

Hotel Reservations Analysis

Q3 2017 - Q4 2018



Data Cleaning and Assumptions



Data Cleaning:

- Rows with missing values were removed using `df.dropna(inplace=True)`
- Duplicated rows were also removed using `df.drop_duplicates(inplace=True)`

Consistency Checks:

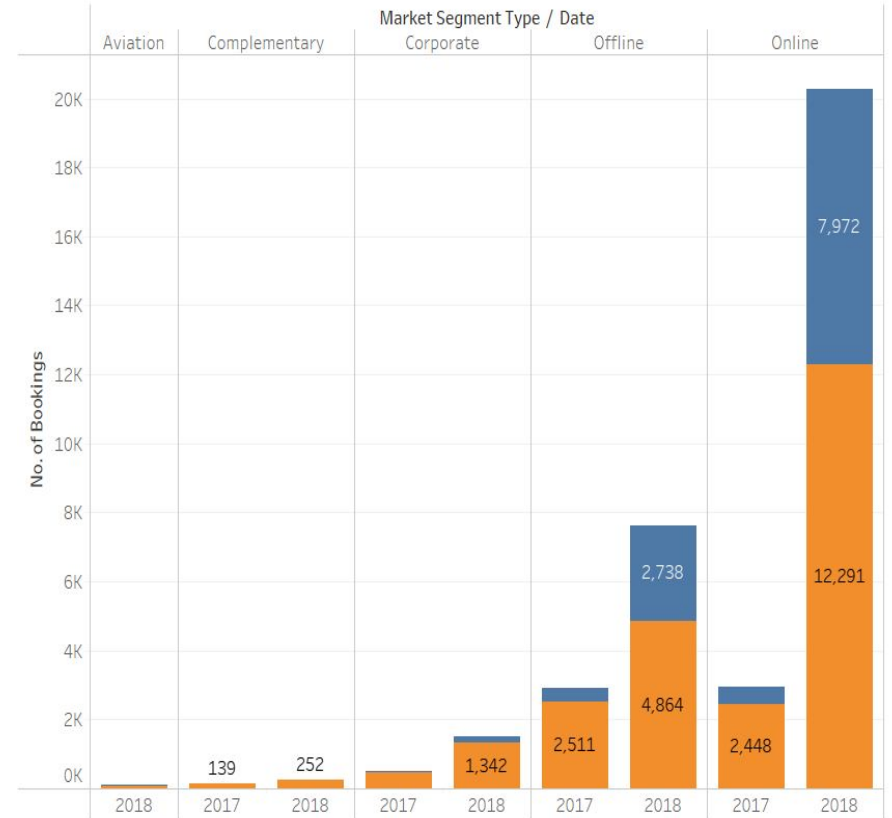
- For categorical columns (e.g., `booking_status`), unique values were identified to check for inconsistencies
- For numerical columns (e.g., `no_of_adults`, `no_of_children`), checks for negative and non-integer values were performed to ensure data integrity

Segment Status of Guests



- Aviation bookings are almost nonexistent (33 cancelled, 88 confirmed)
- Online bookings are the most popular

