

HOTEL REVENUE MANAGEMENT

Team C

Page 01



Problem Statement

- Hotel revenue is impacted by fluctuating demand, cancellations, and pricing inefficiencies
- Lack of centralized visibility into occupancy, revenue, and guest behavior
- Manual reports fail to provide real-time and predictive insights
- Management needs a data-driven dashboard to support pricing and strategy decisions



CONTENT

Module 1: Data Modeling and Ingestion

Module 2: Occupancy & Revenue Metrics

Module 3: Guest Analysis

Module 4: Forecasting & Cancellation Trends

Module 5: Revenue Strategy Dashboard

A photograph of a long, narrow hotel hallway. The walls are a warm, golden-brown color. The ceiling is high and features several large, ornate chandeliers with multiple shades. The floor is covered in a dark, patterned carpet. On the left wall, there is a small sign for a fire extinguisher. The hallway leads to a series of doors on both sides.

Objectives

- Build an end-to-end revenue analytics solution for hotels
- Track occupancy, revenue, and guest behavior
- Identify revenue leakage and upsell opportunities
- Forecast future occupancy and analyze cancellations
- Deliver an interactive dashboard for GMs and Revenue Managers

Module 1 – Data Modeling & Ingestion

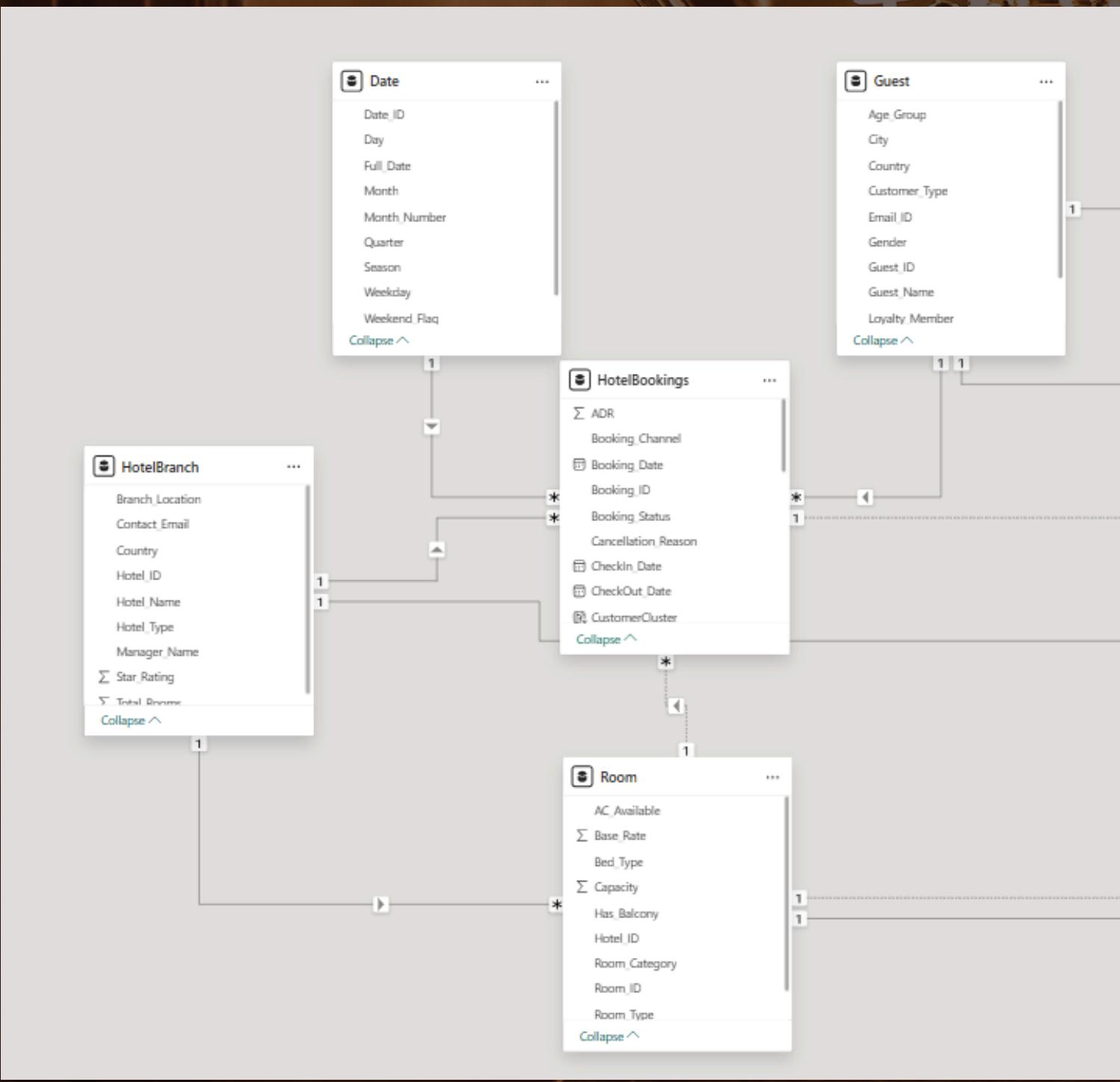
Objective: Build a strong analytical data foundation

