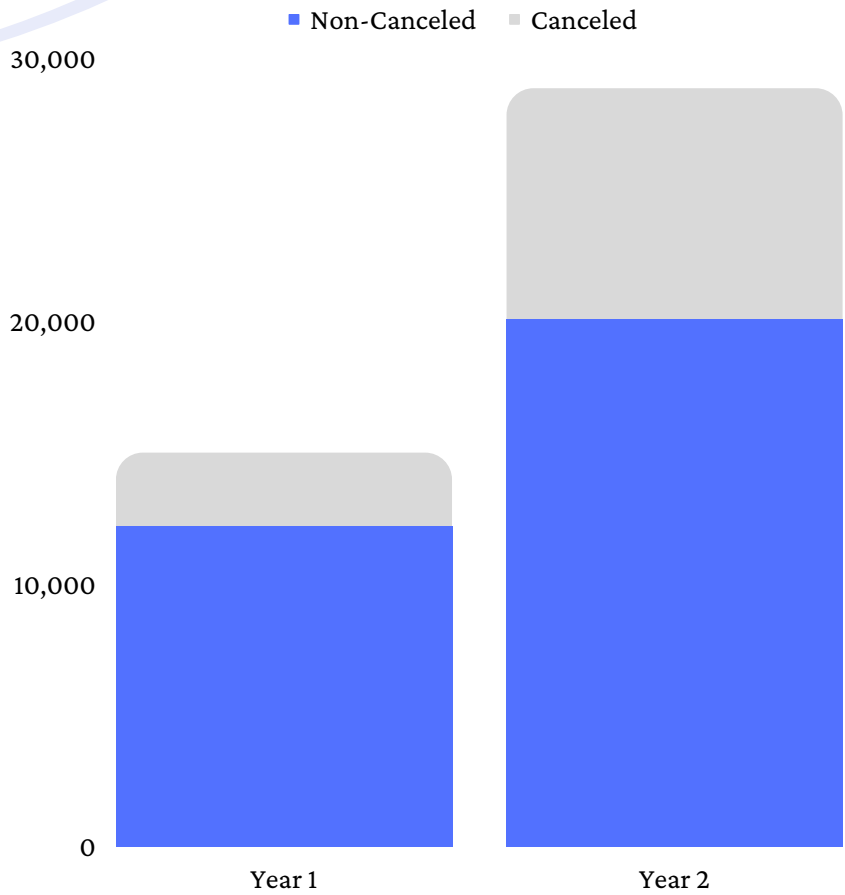
- Median Lead time: 66.0 Days
- Average Nights Stayed: 3.2 nights
- Average Total Spent per booking: \$343.5

Zomming In: Foreign Guests

A deep dive into a key customer segment to target.

Note: The number of bookings from foreign guests has nearly doubled over the past year. However, a deeper dive into the data shows that the guest groups "Couples" and "Family" have experienced a significant rise in cancellation rates. Additionally, while online travel agencies (TAs) like Bookings.com and Agoda are the predominant booking channels, they too have seen a notable surge in cancellations, despite the overall increase in bookings."