Segment Status



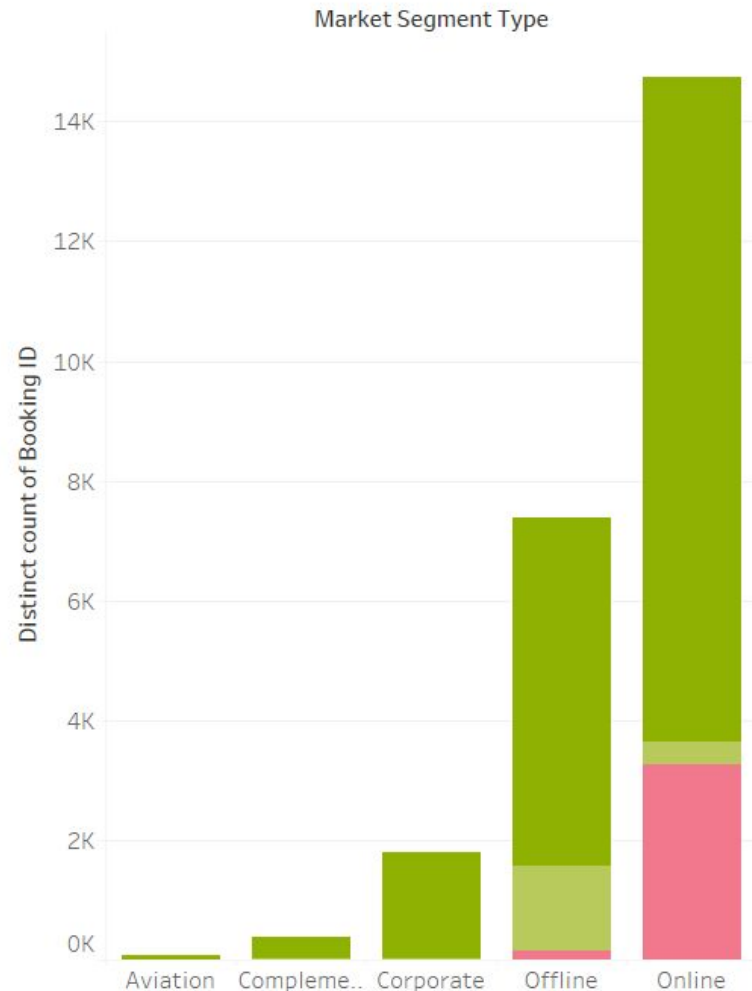
Meal Bookings

Type Of Meal Plan

- Meal Plan 1
- Meal Plan 2
- Meal Plan 3
- Not Selected

- Overall preference for Meal Plan 1
- We need to upsell meals to our Online bookings

Meal Plan Distribution

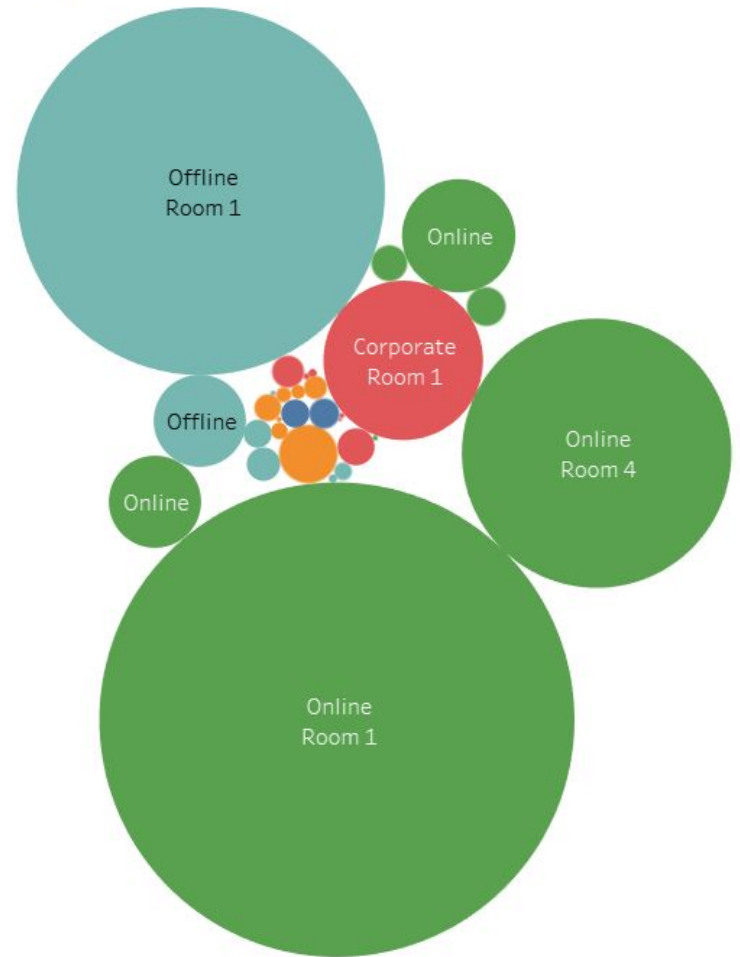


Most Popular Rooms Across Segments



room_type_reserved	total_bookings
Room_Type 1	22475
Room_Type 4	5513
Room_Type 6	834
Room_Type 2	545
Room_Type 5	245
Room_Type 7	145
Room Type 3	4

