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Dataset: Hotel Bookings
Visualization Tool: Power BI
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Project Motivation

- The Hotel Booking dataset contains booking information for city hotel and resort hotel and includes information such as when the booking was made, length of stay, the number of adults, children, and/or babies, and the number of available parking spaces.

- The dataset has 32 variables and approximately 120k rows.

- With the hotel booking dataset, I explored some of the questions using Power BI to understand the demand of hotel bookings. The answers to these questions can help hotels to predict things like rooms requirements, meal preference, parking spaces, etc.

- Some of the questions covered from the data:

  - What type of hotel the customers prefer?

  - Which is the busiest month of the year?

  - How many bookings were canceled?

  - Which month have the highest number of cancelations and actual guests?

  - Who are the customers (professional / vacation) and where do they come from?

  - How long do people stay at the hotels?

  - Do the customers require car parking facilities?

  - What type of meal is pre-booked by customers?

Hotel Bookings Demand

119.39K
Num of Bookings

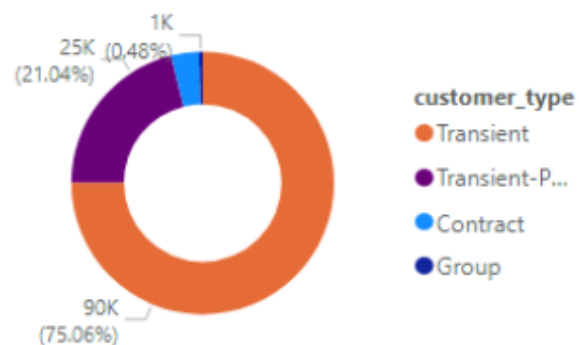**298511** Week stays   **110746** Weekend Stays
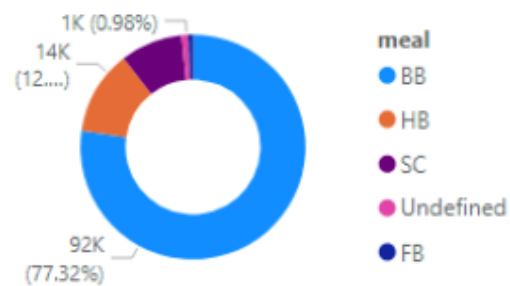
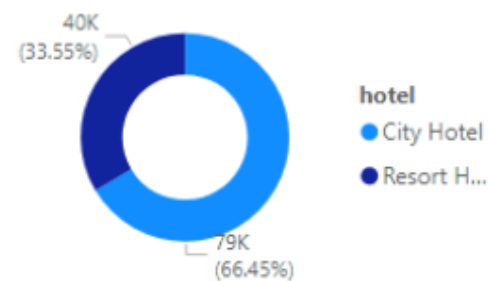**221636** adults   **12403** children   **949** babies

Count of Bookings by customer_type

1K (0.48%)
25K (21.04%)
90K (75.06%)

customer_type
- Transient
- Transient-P...
- Contract
- Group

Meal booked by customers

1K (0.98%)
14K (12....)
92K (77.32%)

meal
- BB
- HB
- SC
- Undefined
- FB

Count of Bookings by hotel

40K (33.55%)
79K (66.45%)

hotel
- City Hotel
- Resort H...

customer_type
- [ ] Contract
- [ ] Group
- [ ] Transient
- [ ] Transient-Party

hotel
- [ ] City Hotel
- [ ] Resort Hotel

% of bookings by car parking requirement

7K (6.18%)
112K (93.79%)

required_car_p...
- 0
- 1
- 2
- 3
- 8
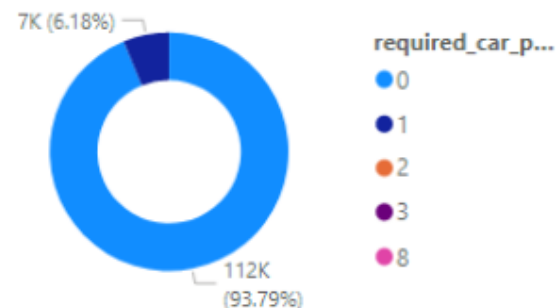
Week stays vs Weekend stays by year, quarter

- stays_in_week_nights
- stays_in_weekend_nights

stays_in_week_nights and ...

