



**Kampus
Merdeka**
INDONESIA JAYA

DATA ANALYTICS

Capstone Project

Presented by: Group 31 - Surabaya

GROUP 31



Group 31 - Section Surabaya

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AGENDA

- **Business Overview**
- **Steps of data analysis & Metrics Planning**
- **Data Cleaning**
- **Data Visualizations**
- **Recommendation**



Business Overview

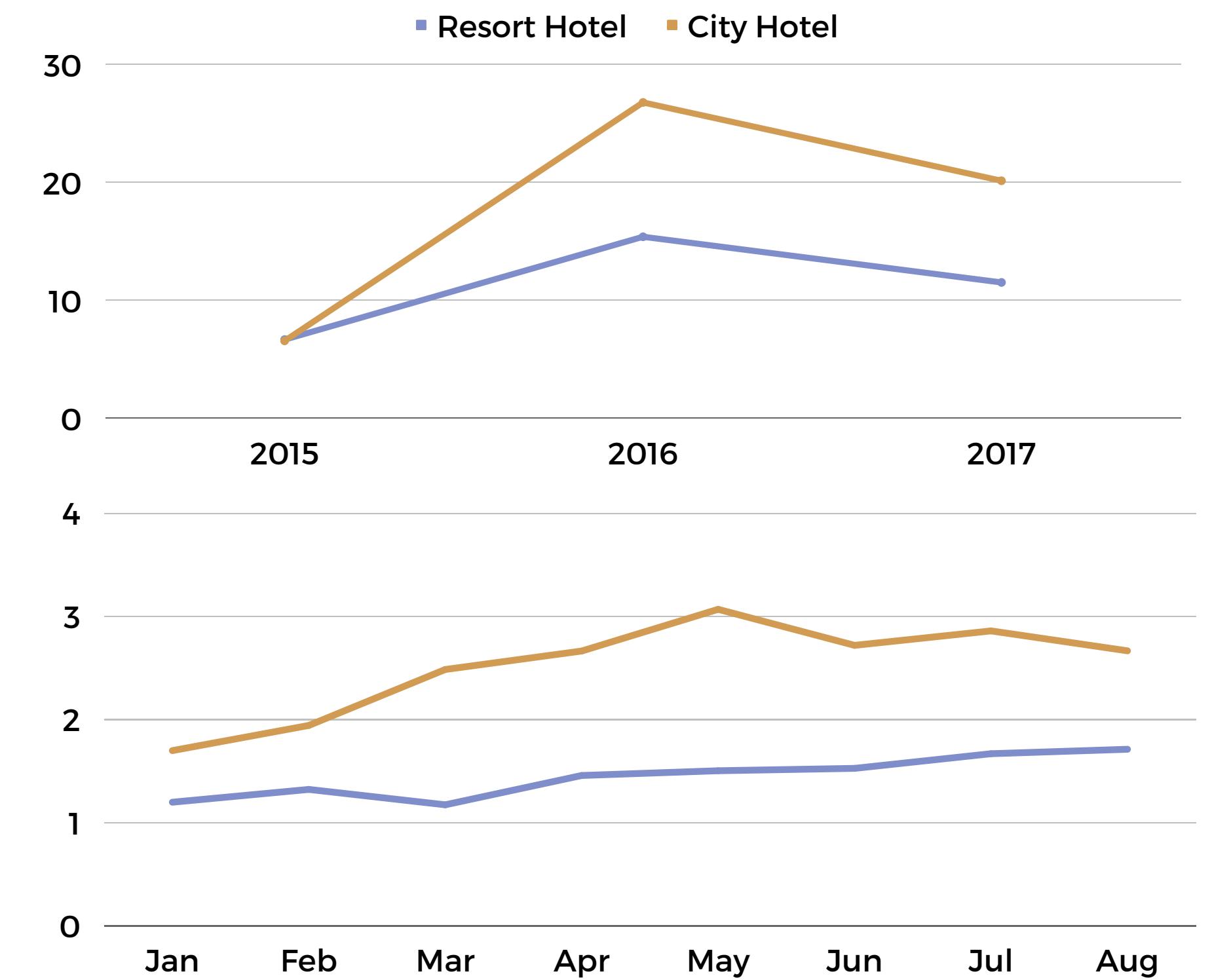


Business Situation

City hotel gets 61.4% the reservations and Resort Hotel get 38.6% the reservations in 3 years.