Data Overview:-

- Booking Data (check-in, check-out, price, source)
- Customer Data (type, nationality, repeat status)
- Room Data (category, capacity, pricing)
- Hotel Branch Data (location, property type)
- Date Data

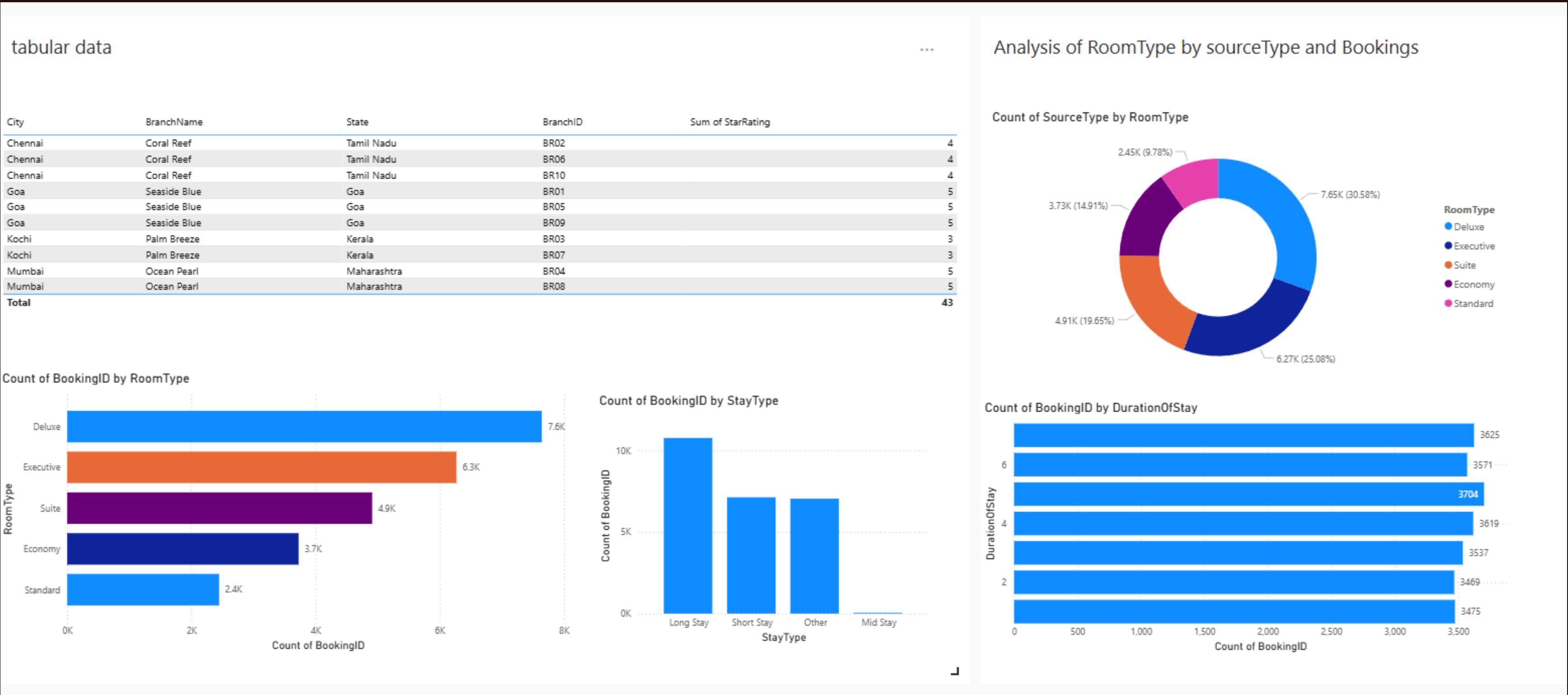
1. Loaded booking, customer, room, and hotel branch data
2. Designed a Star Schema for efficient reporting:
 - Fact Table: Bookings
 - Dimensions: Date, Room, Customer, Hotel Branch