50K
40K
30K
20K
10K
0K

2015 Qtr 3 | 2015 Qtr 4 | 2016 Qtr 1 | 2016 Qtr 2 | 2016 Qtr 3 | 2016 Qtr 4 | 2017 Qtr 1 | 2017 Qtr 2 | 2017 Qtr 3

Date Quarter

Total # of Bookings by customer's country origin

reservation_st... ● Canceled ● Check-Out ● No-Show

Num of Bookings

50K
40K
30K
20K
10K
0K

PRT GBR FRA ESP DEU ITA IRL BEL BRA NLD USA CHE CN AUT SWE CHN POL

country

3
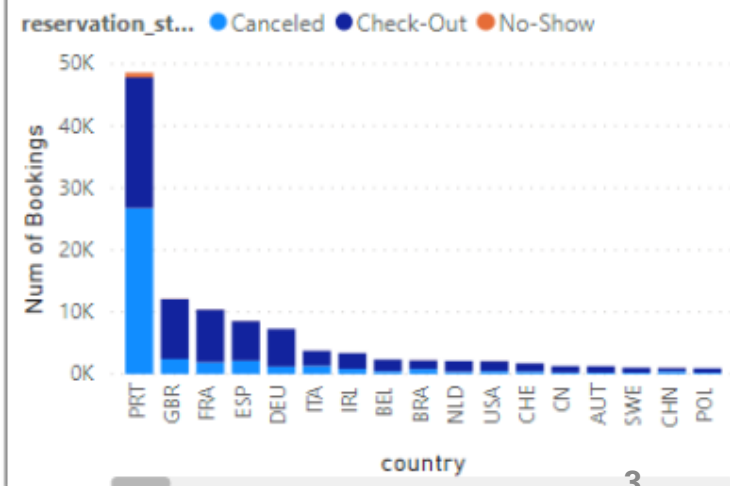
Total # of Bookings by Year, Quarter and hotel type

hotel ● City Hotel ● Resort Hotel
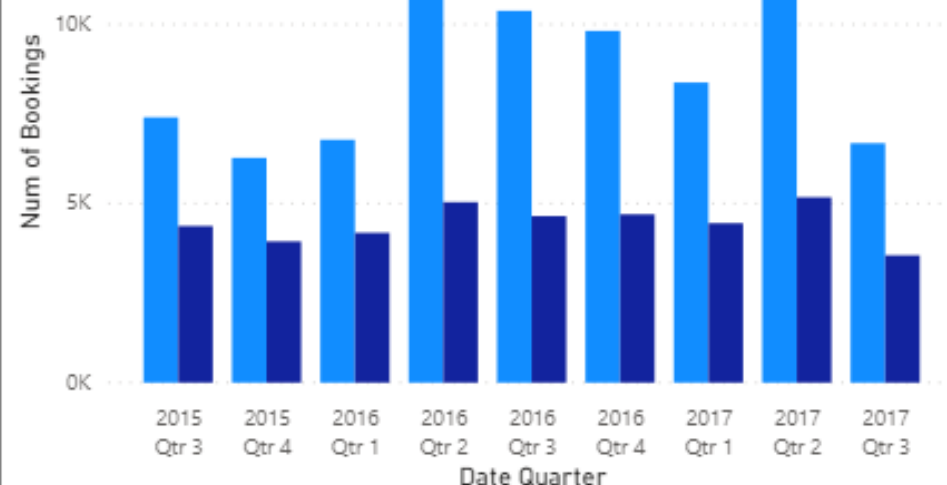
Num of Bookings (Y-axis): 0K, 5K, 10K

Date Quarter (X-axis): 2015 Qtr 3, 2015 Qtr 4, 2016 Qtr 1, 2016 Qtr 2, 2016 Qtr 3, 2016 Qtr 4, 2017 Qtr 1, 2017 Qtr 2, 2017 Qtr 3

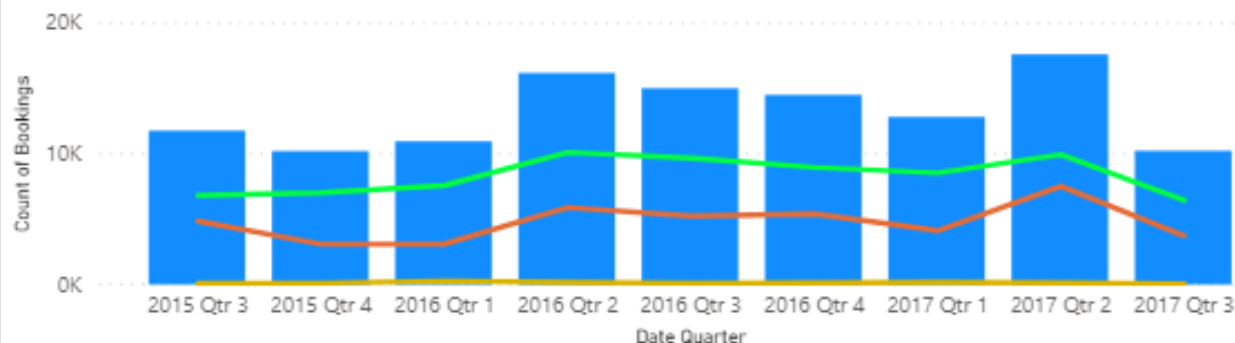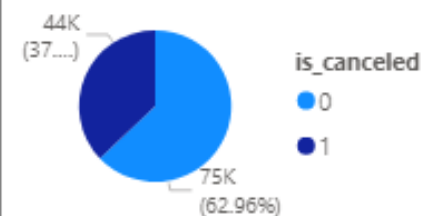| 75K	43K	1207
Num of Bookings Check-out	Num of Bookings Cancelled	Num of Bookings No Show