Problem Statement

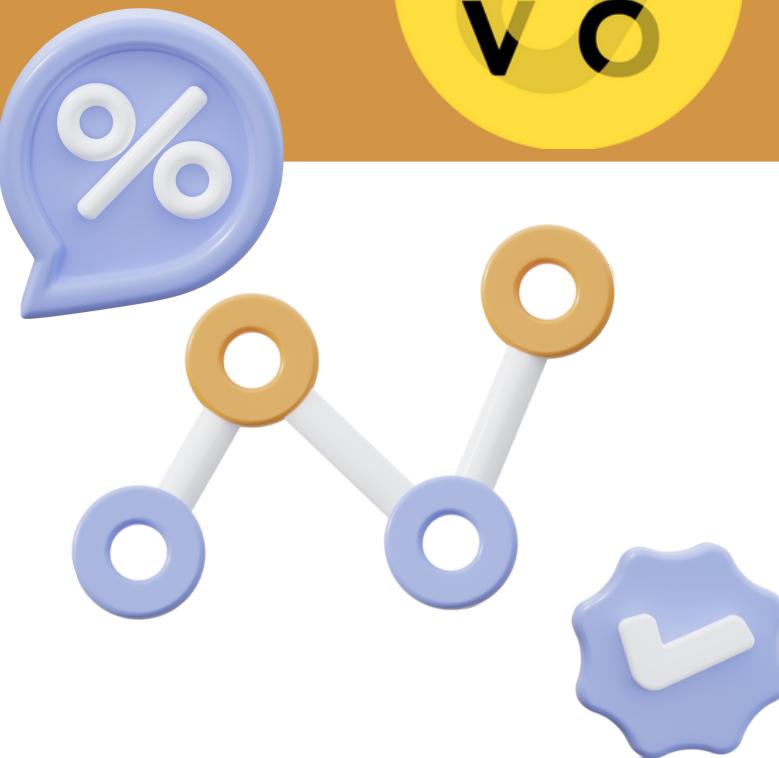
"The number of reservations at the **Resort Hotel is 11.4% lower than the City Hotel**. What needs to be done to maximize the number of **Resort Hotel** reservations by utilizing the remaining **3 months of 2017**?"



Issue Tree



How can we increase the reservation number by 3.8%/month, so that the reservation number can reach 50% within 3 months at the Resort Hotel?



Reducing Cancellations

Implementing the Cancellation Policy

Average Daily Rate Adjustment

Reservation Increase

Seasonal Trend Analysis

Facility Improvement



Steps of Data Analysis & Metrics Planning

Step of Data Analysis

- Business Understanding
- Data Understanding
- Data Preparation
- EDA & Modeling
- Evaluation & Validation
- Visualization

Metrics Planning

- Cancellation Rate
- Conversion Rate
- Retention Rate
- Monthly Active Users
- Duration of Use
- Food Facility Satisfaction Rate
- Customer Segmentation
- Channel-Country Metrics