Room Type over Segment



Cross-selling opportunities of Meal Plans per Room choice

```
SELECT
b.room_type_reserved,
b.type_of_meal_plan,
COUNT(*) AS total_bookings
FROM
booking b
GROUP BY
b.room_type_reserved, b.type_of_meal_plan
ORDER BY
b.room_type_reserved;
```

	room_type_reserved	type_of_meal_plan	total_bookings
▶	Room_Type 1	Meal Plan 1	20157
	Room_Type 1	Meal Plan 2	2934
	Room_Type 1	Meal Plan 3	1
	Room_Type 1	Not Selected	5038
	Room_Type 2	Meal Plan 1	653
	Room_Type 2	Meal Plan 2	16
	Room_Type 2	Not Selected	23
	Room_Type 3	Meal Plan 1	5
	Room_Type 3	Not Selected	2
	Room_Type 4	Meal Plan 1	5748
	Room_Type 4	Meal Plan 2	273
	Room_Type 4	Meal Plan 3	1
	Room_Type 4	Not Selected	35
	Room_Type 5	Meal Plan 1	242
	Room_Type 5	Meal Plan 2	14
	Room_Type 5	Not Selected	9
	Room_Type 6	Meal Plan 1	878
	Room_Type 6	Meal Plan 2	66
	Room_Type 6	Not Selected	22
	Room_Type 7	Meal Plan 1	152
	Room_Type 7	Meal Plan 2	2
	Room_Type 7	Meal Plan 3	3
	Room_Type 7	Not Selected	1

Special requests



	guest_type	avg_special_requests
▶	New Guest	0.6212
	Repeated Guest	0.5624

	no_of_special_requests	cancellation_rate
▶	0	0.4321
	1	0.2377
	3	0.0000
	2	0.1460
	4	0.0000
	5	0.0000

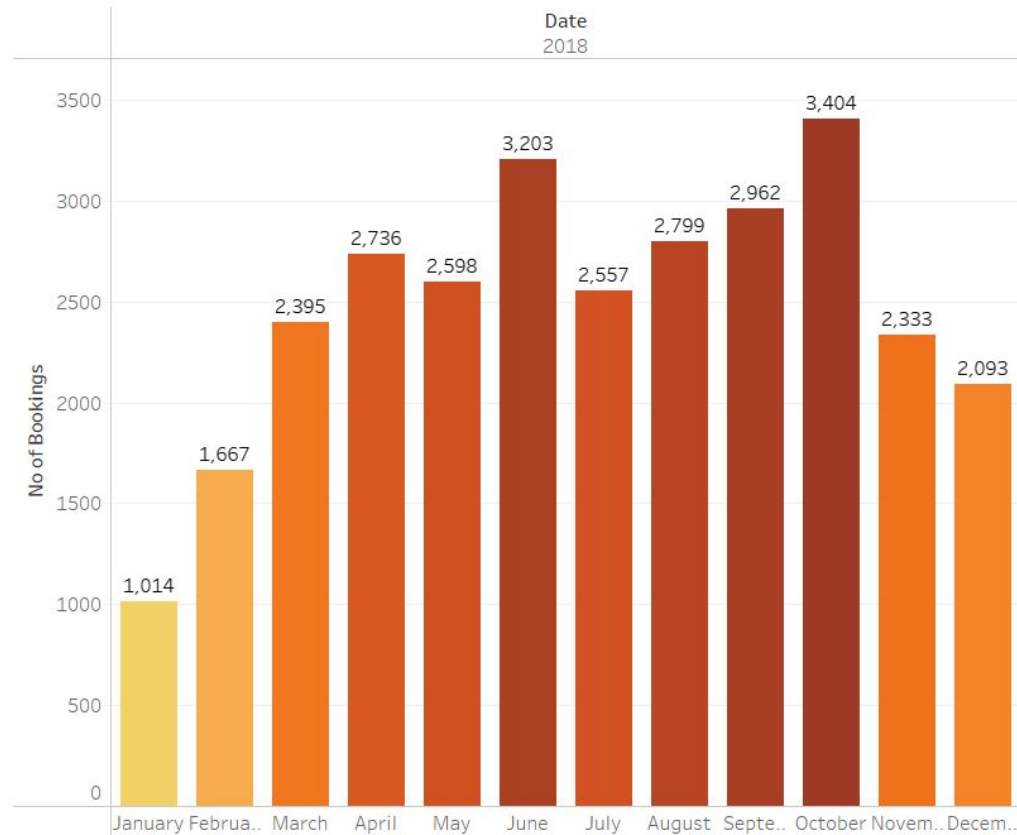
```
SELECT
CASE
WHEN repeated_guest = 1 THEN 'Repeated Guest'
ELSE 'New Guest'
END AS guest_type,
AVG(no_of_special_requests) AS avg_special_requests
FROM
bookingdetails
GROUP BY
repeated_guest;
```

```
SELECT
no_of_special_requests,
AVG(CASE WHEN booking_status = 'Canceled'
THEN 1 ELSE 0 END) AS cancellation_rate
FROM
bookingdetails
GROUP BY
no_of_special_requests;
```