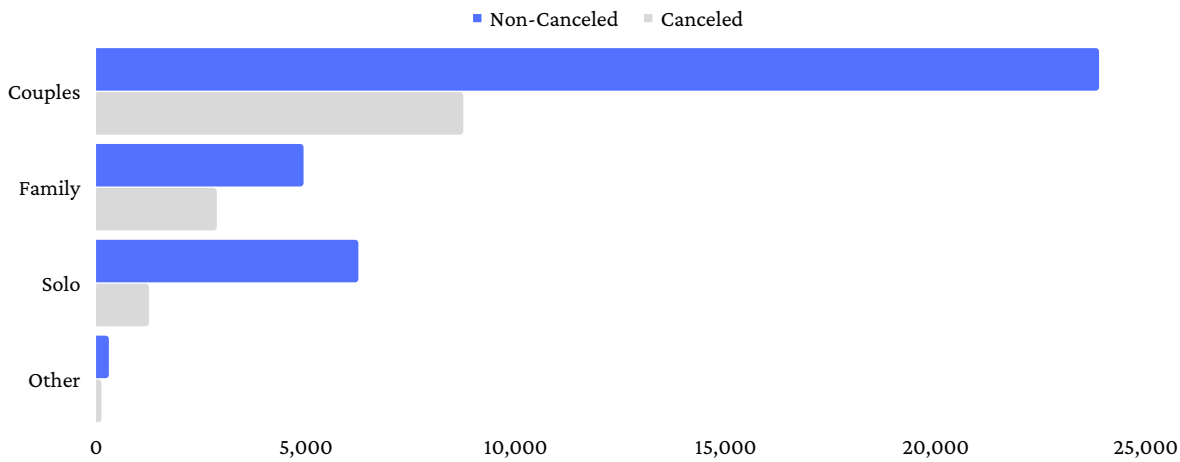
Foreign



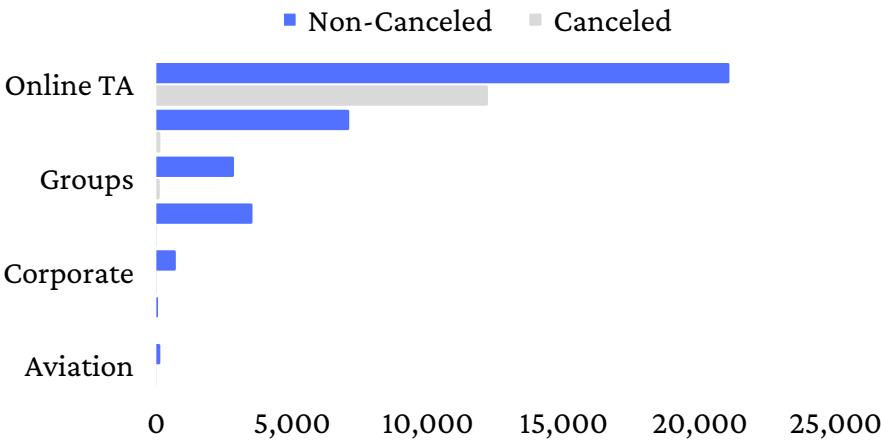
Cancellation Rates:

- **Year1:** 18.77%
- **Year2:** 30.50%

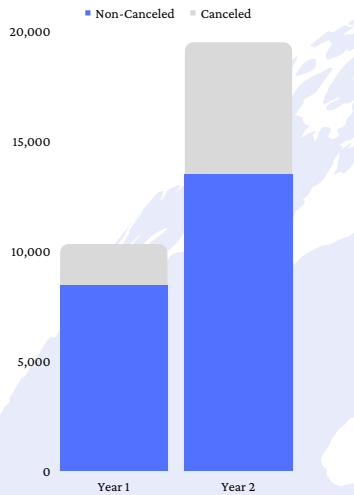
Guest Group Type



Market Segmentation



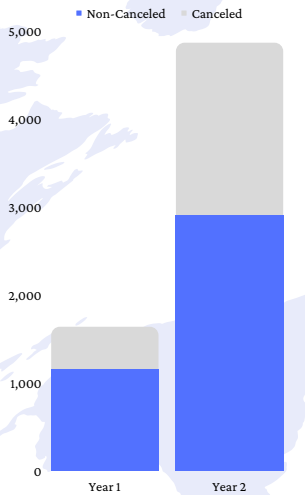
Guest Group Type = Couples



Cancellation Rates:

- **Year1:** 18.16%
- **Year2:** 30.75%

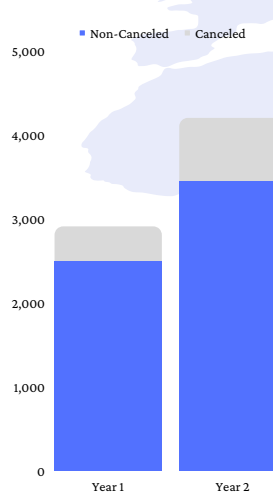
Guest Group Type = Family



Cancellation Rates:

