

# PREDICT HOTEL BOOKING CANCELLATIONS



# BACKGROUND



DEMAND  
BOOKINGS  
CANCELLATION  
OPTION  
OVERBOOKING

33%

2014

40%

2018

# PROBLEMS

- 01** **42% CANCELLATION RATE**
- 02** **RESTRICTIVE CANCELLATION POLICIES**
- 03** **INADEQUATE OVERBOOKING POLICY**





X

# SOLUTION?

ANTICIPATE FUTURE NET DEMAND

## HOW?

PREDICT CANCELLATIONS USING  
MACHINE LEARNING TECHNIQUES



# WHY?

- 01 MORE INFORMED DECISIONS**
- 02 OPTIMIZE REVENUE**
- 03 REDUCE CANCELLATIONS**

# METHODOLOGY

01

## EXPLORATION

- BUSINESS UNDERSTANDING
- PROBLEMS
- FEATURES

02

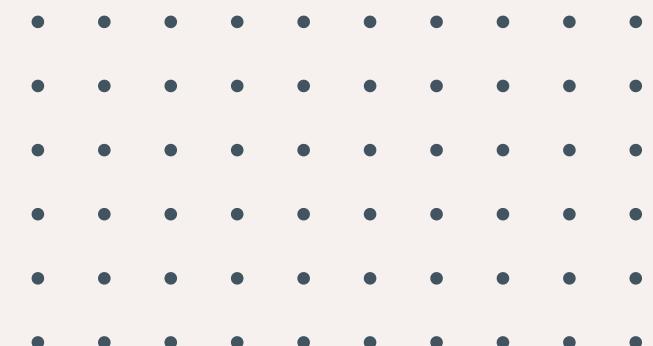
## PREPARATION

- NEW DATA
- INCONSISTENCIES
- MISSING VALUES
- OUTLIERS
- FEATURE ENGINEERING

03

