

# Data Visualization Tools

## Capstone Project: Transforming EDA to Dashboard

### **Problem Statement:**

In this project, I created a stunning Dashboard in Tableau from the same Dataset on which I had performed an Exploratory Data Analysis during the 2nd module in Python. The dataset which I analyzed is nothing but the Hotel Booking Dataset. The Hotel Booking Dataset is an open source dataset which provides a comprehensive collection of data related to hotel reservations, including various attributes such as booking dates, customer demographics, room types, and booking outcomes from the year 2015 to 2017. This dataset is invaluable for analysis, forecasting, and modeling in the hospitality industry, allowing hotel managers, analysts, and researchers to gain insights into booking patterns, customer behavior, and factors influencing reservation decisions.

This Dataset Includes more than 87,000 records of bookings of customers around the globe. I have designed an interactive as well as informative Tableau Dashboard using the Dataset that was used during the EDA previously. The Dashboard effectively conveyed insights, Trends and Key finding from the raw data, making it accessible and understandable for a wide and diverse audience.

**The Objective of this project is to explore and analyze the data to discover key findings pertaining to Hotel Booking.**

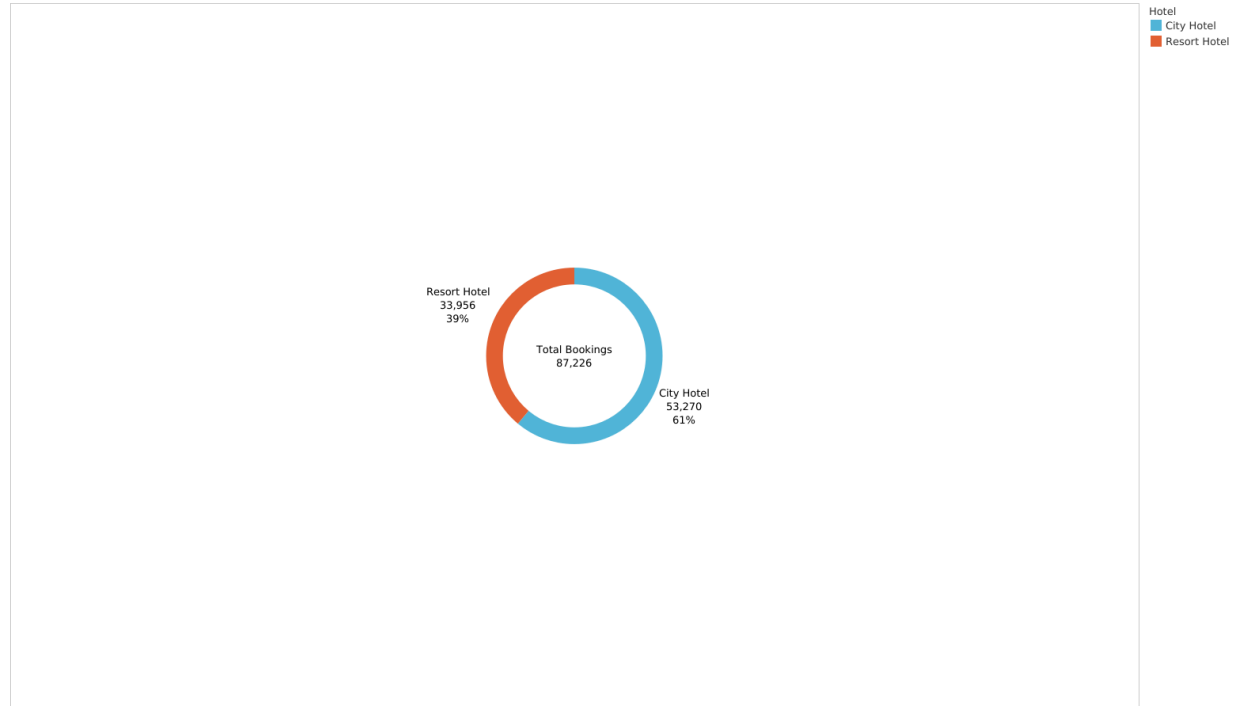
1. Study the source and do some quick research to understand more about the dataset.
2. Clean the data.
3. Prepare the data for processing and analysis.
4. Perform data pre-processing to manipulate the data for analysis and draft out targeted tables for analysis.
5. Analyze the data more deeply and extract insights.

Problem Areas to explore:

- \* What kind of hotel is mostly preferred by guests?
- \* Monthly Booking Trend for each Hotels.
- \* Distribution of Cancelled and Confirmed Bookings.
- \*Optimal Stay Length in Both type of hotels.
- \* Percentage of re-visiting customers.
- \* Geographical(Map) Distribution of Hotel Booking.
- \* No. of Booking from each Market Segments.
- \* Year wise Booking trend of each Hotels.
- \* What are the countries where the most guests are coming from?
- \* Lead Time Vs Cancellation.
- \* What is the most demanded meal type?
- \* ADR comparison between hotels.
- \*Most Busiest & Least Busiest Weekday for each Hotel