DATA CLEANING



Reservation Optimization Data Cleaning | Group 31

Check Typos

All Variables

Handling Missing Value

Children, Country,
Company, Agent

**Data
Cleaning
Process**

Format Data

Arrival Date Year, Arrival Date
Month, Arrival Date Day of Month

Remove Duplicates

All Variables



DATASET



[KM] Reservation Optimization Dataset | Group 31 | Surabaya

File Edit Tampilan Sisipkan Format Data Alat Ekstensi Bantuan

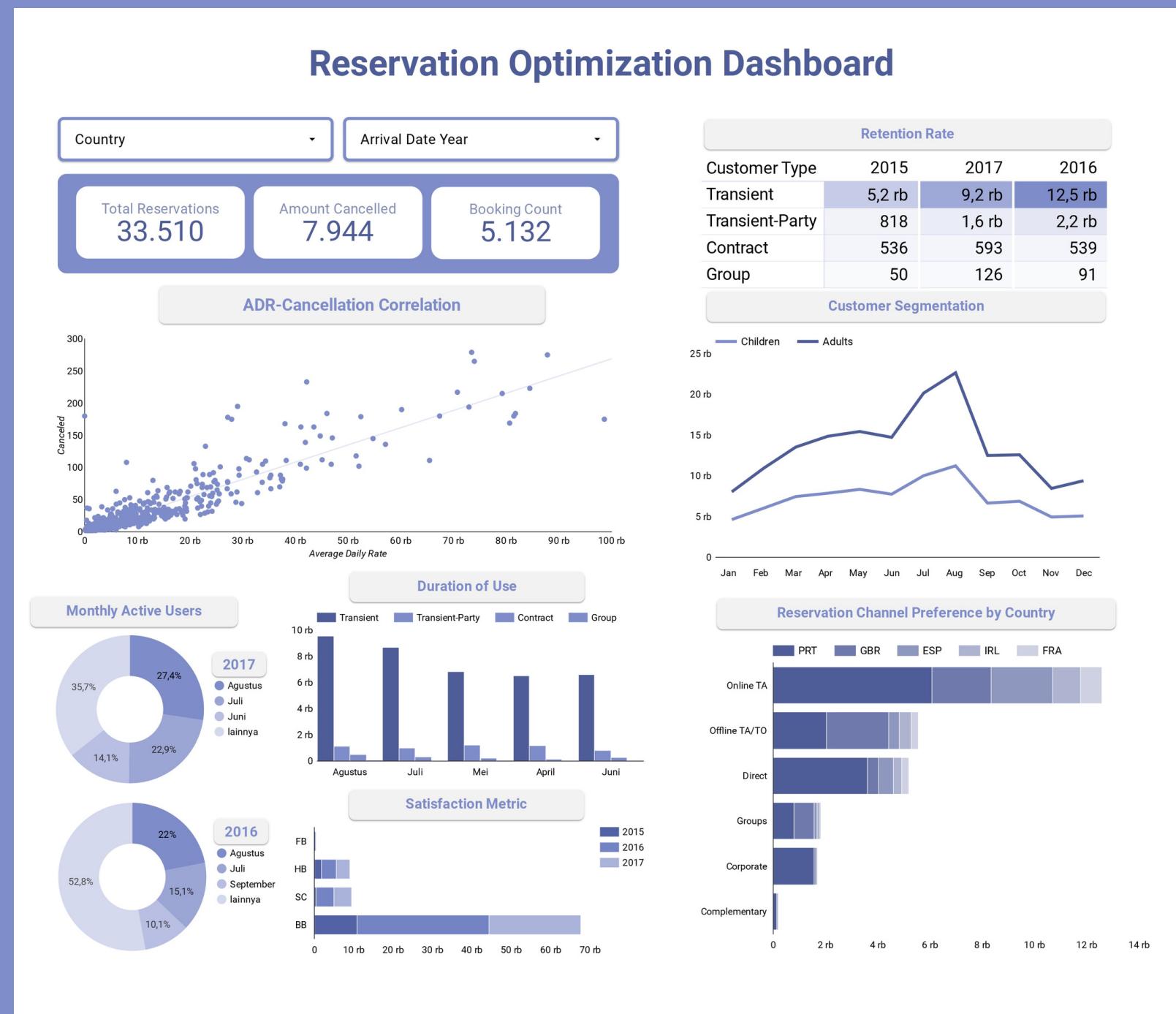
Bagikan

L4

	A	B	C	D	E	F	G	H	I	J
1	Hotel	Canceled	Lead Time	Arrival Date Year	Arrival Date Month	Month	Date	Arrival Date Week Number	Arrival Date Day of Month	Stays in Weekend
2	Resort Hotel		1	202	2015 July	7	22/07/2015	30		22
3	City Hotel		1	279	2015 July	7	23/07/2015	30		23
4	City Hotel		1	272	2015 July	7	16/07/2015	29		16
5	City Hotel		1	265	2015 July	7	09/07/2015	28		9
6	City Hotel		1	258	2015 July	7	02/07/2015	27		2
7	City Hotel		1	258	2015 July	7	02/07/2015	27		2
8	City Hotel		1	286	2015 July	7	30/07/2015	31		30
9	City Hotel		1	283	2015 July	7	27/07/2015	31		27
10	City Hotel		1	276	2015 July	7	20/07/2015	30		20
11	City Hotel		1	269	2015 July	7	13/07/2015	29		13
12	City Hotel		1	262	2015 July	7	06/07/2015	28		6
13	City Hotel		1	281	2015 July	7	25/07/2015	30		25
14	City Hotel		1	267	2015 July	7	11/07/2015	28		11
15	City Hotel		1	278	2015 July	7	22/07/2015	30		22
16	City Hotel		1	304	2015 August	8	17/08/2015	34		17
17	City Hotel		1	311	2015 August	8	24/08/2015	35		24
18	City Hotel		1	318	2015 August	8	31/08/2015	36		31
19	City Hotel		1	290	2015 August	8	03/08/2015	32		3

