**Hotel Bookings Prediction Problem**

**OBJECTIVE:**

* To leverage guest data and booking behaviour patterns to devise a strategy for Hotel Revenue Management.
* To perform graphical analysis and plot results using tools.
* To identify and state factors affecting the cancellation rate and suggest ways of improvement
* To deploy machine learning models predicting future cancellations

**INSIGHTS:**

* City Hotels have more cancellations than a Resort Hotel
* Resort Hotel Cancellations – 11K
* City Hotel Cancellations – 33K
* Overall cancellation Rate – 37%
* Cancellations typically reduces in the beginning of the year
* The Absolute number of cancellations are increasing as time progresses
* Baseline Cancellation Likelihood for City Hotels is 42%
* The Baseline Cancellation Likelihood for Resort Hotel is 28%
* More cancellations happen during Summer and Spring since there are generally more booking during that part of the year
* Online, Offline TA and Groups lead the cancellations rate
* The Hotel Type affects the cancellation rates
* Transient Customers are more likely to make Cancellations City Hotel
* Returning Customers are less Prone to make Cancellations
* In fact, they have opposing behaviour within Transient and Transient Party type of customers

**DEPLOYED MODELS:**

* Logistic regression
* Decision Tree
* Random forest