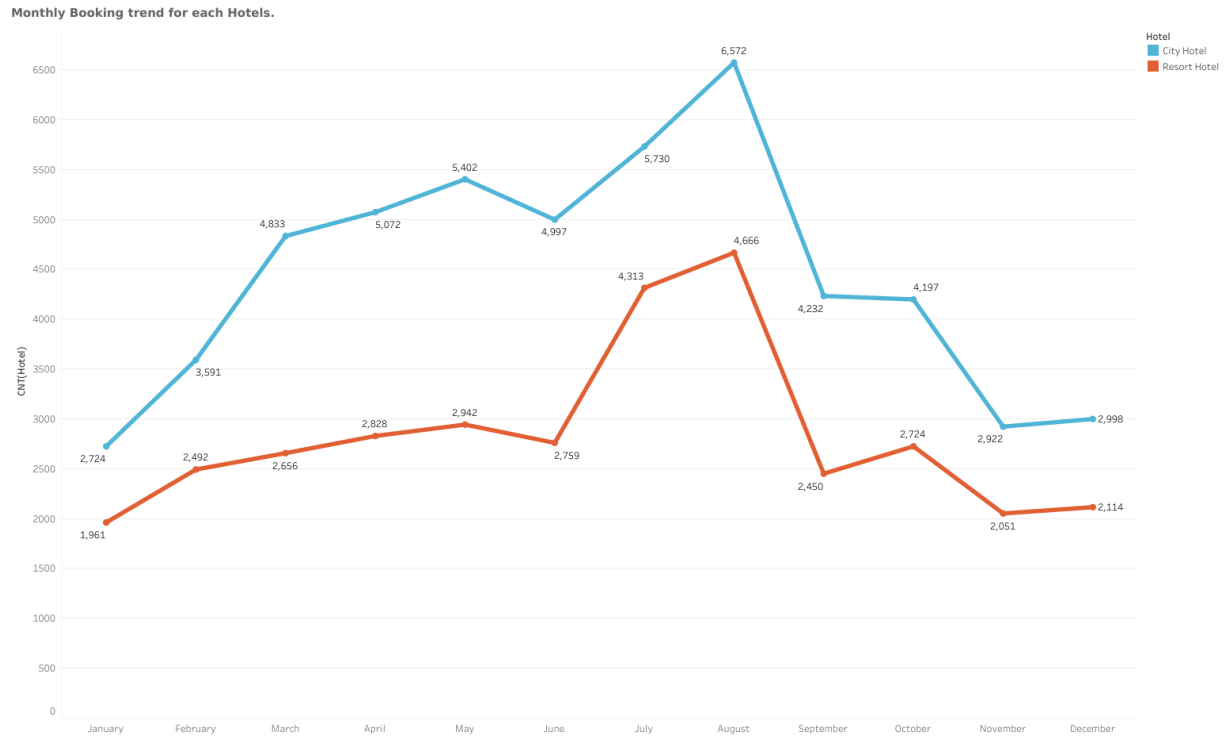
\* What kind of hotel is mostly preferred by guests?

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City Hotel is most preferred hotel by guests. Thus city hotels has maximum bookings.

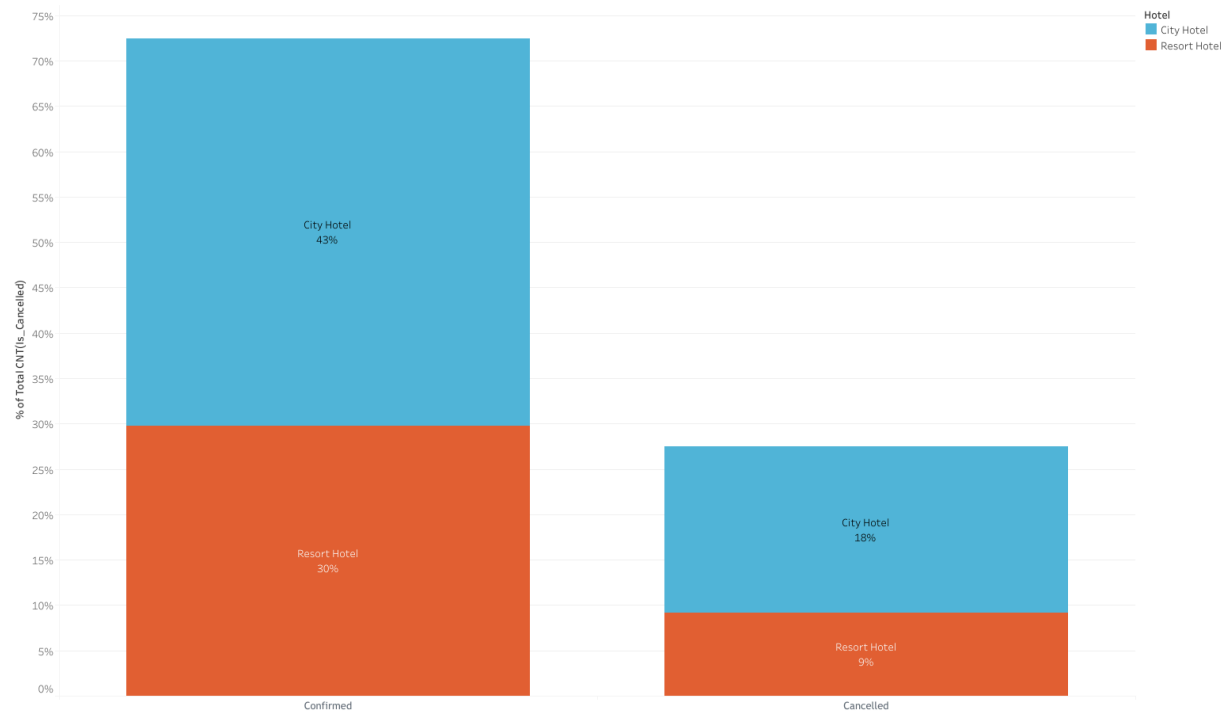
### \* Monthly Booking Trend for Each Hotel.