- **Year1:** 29.57%
- **Year2:** 40.22%

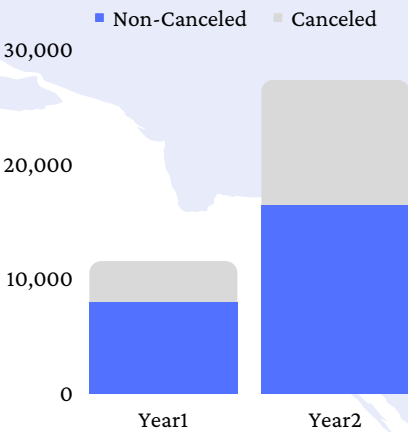
Guest Group Type = Solo



Cancellation Rates:

- **Year1:** 14.56%
- **Year2:** 17.91%

Market Segmentation = Online TA



Cancellation Rates:

- **Year1:** 27.83%
- **Year2:** 39.80%

5. Predicting Cancellations

Presenting our machine learning algorithm for predicting booking cancellations.

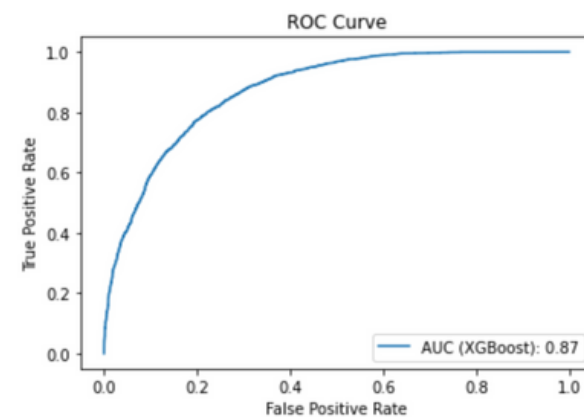
Train Classification Report:

	precision	recall	f1-score	support
0	0.88	0.93	0.90	23228
1	0.78	0.66	0.72	8924
accuracy			0.85	32152
macro avg	0.83	0.79	0.81	32152
weighted avg	0.85	0.85	0.85	32152