## VISUALIZATION

- EARLY INSIGHTS
- CUSTOMERS



# METHODOLOGY

**04** FEATURE SELECTION

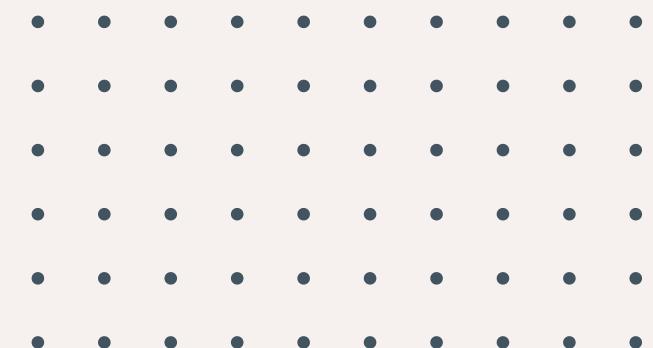
- CORRELATIONS
- BORUTA ALGORITHM
- SEQUENTIAL FEATURE SELECTOR

**06** SOLUTION

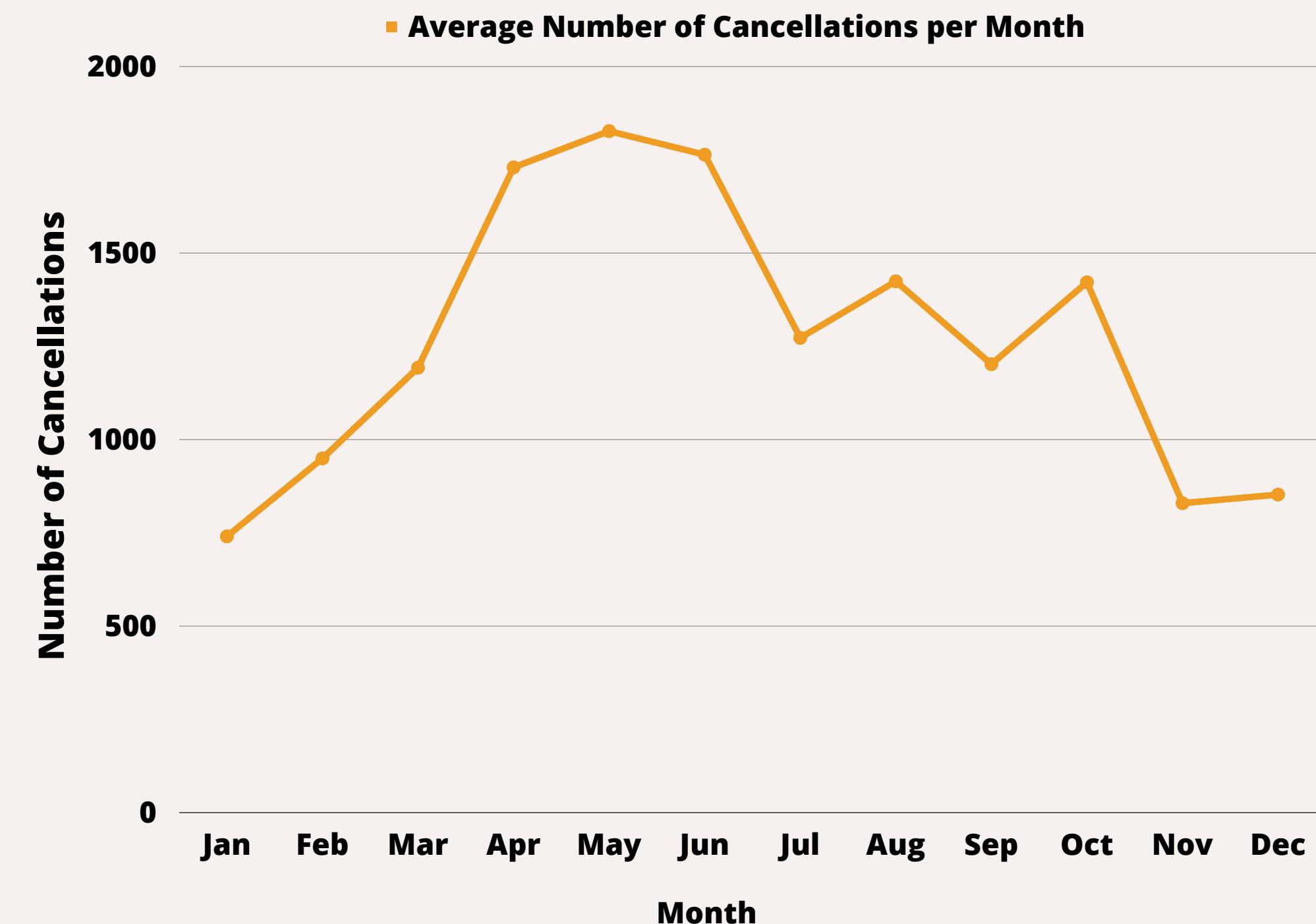
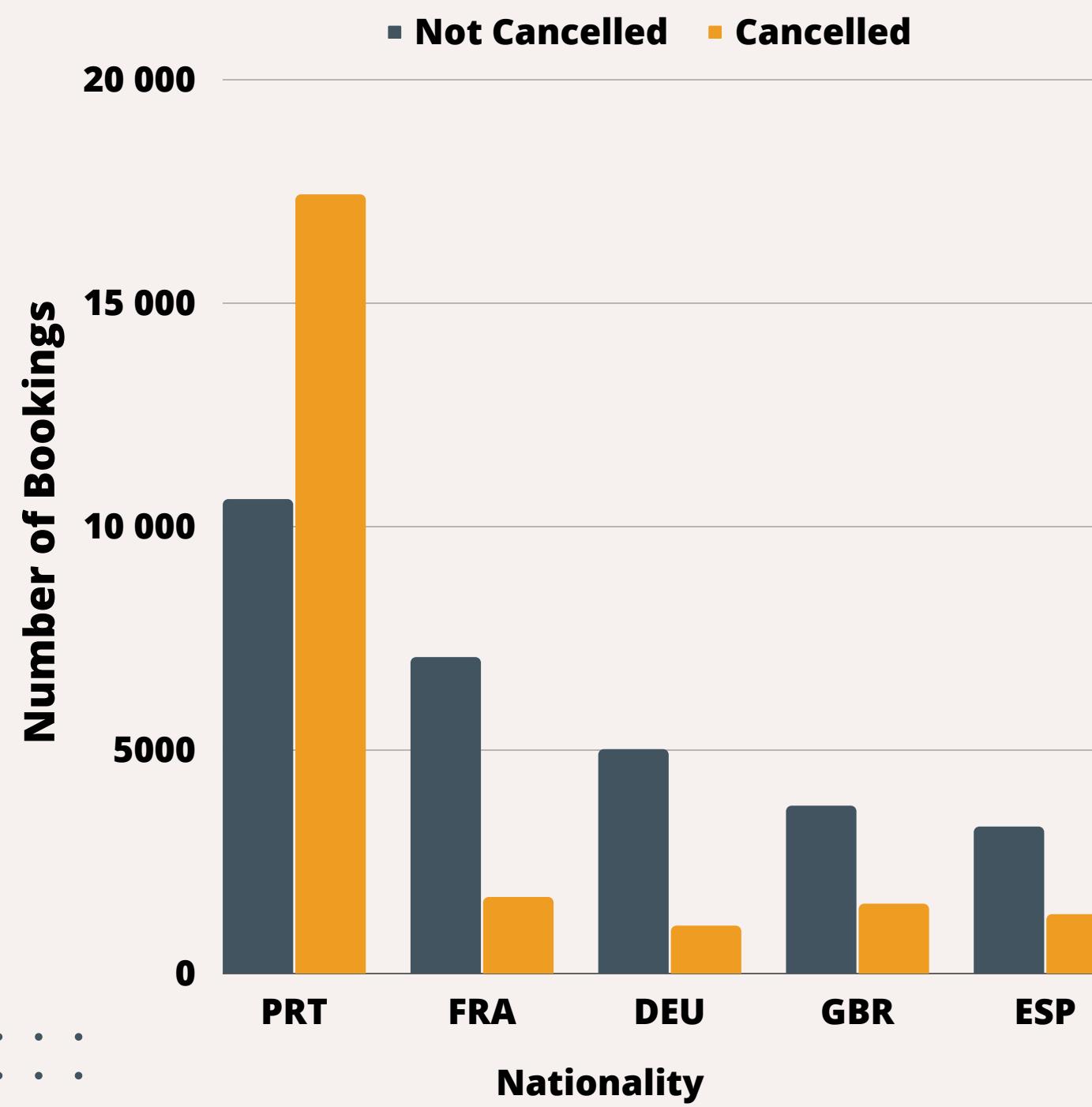
- PREDICTION MODEL - LIGHT GBM CLASSIFIER
- RECOMMENDATIONS