Over here from the above chart, It is apparent that August had the most bookings. We can observe that the middle of a year is great for hotel business but in the ending & beginning there was a drastic drop in booking.

### \* Distribution of Canceled and Confirmed Bookings.

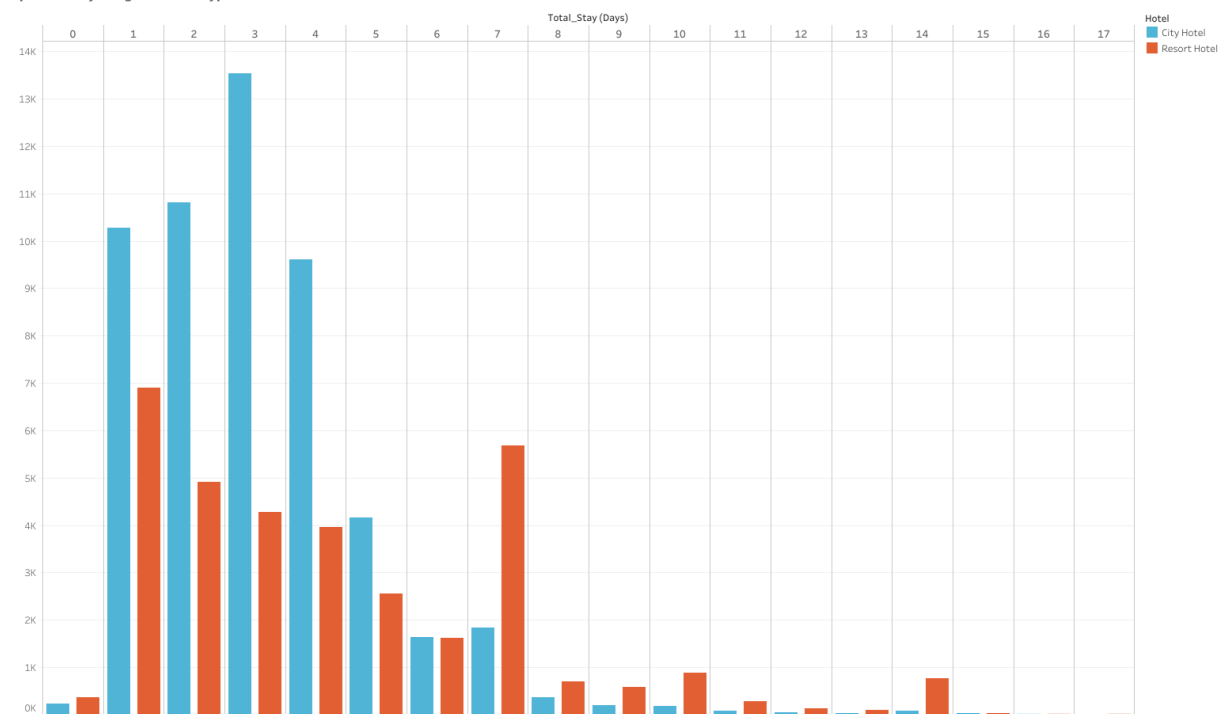
Distribution of Cancelled and Confirmed Bookings.



From the graph, we have found the insights that more than 1/4th of the overall bookings i.e. approx 27% of the tickets was got canceled.

### \* Optimal Stay Length in Both types of hotels.

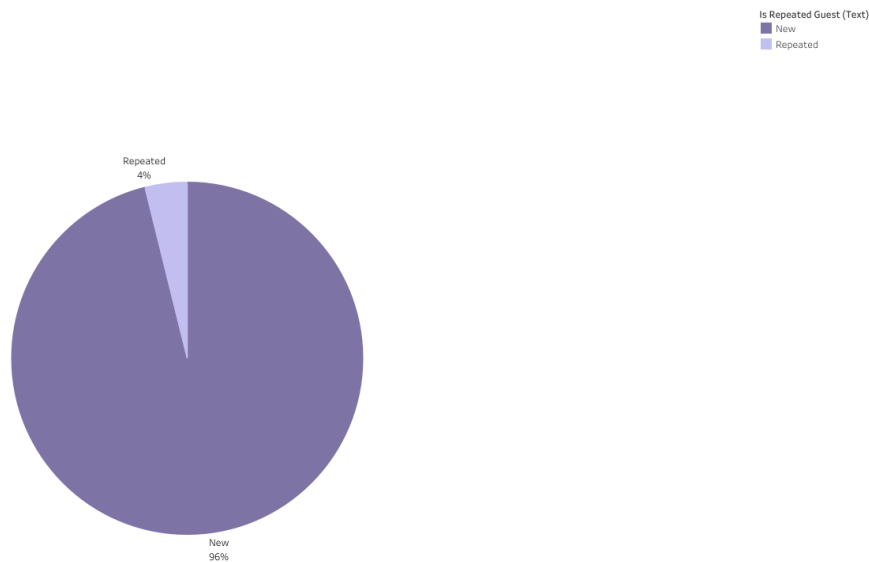
Optimal Stay Length in Both type of Hotels.