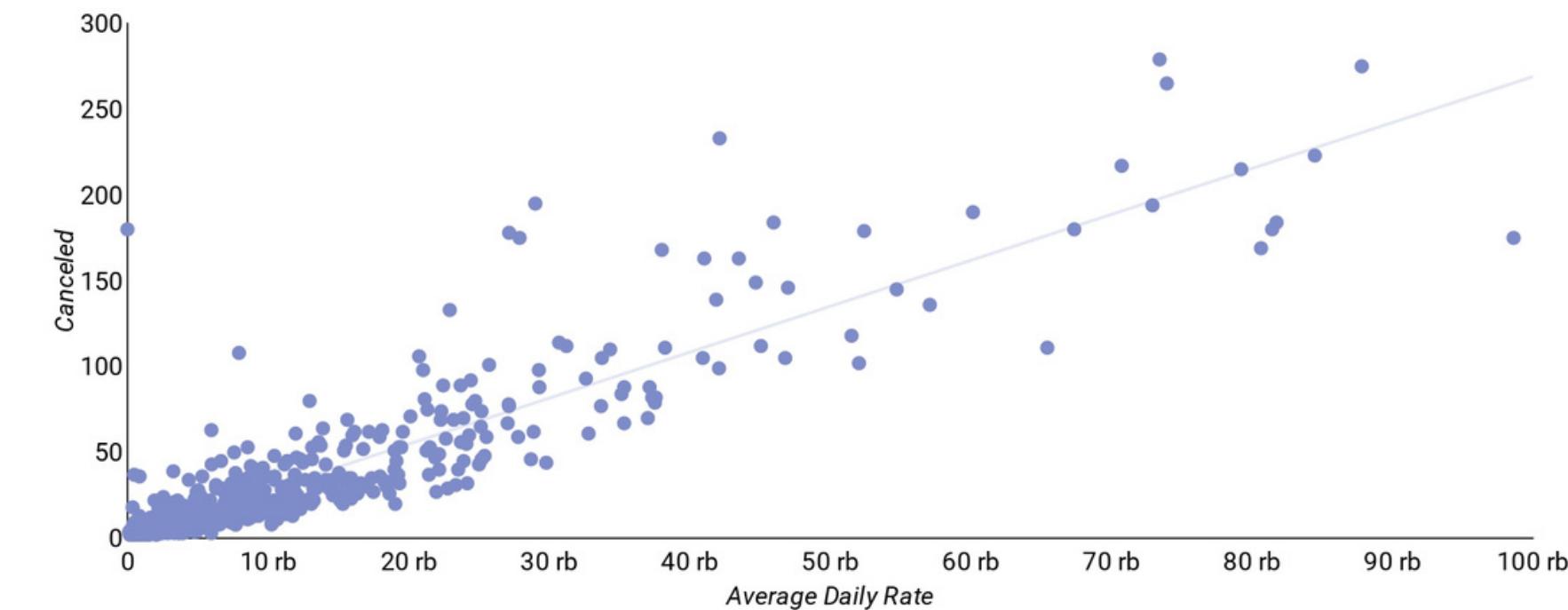
Reservation Optimization Dataset | Group 31