Star Schema



- Derived key calculated fields:
 1. Booking Duration (nights stayed)
 2. Room Category (Standard, Deluxe, Suite)
 3. Stay Type (Short stay / Long stay)
- Ensured data consistency and performance optimization
- **Impact:** Enabled faster analysis and scalable dashboard design

Module 1 Dashboard



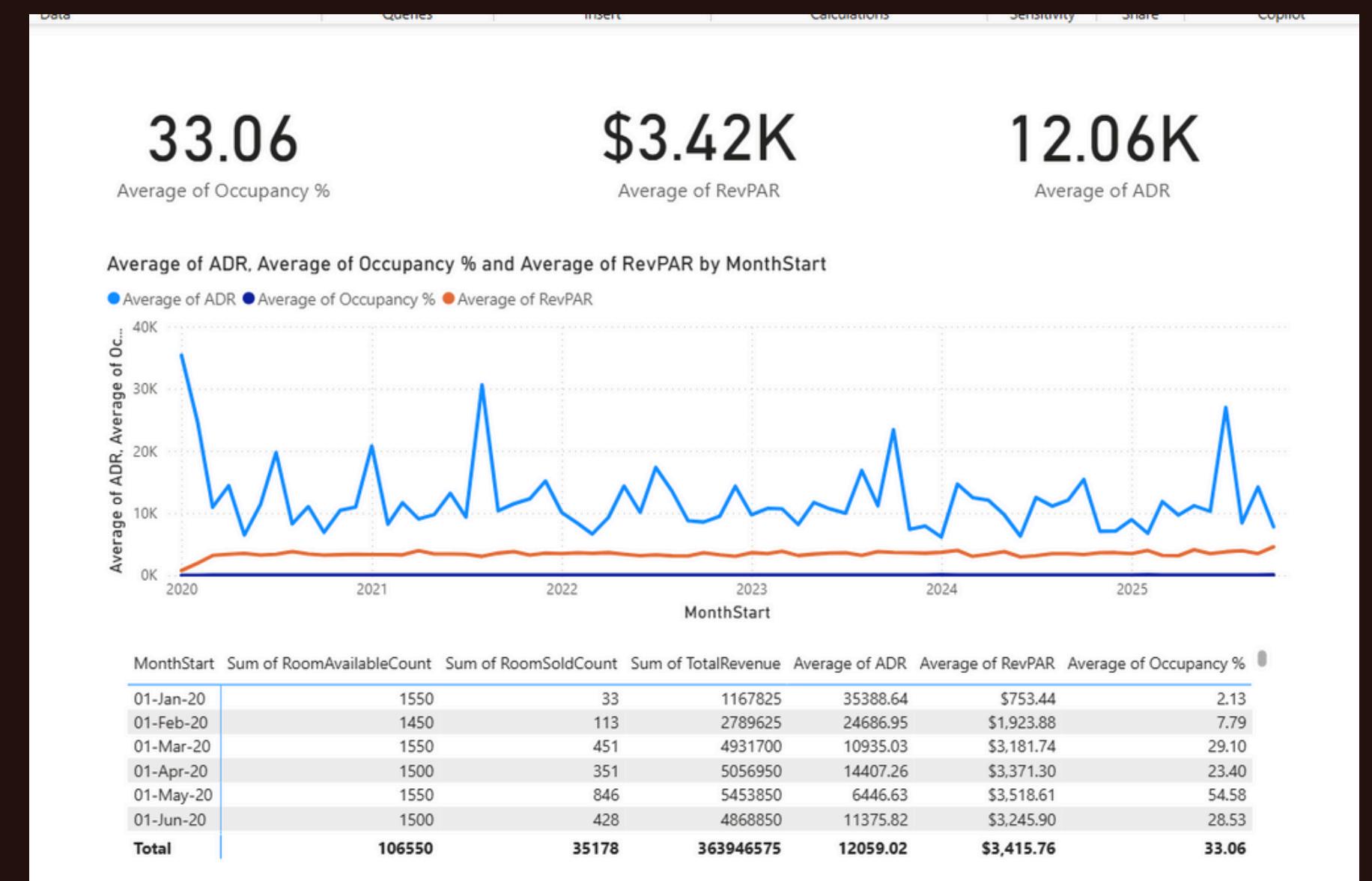
Module 2 – Occupancy & Revenue Metrics

- **Objective:** Monitor hotel performance KPIs
- Calculated core hospitality metrics:

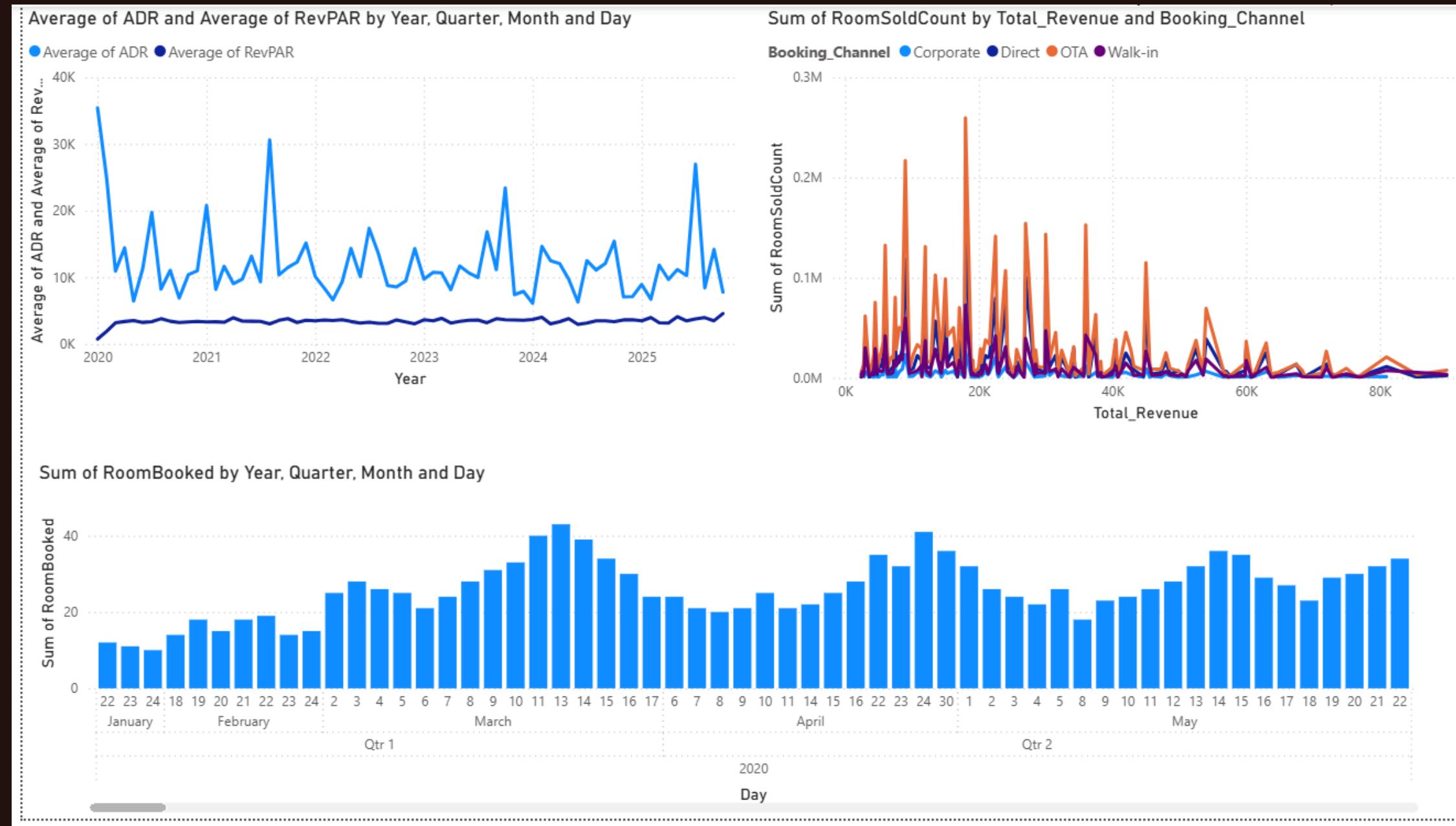
1. Occupancy % = DIVIDE(Calculation Table [Rooms Booked], Calculation Table [TotalRooms], 0) * 100