From the above observation, we have found that the Optimal stay in both the type hotel is less than 8 days. So, after that staying numbers have declined drastically.

\* Percentage of re-visiting customers.

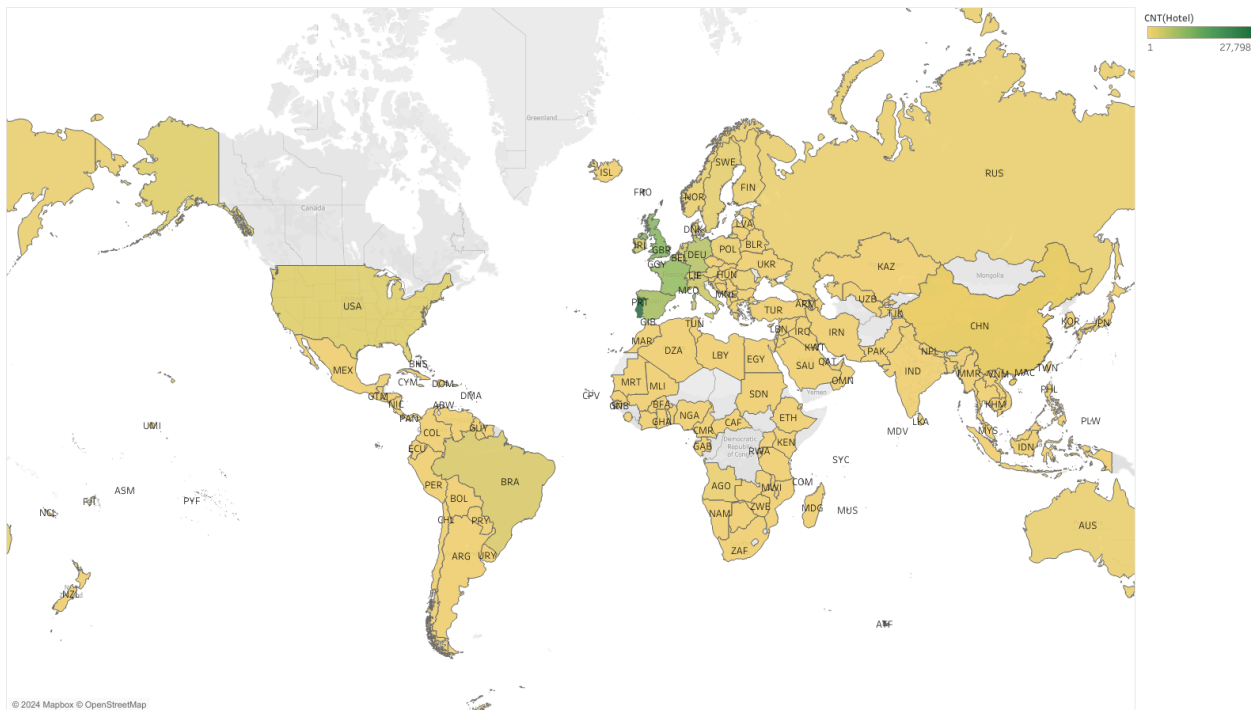
Percentage of revisiting customers.



The number of repeated customers are very less as compared to new customers. And that is 4% vs 96%.

\* Geographical(Map) Distribution of Hotel Booking.