**05** MODELING

- OUTLIERS
- FEATURES
- HYPERPARAMETER TUNING
- TESTING 12 DIFFERENT MODELS
- EVALUATION



# OUR CUSTOMERS

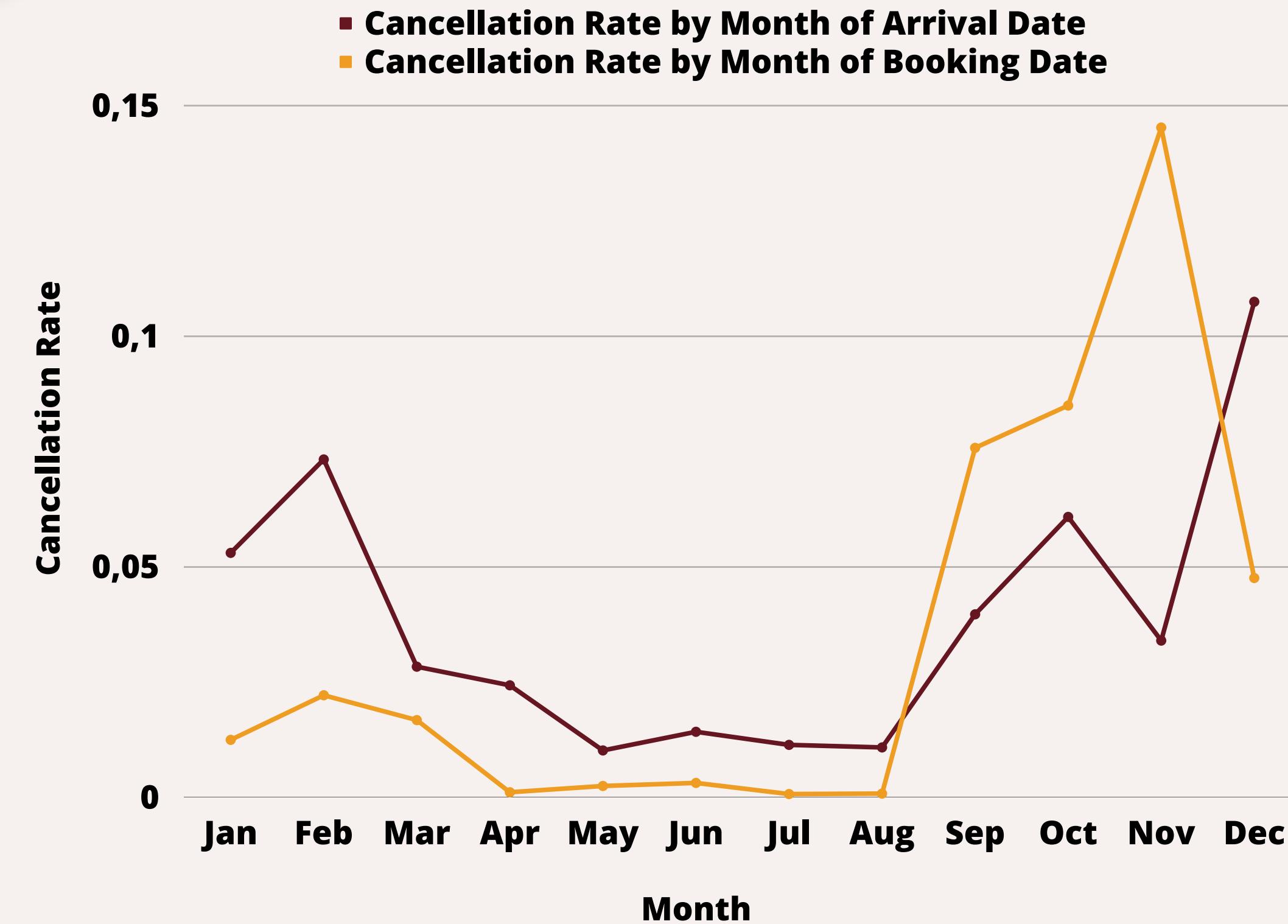




# OUR CUSTOMERS

6.6 P.P.

AVERAGE CANCELLATIONS  
ON HOLIDAYS





# PREDICTIONS



X

69.5%

CORRECT  
PREDICTIONS ON  
CANCELLATIONS

HOW CAN WE  
AVOID THEM?



# INSIGHTS

DEPOSITS POLICY

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NUMBER OF SPECIAL  
REQUESTS

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AGENCY 9

# RECOMMENDATIONS

DEVELOPMENT OF PACKAGES WHERE A  
DEPOSIT NEEDS TO BE MADE

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CUSTOMIZED PROMOTIONS AND  
OFFERS

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REVIEW THE CONDITIONS AND  
AGREEMENTS



# INSIGHTS

**LEAD TIME**

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**REQUIRED CAR PARKING SPACES**

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**CANCELLATION RATE**

# RECOMMENDATIONS

**REINFORCE THE NEED OF A DEPOSIT FOR  
BOOKINGS WITH A LONGER LEAD TIME**

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**PROMOTIONAL OFFERS AND  
CONVENIENCE**