Count of Bookings, Num of Bookings Cancelled, Num of Bookings Check-out and Num of Bookings No Show by Year and Quarter
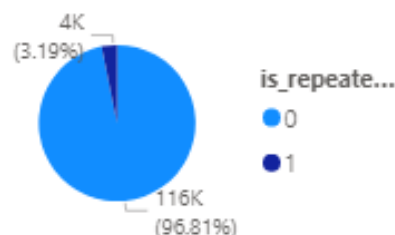
● Count of Bookings ● Num of Bookings Cancelled ● Num of Bookings Check-out ● Num of Bookings No Show

Count of Bookings (Y-axis): 0K, 10K, 20K

Date Quarter (X-axis): 2015 Qtr 3, 2015 Qtr 4, 2016 Qtr 1, 2016 Qtr 2, 2016 Qtr 3, 2016 Qtr 4, 2017 Qtr 1, 2017 Qtr 2, 2017 Qtr 3

Cancel requests

is_canceled
● 0
● 1

44K (37....)
75K (62.96%)

Repeated guests

is_repeate...
● 0
● 1

4K (3.19%)
116K (96.81%)

Year	Quarter	Month	Day	Num of Bookings Cancelled	Num of Bookings Check-out	Num of Bookings No Show	Num of Bookings	hotel	country
2015	Qtr 3	July	1	14	65		79	City Hotel	PRT
2015	Qtr 3	July	1		2		2	Resort Hotel	ESP
2015	Qtr 3	July	1		1		1	Resort Hotel	FRA
2015	Qtr 3	July	1		9		9	Resort Hotel	GBR
2015	Qtr 3	July	1		6		6	Resort Hotel	IRL
2015	Qtr 3	July	1		4		4	Resort Hotel	NULL
2015	Qtr 3	July	1	5	15		20	Resort Hotel	PRT
Total				43017	75166	1207	119390		