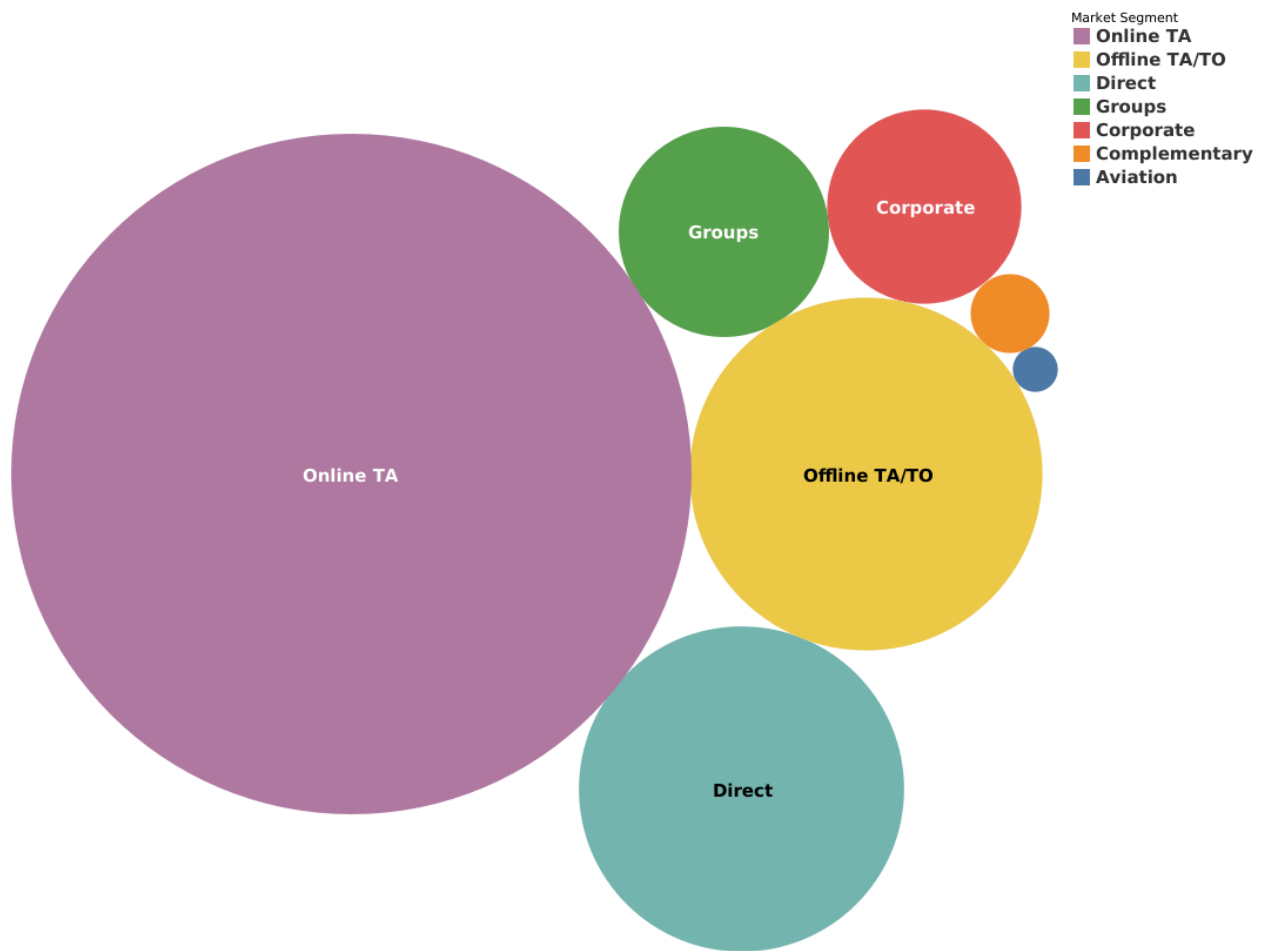
Geographical(Map) Distribution of Hotel Booking.



From this Map Chart, we can observe People from European Countries are the most responsible for hotel bookings in the world. A large proportion from the total booking are from some countries of Europe. More specifically Portugal is the top Contributor.

\* No. of Booking from each Market Segment.

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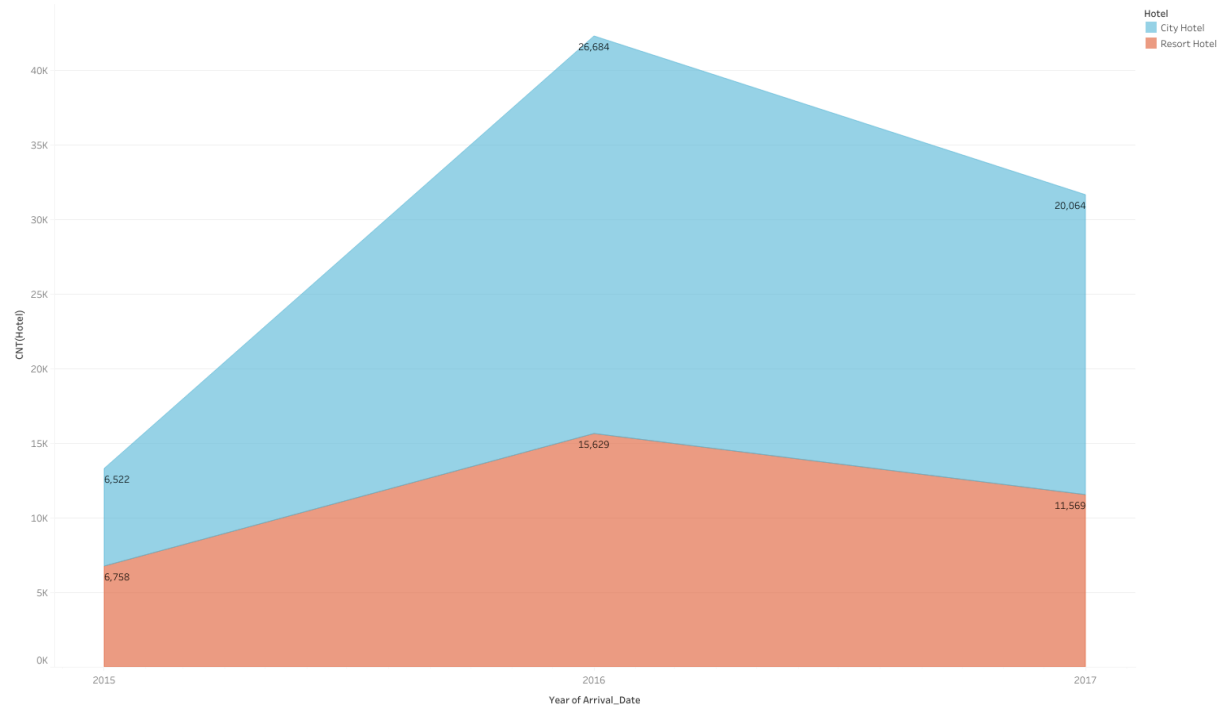


Online TA is the leading Market Segment in terms of Bookings followed by 'Direct' and 'TA/TO' that have almost equally contribution.

