**Predicting Hotel** Booking Cancellation in Portugal With Machine Learning

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## ABOUT THE PROJECT



Predicting Hotel Booking Cancellation in Portugal Project. Is a machine learning classification project that will try to predict whether a booking will be cancelled or a booking will not be cancelled using machine learning based on historical data.

The data for this project is from <u>Hotel Booking Demand Dataset Sciencedirect</u>. This data was acquired by extraction from hotel's Property management system from 2015 to 2017 from hotel in Region Algarve and Lisbon

#### Background Information



Hotel industry is one of the faster growing businesses of tourism sector, especially with the rise of giant OTA that make booking a hotel as easy as is ever been.

According to Portugal's National Institute of Statistic in 2017 hotel revenue rose approximately 18% to \$3.6 billion

# Growth of Hotel Industry in Portugal

\$3.6 Billion

Hotel revenues in 2017 Source:link



20.6 million of Total Guest in 2017

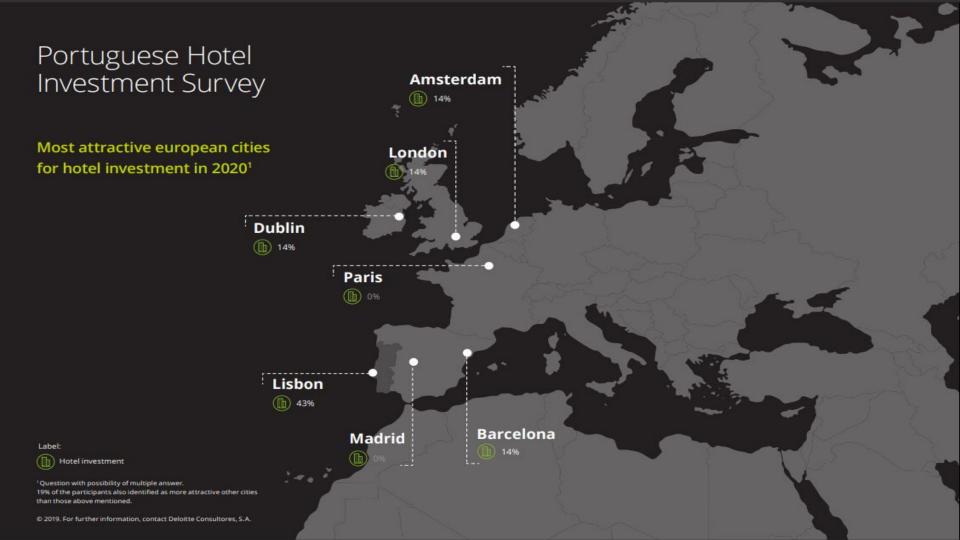
(Portugal Population in 2017 : 10.31 million)

source: skift



Nominated as the most attractive European Cities (Lisbon) for hotel investment in 2020

source: Deloitte Hospitality Atlas 2019



# Background Information Problem



the growing trend of Hotel industry is beneficial for hotels however it comes with it's problem too.

One of the problem is the rising rate of cancellation in the hotel industry



Cancellation rate rose from under 33% in 2014 to 40% in 2018

#### Problem Statement

With the increase trend of cancellation from year to year, some hotel have think that high cancellation in hotel is the new norm of the industry which is a completely wrong approach.

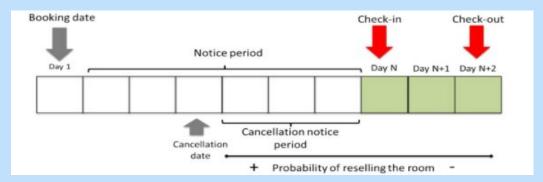
One out of four hotel guests are cancelling hotel booking ahead of a stay. This cancellation trend has effect the hotel not being able to accurately forecast occupancy within their revenue management.

This trend of cancellation also have causes hotel loss in opportunity cost (unsold room due to cancellation)



#### How's Cancellation Affecting Hotel

1. Loss of income in shape of unsold room (due to cancellation)



### 2. Lower RevPAR (Revenue Per Available Room) when selling cheaper at the last minute

Cancellation that's close to checkin leave a very little spot for hotel to maneuver and resell the room. on many occasion no alternative way but to lower the room price



#### Project Goals

- The Goals of this project is to find out the characteristic of customers who cancelled and finding a pattern in cancelled booking by doing an exploratory data analysis
- 2. Building classification machine learning model to predict cancellation, that has accuracy score around 0.75 0.9
- 3. Build and Deploy web application / dashboard using flask from our machine learning algorithm, that can predict of cancellation based on user input



#### **Business Question**

List of Question to help achieving the goal



### Project Limitation

**Project limitation** 