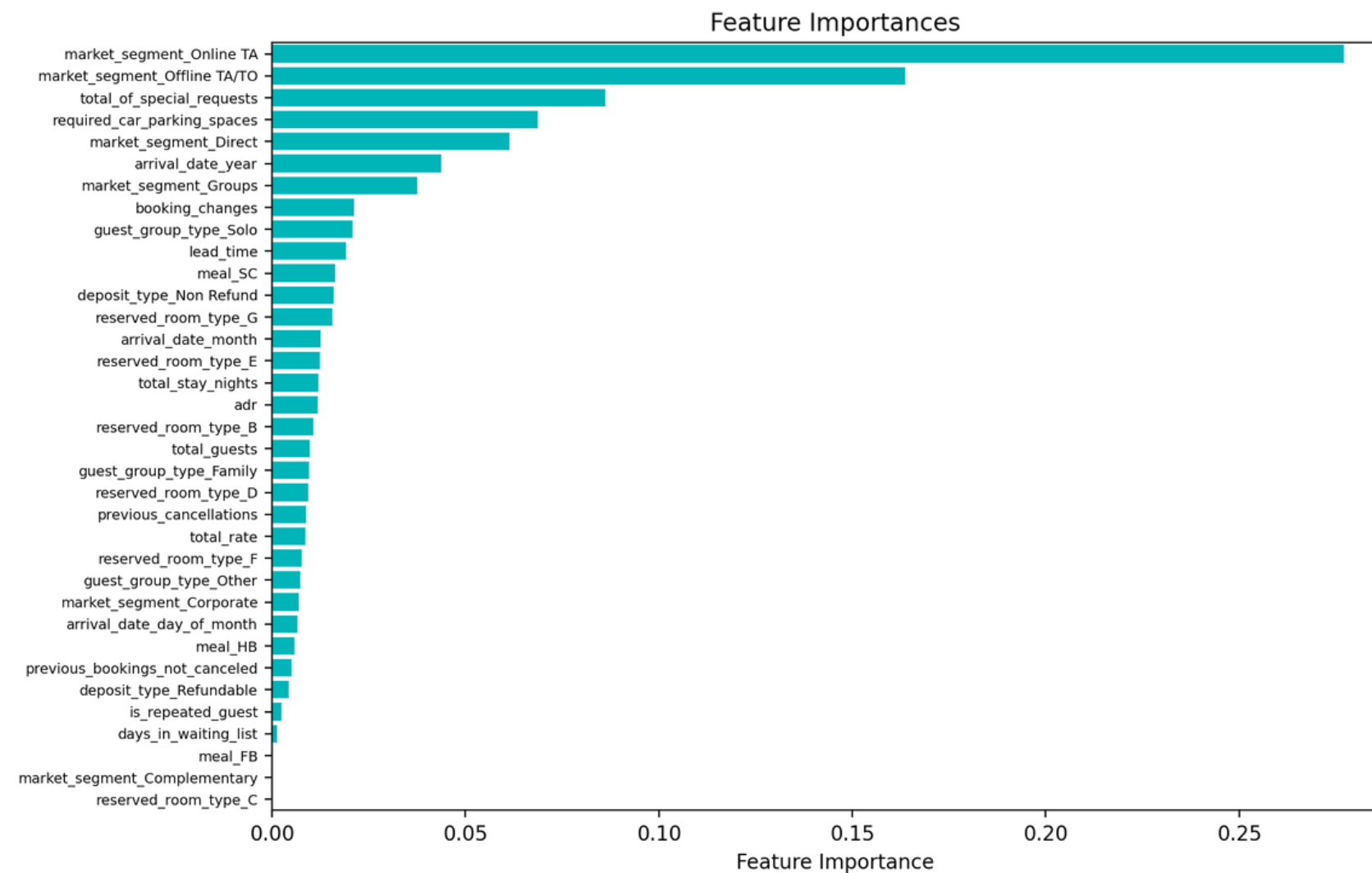
Test Classification Report:

	precision	recall	f1-score	support
0	0.85	0.90	0.88	5807
1	0.70	0.59	0.64	2231
accuracy			0.81	8038
macro avg	0.77	0.75	0.76	8038
weighted avg	0.81	0.81	0.81	8038

Test Confusion Matrix:
[[5231 576]
[914 1317]]



Classification Report
(XGBoost)



Feature Importances
(XGBoost)

Recommendations & Conclusion

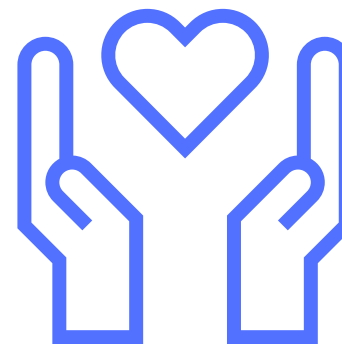
"What's our takeaway?"

1. Objective



Foreign guests, especially couples and families who book via OTAs, should be our primary focus.

2. Insight Gathering



We need to investigate the services offered to these groups and determine if they have specific needs. Analyzing reviews from these guests might provide insights.

3. Implementation Plan



Consider launching promotions tailored to these guests or implementing more nuanced marketing strategies on the OTAs they use.

Booking Dashboard

Main Stakeholder:
Business Development Team,
Marketing Team



CITY HOTEL
Lisboa

FILTERS

Year of Arrival Date

(All)

2015

2016

2017

Month, Year of Arrival Date

(All)

Country

(All)

See Next Page