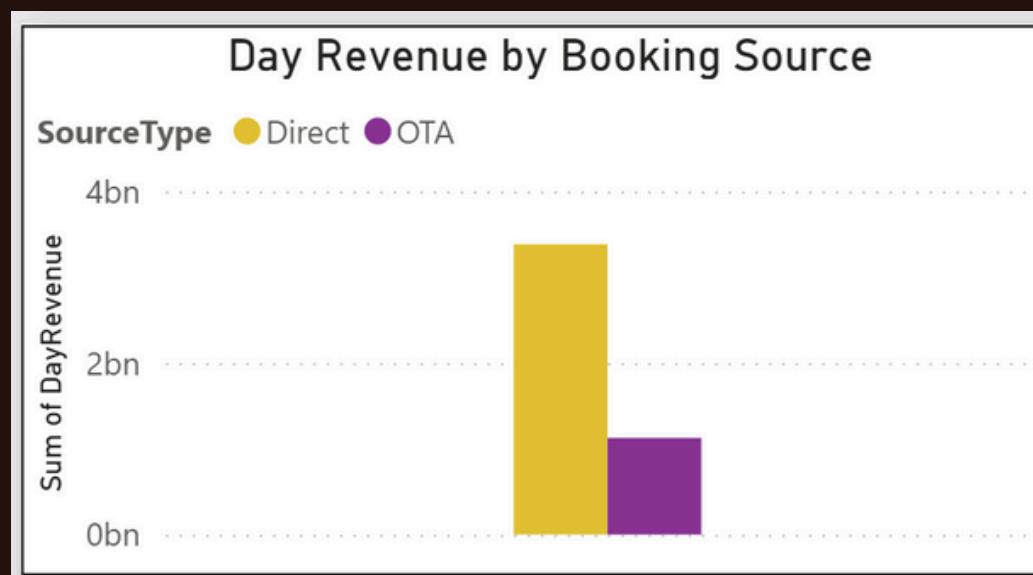
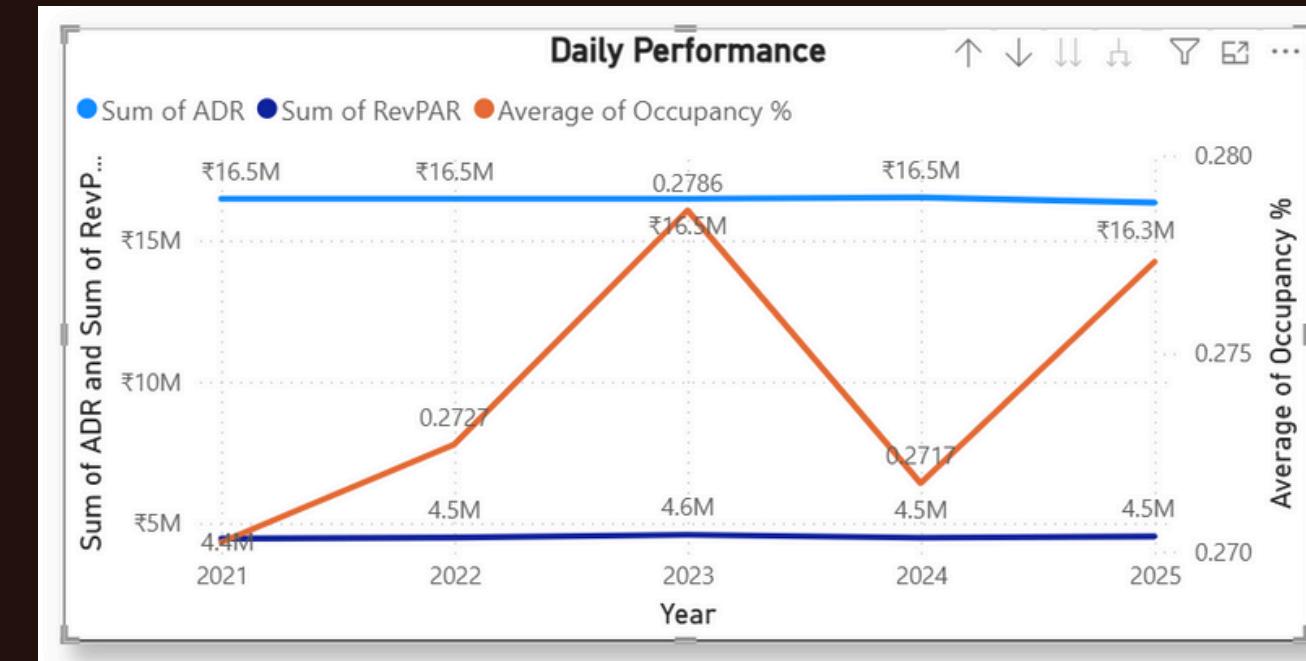
