**Hotel Booking Analysis : Hypothesis Testing**

**About the data (Description of attributes)**

***This dataset contains 119390 observations for a City Hotel and a Resort Hotel. Each observation represents a hotel booking between the 1st of July 2015 and the 31st of August 2017, including bookings that effectively arrived and bookings that were canceled.***

**Contents:**

Since this is hotel real data, all data elements about the hotel or customer identification were deleted. Four Columns, **'name'**, **'email'**, **'phone number'**, and **'credit\_card'** have been artificially created and added to the dataset.

**Column Summary:**

* **Hotel:** The datasets contain the booking information of two hotels. One of the hotels is a resort hotel and the other is a city hotel.
* **is\_canceled:** Value indicating if the booking was canceled (1) or not (0).
* **lead\_time:** Number of days that elapsed between the entering date of the booking into the PMS and the arrival date.
* **arrival\_date\_year:** Year of arrival date
* **arrival\_date\_month:** Month of arrival date with 12 categories: “January” to “December”
* **arrival\_date\_week\_number:** Week number of the arrival date
* **arrival\_date\_day\_of\_month:** Day of the month of the arrival date
* **stays\_in\_weekend\_nights:** Number of weekend nights (Saturday or Sunday) the guest stayed or booked to stay at the hotel
* **stays\_in\_week\_nights:** Number of week nights (Monday to Friday) the guest stayed or booked to stay at the hotel BO and BL/Calculated by counting the number of week nights
* **adults:** Number of adults

**Problem statement**

In the year 2015 to 2017, City Hotel and Resort Hotel have seen high cancellation rates. Each hotel is dealing with a number of issues as a result, including fewer revenues and less than ideal hotel room use. Consequently, lowering cancellation rates is both hotels' primary goal in order to increase their efficiency in generating revenue, and for us to offer thorough business advice to address this problem.

The analysis of hotel booking cancellations as well as other factors that have no bearing on their business and yearly revenue generation are the main topics of this report.

**Assumptions**

1. No unusual occurrences between 2015 and 2017 will substantially impact the data used.
2. The information is still current and can be used to analyze a hotel's possible plans efficiently.
3. No unanticipated negatives to the hotel employing any advised technique.
4. The hotels are not currently using any of the suggested solutions.
5. The biggest factor affecting the effectiveness of earning income is booking cancellations.
6. Cancellations result in vacant rooms for the booked length of time.
7. Clients make hotel reservations the same year they make cancellations.

**Research question**

1. What are the variables that affect hotel reservation cancellations?
2. How can we make hotel reservation cancellations better?
3. How will hotels be assisted in making pricing and promotional decisions?

**Hypothesis**

1. More cancellations occur when prices are higher.
2. A longer waiting list correlates with an increased frequency of customer cancellations.
3. The majority of clients are booking their reservations through offline travel agents.