DATA VISUALIZATION

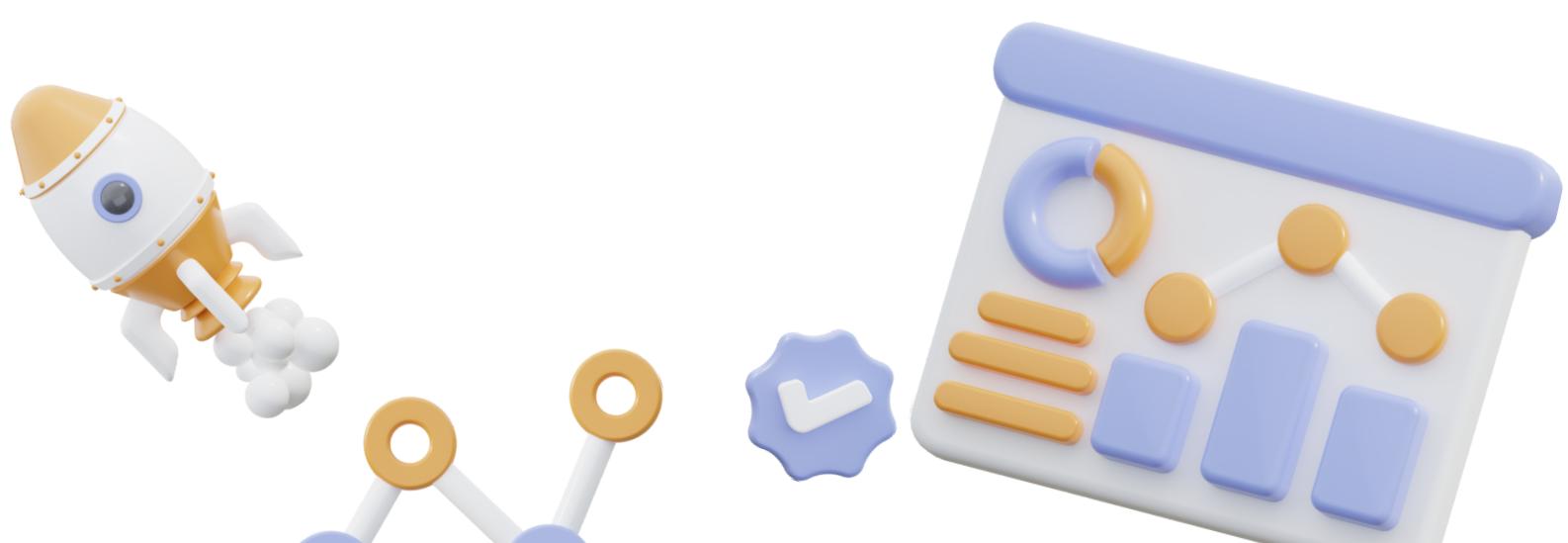


Source: [Reservation Optimization Dashboard | Group 31](#)

Average Daily Rate - Cancellation Correlation



The higher the Average Daily Rate, the greater the number of cancellations.





Metrics

Cancellation Rate & Conversion Rate

Total Reservations
33.510

Amount Cancelled
7.944

Booking Count
5.132

- **Cancellation Rate** - The percentage of canceled reservations at the Resort Hotel is **7.944**.
- **Conversion Rate** - The percentage of customers who made reservations is **33.510**, and hotel bookings are **5,132**.



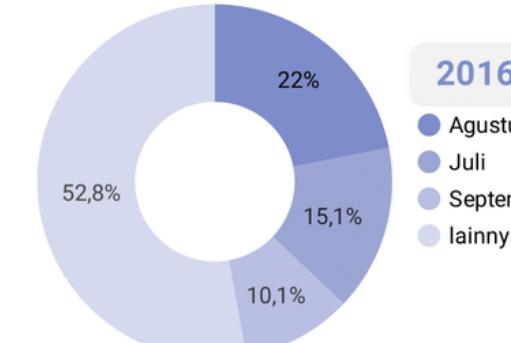
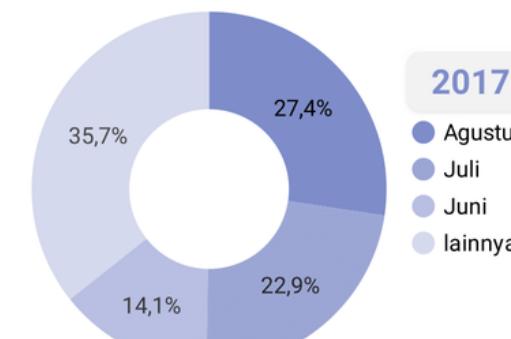


Yearly Repeat Reservation Customer Retention Rate

Customer Type	2015	2017	2016
Transient	5,2 rb	9,2 rb	12,5 rb
Transient-Party	818	1,6 rb	2,2 rb
Contract	536	593	539
Group	50	126	91

The percentage of customer types that make repeat hotel reservations each year is first Transient and second Transient-Party.