\* Year wise Booking trend of each Hotels.



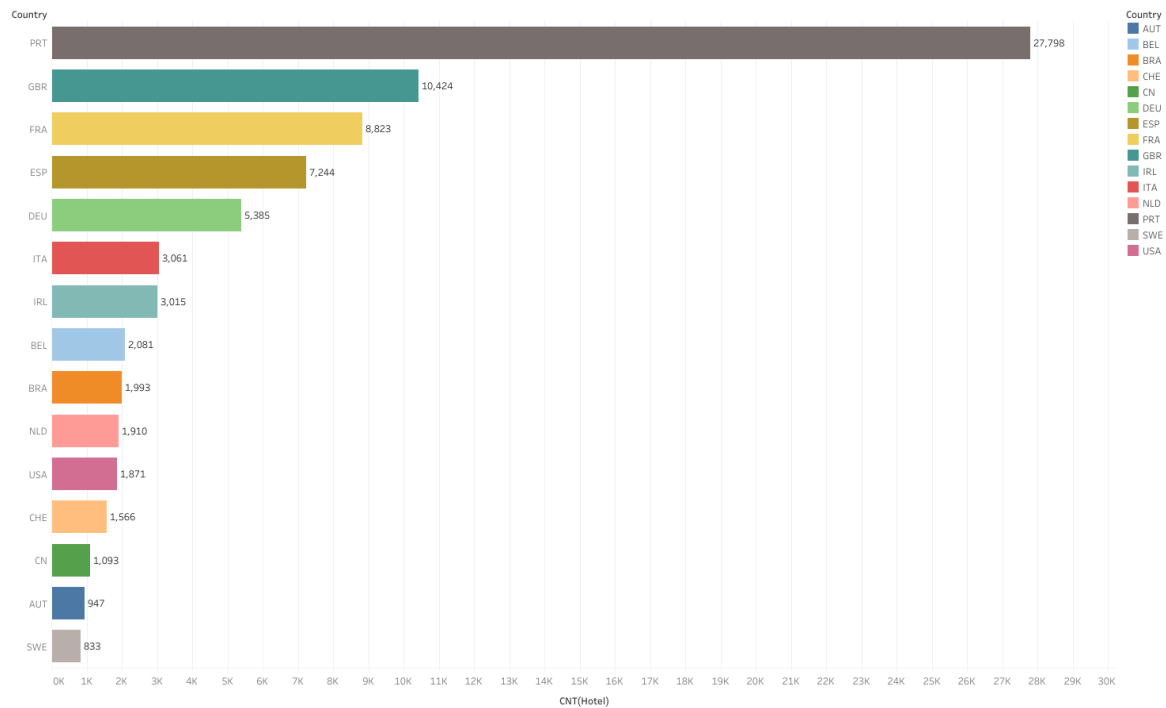
Year wise Booking trend of each Hotels.



From this plot it can be summarised that in the year 2016 both the hotel saw a massive increase in their bookings and by far the year 2016 is the year of the highest bookings of both hotel. In 2016 and 2017 the City hotel is having the highest number of bookings but in 2015 the Resort hotel is having the highest number of bookings.

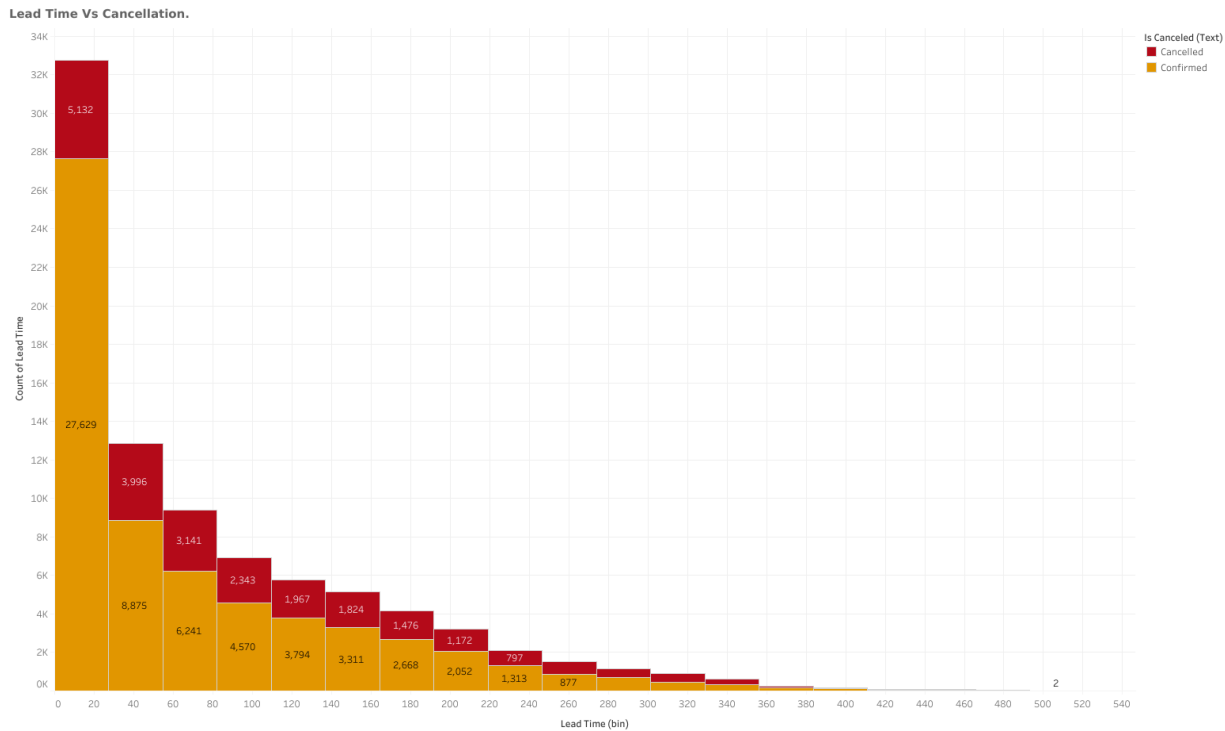
## \* What are the countries where the most guests are coming from?