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**LOYALTY PROGRAM**

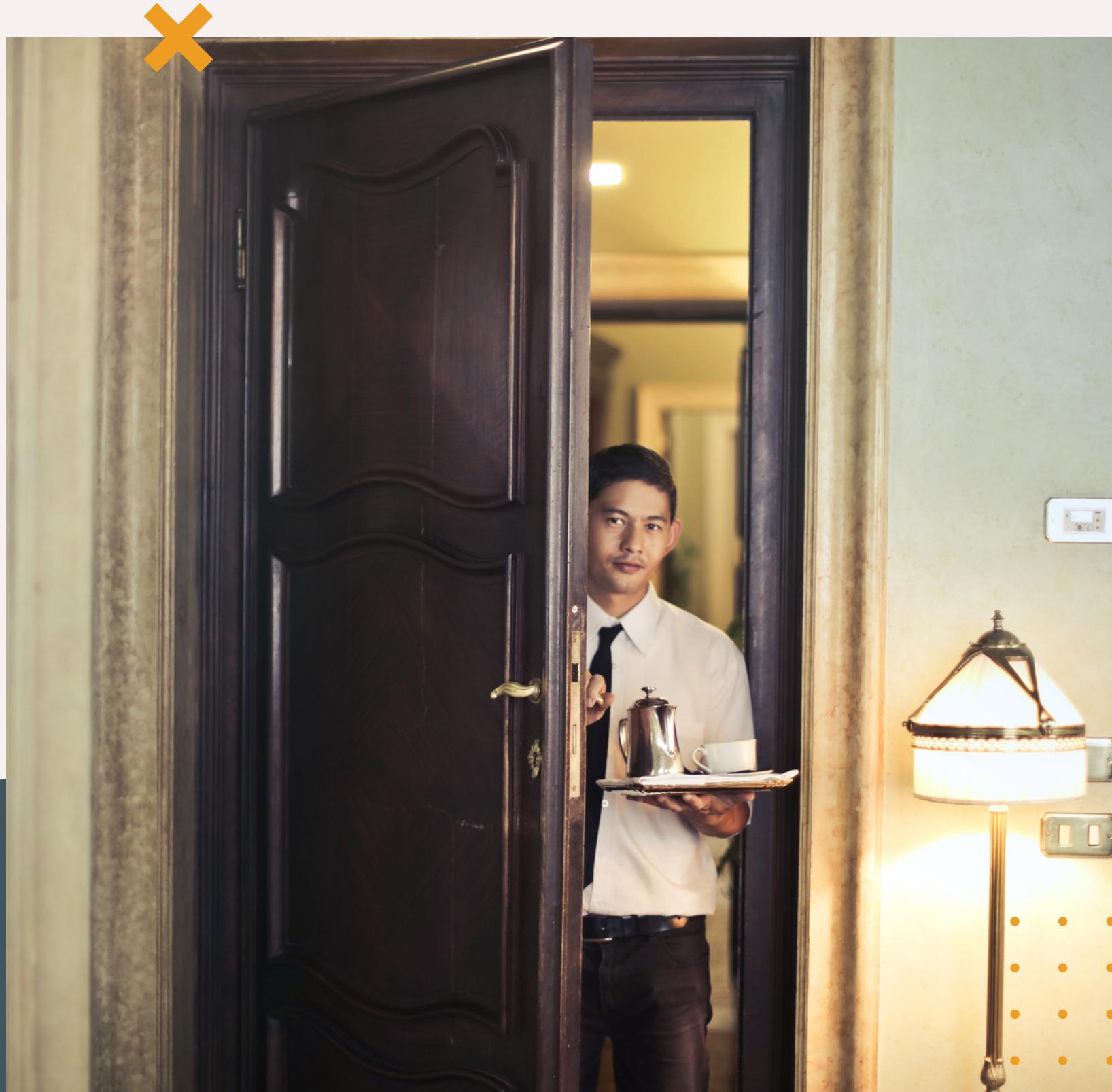


# DEPLOYMENT AND MAINTENANCE PLAN





# CONCLUSION



# THANK YOU!

## GRUPO G

- **ANA MIGUEL, 20221645**
- **ANA RITA VISEU, 20220703**
- **MIGUEL CRUZ, 20221391**
- **RODRIGO BRIGHAM, 20221607**
- **SARA GALGUINHO, 20220682**