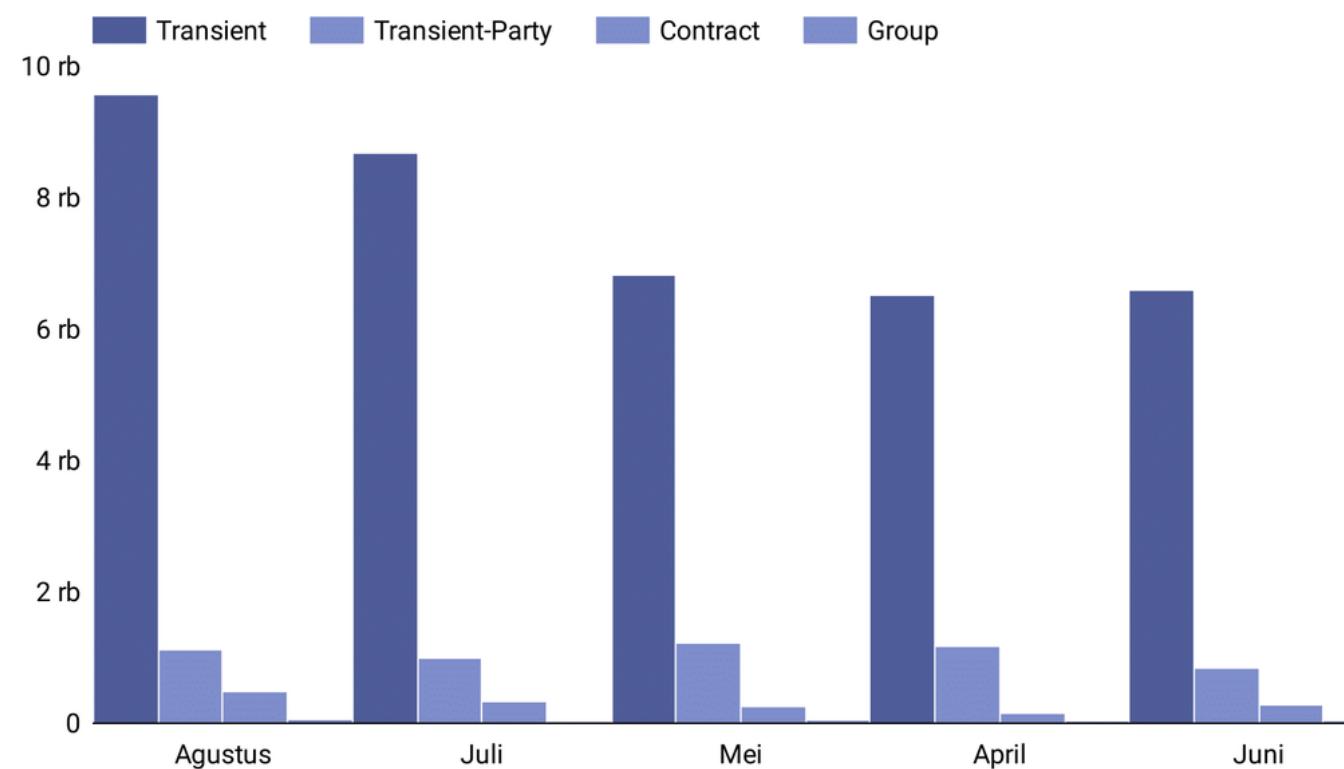
Monthly Active Users



The number of customers making reservations each month was highest in July and August for the years 2016 and 2017.

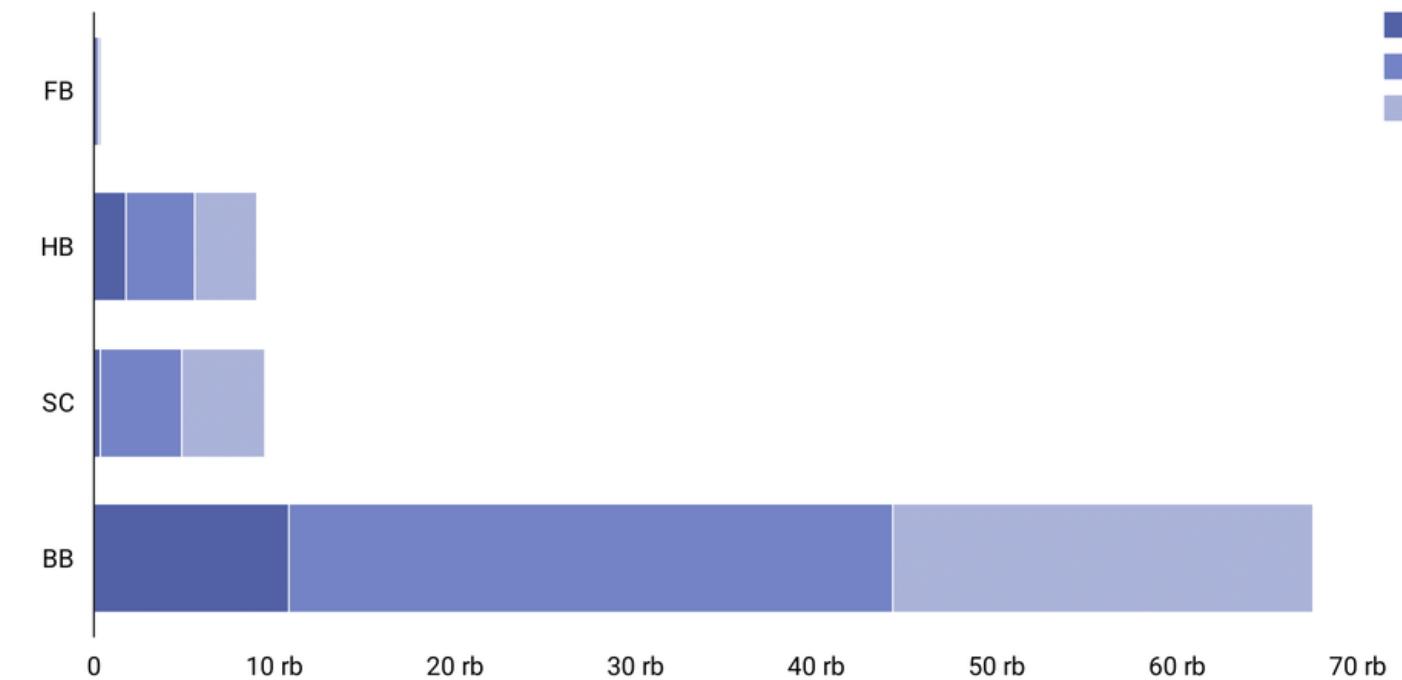


Duration of Use



The highest number of days that customers stayed is in **August and July**.