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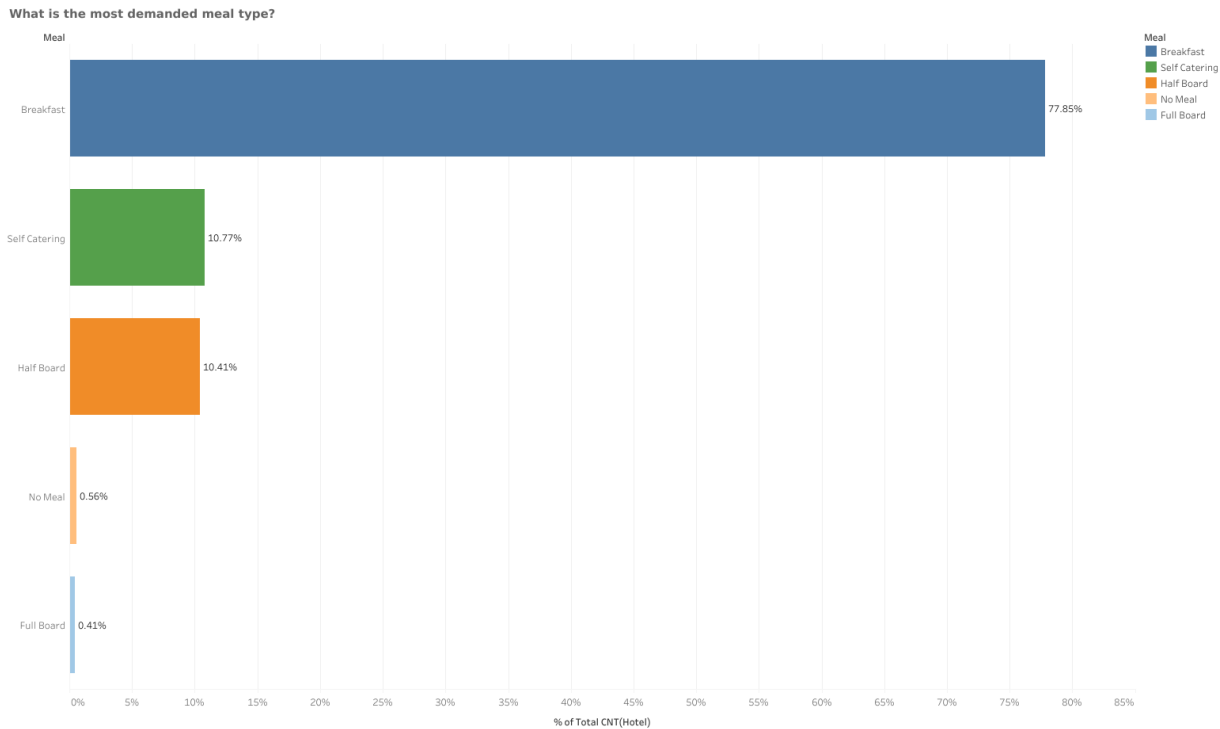
This is the top 15 countries from where the booking have been done mostly. Most of the guests are coming from portugal i.e more 25000 guests are from portugal. Then we have United Kingdom followed by France & Spain.

\* Lead Time Vs Cancellation.