Bookings for 2018

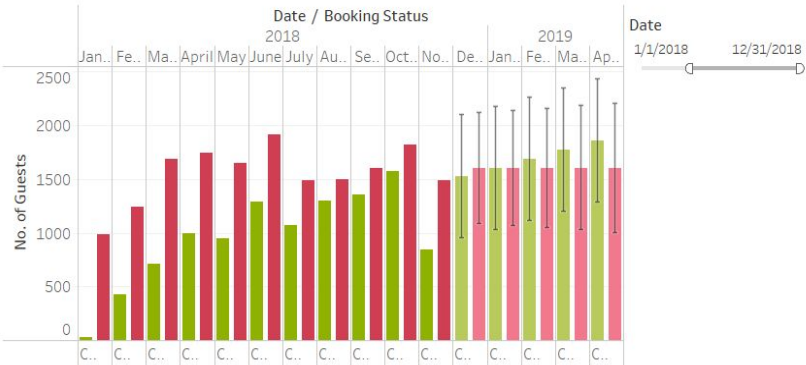
```
SELECT
arrival_month,
COUNT(*) AS total_bookings
FROM
booking
WHERE
arrival_year = 2018
GROUP BY
arrival_month
ORDER BY
arrival_month;
```

Seasonality

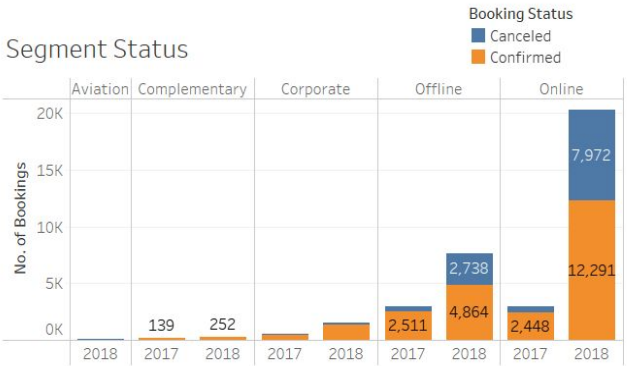


Hotel Bookings Overview

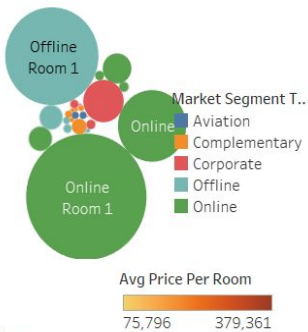
Booking Status



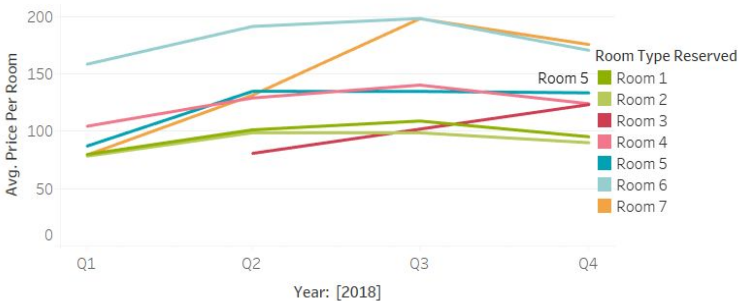
Segment Status



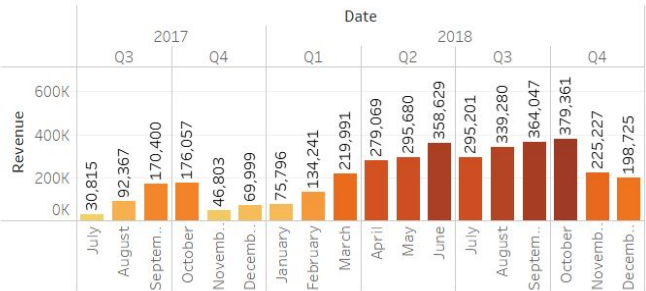
Room Type over Segment



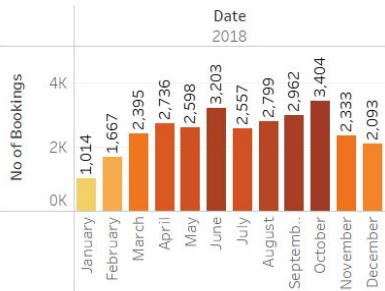
Room Price over Time



Revenue by Month



Seasonality





Thank you!

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