Food Facility Satisfaction Rate

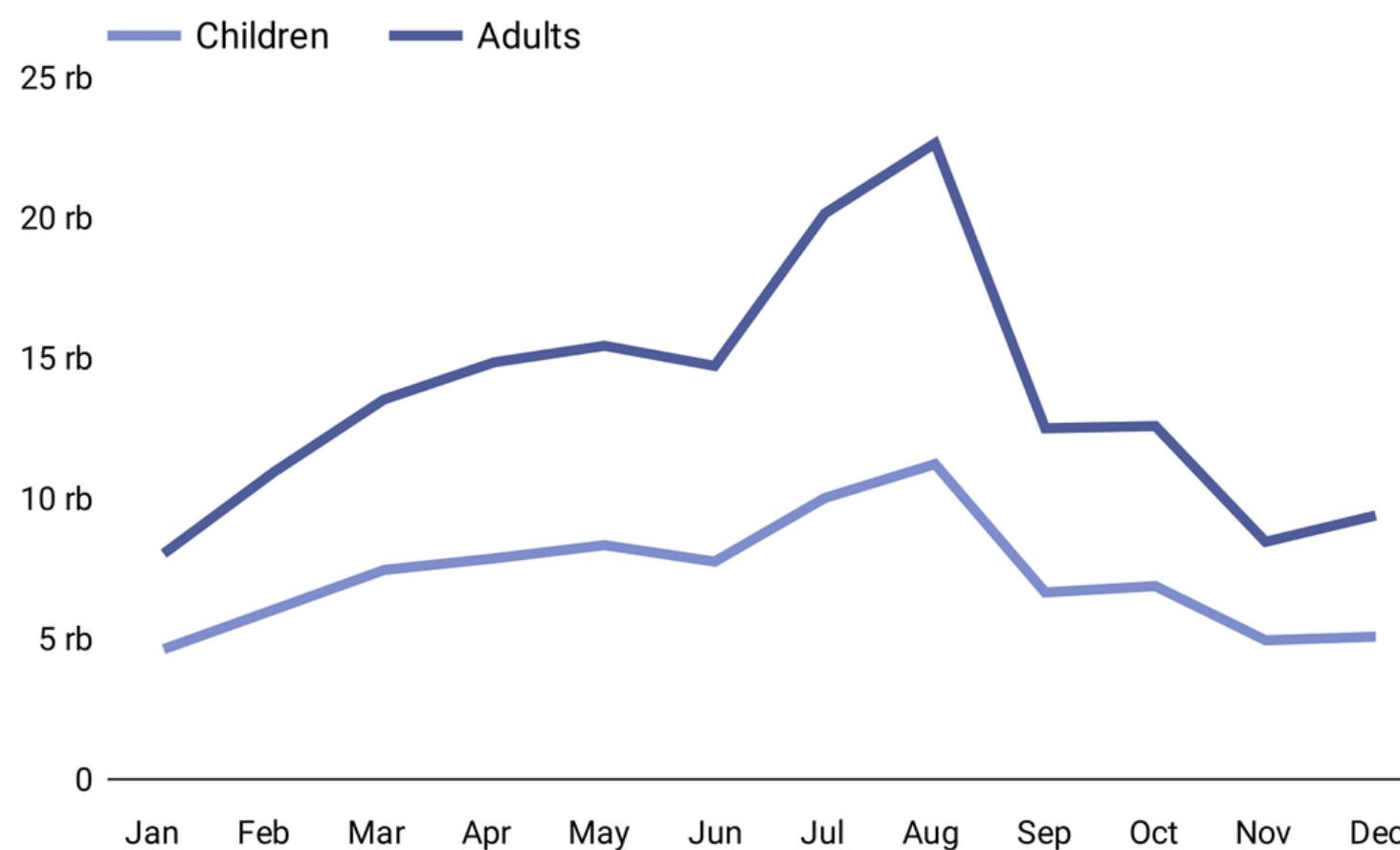


The most frequently booked accommodation package when booking a room is the **BB (Bed and Breakfast) type**, and the **Full Board type receives the fewest bookings**.