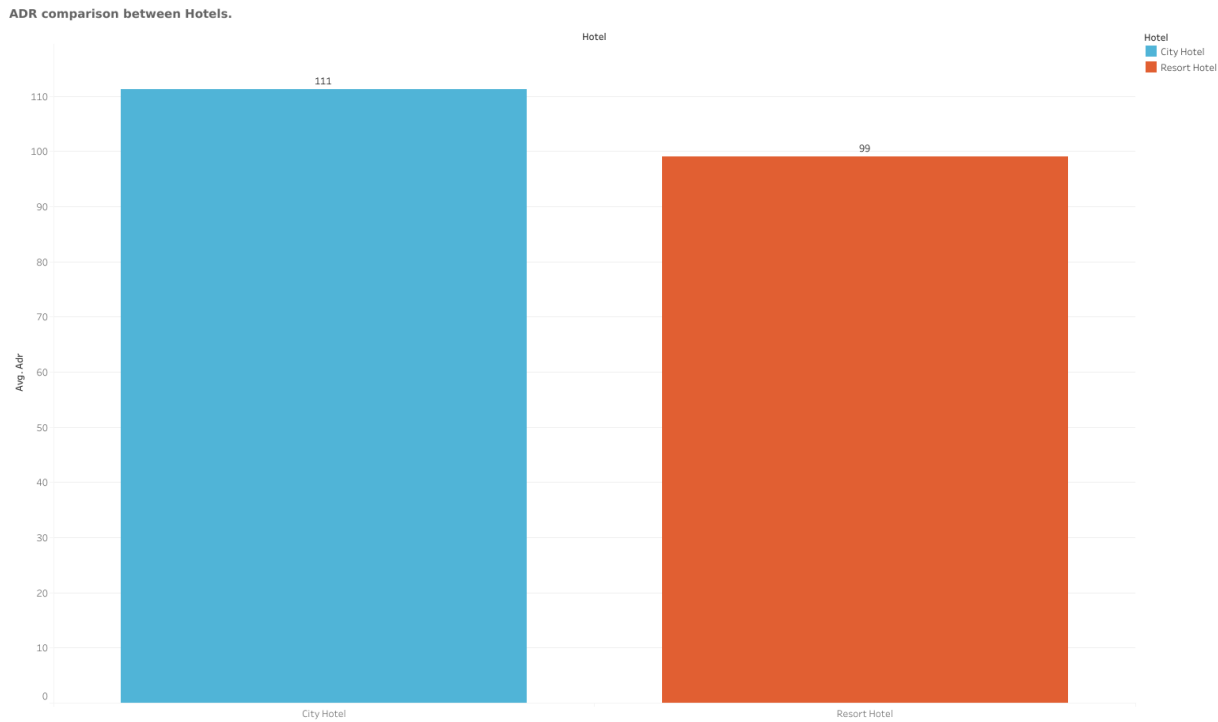
As we can see here, The cancellation rate increases as the leading time increases.  
The higher the leading time, the higher the cancellation rate.

\* What is the most demanded meal type?



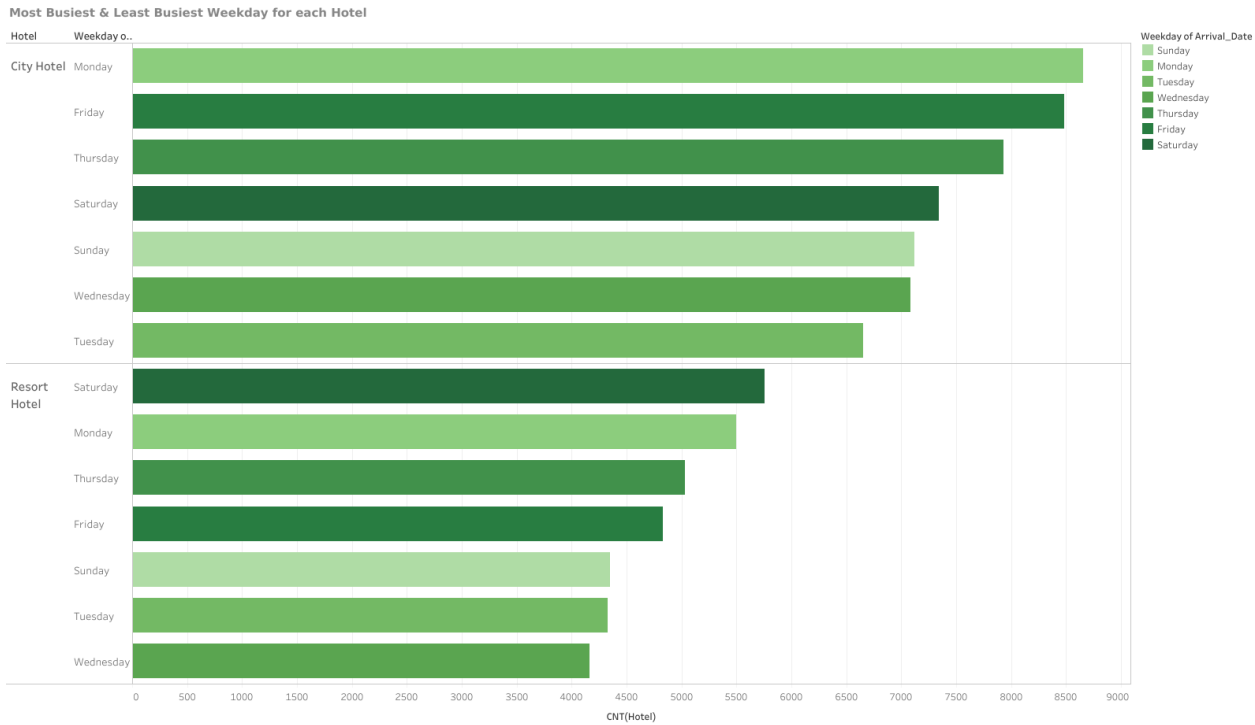
The insights that i have found from the above graph is that the most preferred meal type by the guests is BB (Bed and Breakfast) while HB (Half Board) and SC (Self Catering) are equally preferred.

\* ADR comparison between hotels.



Resort hotel has the highest ADR. That means Resort hotels are generating more revenues than the City hotels. More the ADR more is the revenue.

\*Most Busiest & Least Busiest Weekday for each Hotel



For City Hotels, Monday is the weekday when the customers arrived most whereas least number of customers arrived in Tuesday. On the other hand the customers most arrived in Saturday and Wednesday is the worst day for customers arrival for Resort Hotels.

# Dashboard