1596 — Actual guests from USA

472 — Bookings cancelled from USA

29 — Guests not showed from USA

13854 Customer Stay_2015

36370 Customer Stay_2016

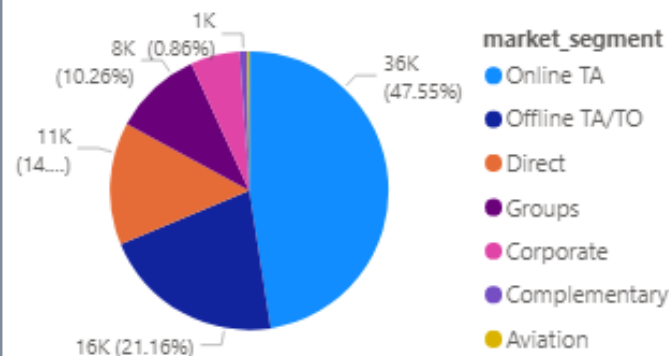**24942** Customer Stay_2017

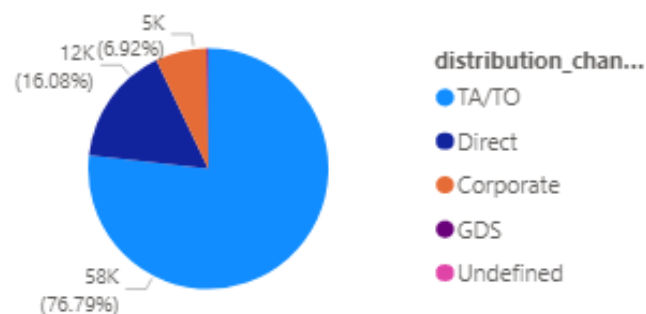**1.63** Customer Stayed % 2016 vs 2015
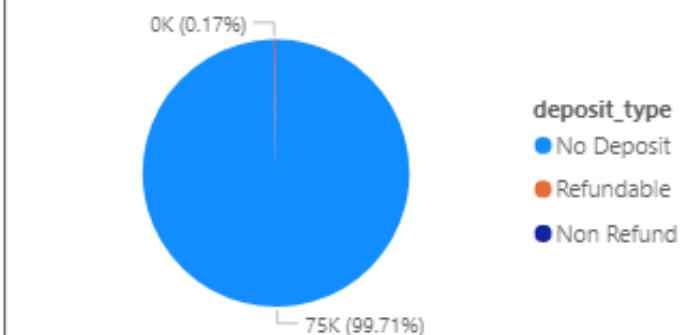
-0.31 Customer Stayed % 2017 vs 2016

Num of Bookings Check-out by market_segment

market_segment
- Online TA — 36K (47.55%)
- Offline TA/TO — 16K (21.16%)
- Direct — 11K (14....)
- Groups — 8K (10.26%)
- Corporate — 1K (0.86%)
- Complementary
- Aviation

Num of Bookings Check-out by distribution_channel

distribution_chan...
- TA/TO — 58K (76.79%)
- Direct — 12K (16.08%)
- Corporate — 5K (6.92%)
- GDS
- Undefined

Num of Bookings Check-out by deposit_type

deposit_type
- No Deposit — 75K (99.71%)
- Refundable — 0K (0.17%)
- Non Refund

Customer Stayed and Total Customer bookings by Year and Quarter

- Customer Stayed
- Total Customer bookings
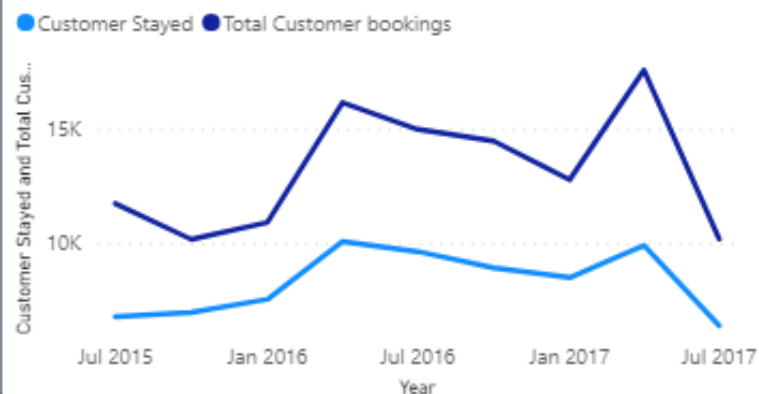
Monthly actual number of guests stayed in City & Resort Hotel

hotel — City Hotel, Resort Hotel

Key Insights

- A total of **119,390 hotel bookings** were made within the period of **Q3 2015 to Q3 2017**

- **Most of the bookings are for short period of stay.** 75% is transient customer type which means 75% booking is not part of a group or contract and is not associated to other transient booking. Most of the customers must be business professionals

- 94% of the customers who booked the hotel rooms did not require car parking spaces. **There is not much demand for car parking spaces**.

- Total number of **week stays are more than the weekend stays** which also suggests the customers booked hotels for **professional work, or short visit and not for vacation**

- 77% of the meal was booked for Bed & Breakfast, 12 % for Half board (breakfast and one other meal – usually dinner) & 0.67% for Full Board. **There is less demand for Full Board mostly because the customers are not present during the lunch time.**

- **City Hotels are more preferred/booked by customers.** Out of the total number of hotel bookings, 66% (79330) was for City Hotels & 34% (40060)was for Resort Hotels. One of the reasons why customers book more City Hotels than Resort Hotels might be because they are less expensive and most of the customers are business professionals.

- **2017 Q2 has the highest number of hotel bookings both for City Hotels & Resort Hotels** . 2017 Q2 also has the highest number of cancellation requests and actual guests.

- Reservation status: Check-Out – **75 K customers are actual guests who stayed;** Canceled – 43K customers have cancelled their hotel bookings.; No-Show – 1207 customers did not check-in and did inform the hotel of the reason

- **37% of the bookings were cancelled and 3.19% of the bookings were done by repeated guests**.

- **The busiest month is August for both City and Resort Hotels with the highest number of actual guests.**

- **1596 actual guests** who stayed in the hotel were from **USA origin** which is about **0.02% of overall actual guests**

- About **48% bookings** were done by **Online Travel Agents**