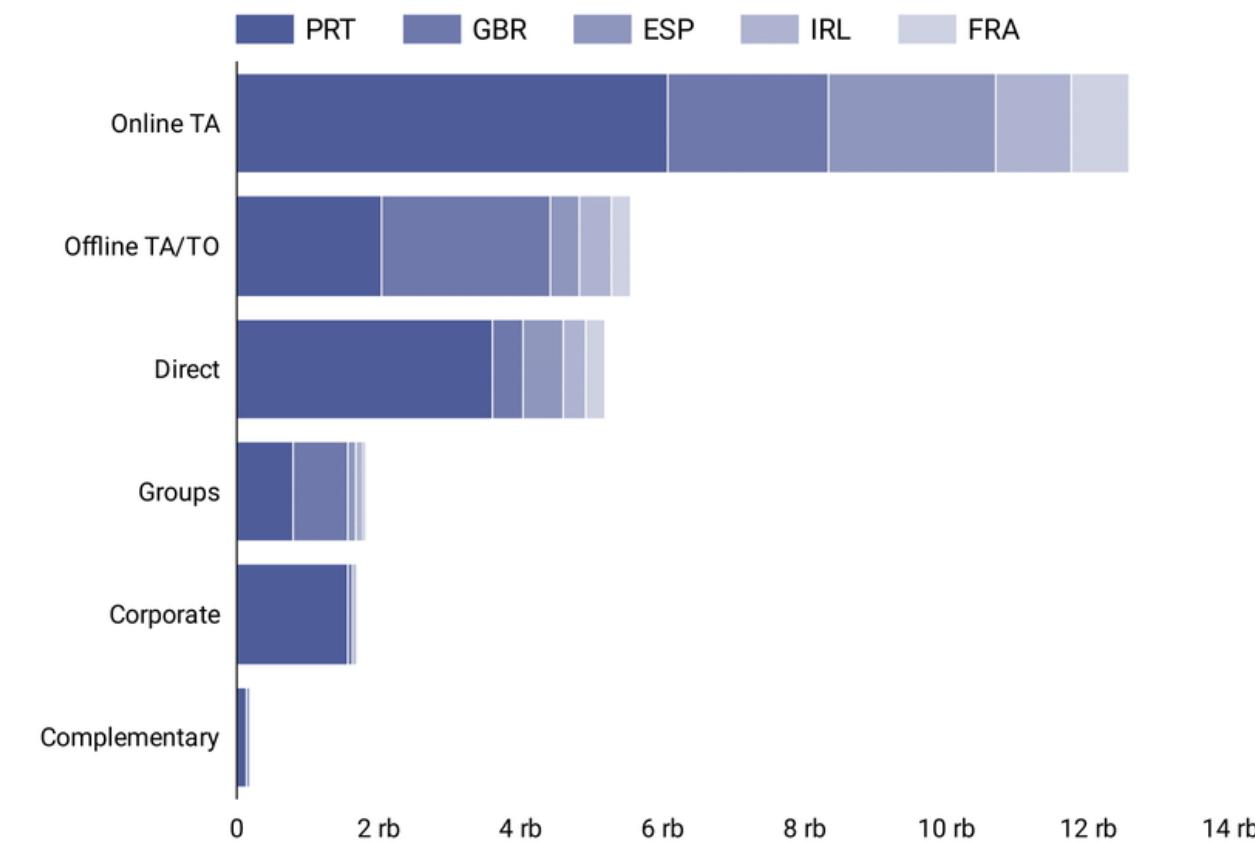


Customer Segmentation



The percentage of adult **customers with the highest count: 22,652**, is more dominant than children with the highest count, 11,229.

Channel-Country Metrics



The highest number of bookings comes from the countries **Portugal, United Kingdom, Spain, Ireland, and France**, which are dominant in **booking hotels through Online TA/TO (Travel Agencies/Travel Operator)** compared to Direct/Offline TA/TO.

RECOMMENDATION

Implementing the Cancellation Policy



Requiring customers to make **full payment upon reservation** and **implementing cancellation limits**

Average Daily Rate Adjustment



Average Daily Rate needs to be adjusted according to the **season** and the **facilities** received by the customer.

Seasonal Trend Analysis



Maximizing room bookings with a customer loyalty program and discounts in **July** and **August**, and promoting it through **online media**.

Facility Improvement



Increasing food facilities by **60% for adults** and **40% for children** to boost Full Board bookings.

CONCLUSION

By implementing all the recommendations, **we can achieve an 11.4% increase in reservations within 3 months.** This is attributed to **adjusting the average daily rate based on the available food facilities and increasing bookings during the summer holiday season**, especially in July and August.





THANK YOU!



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