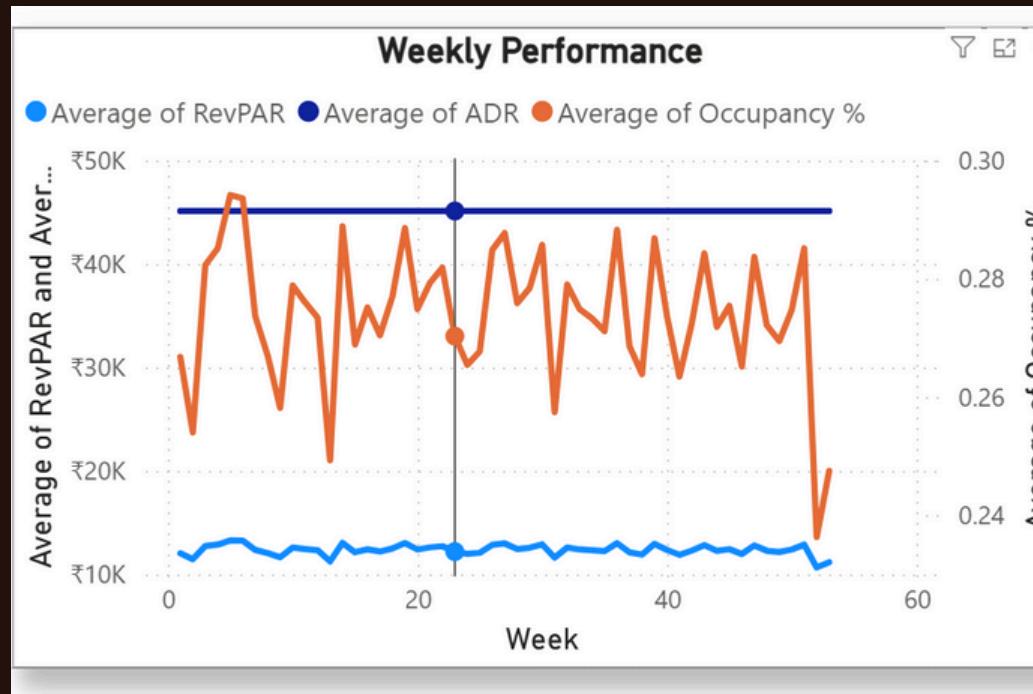
2. ADR (Average Daily Rate) =
DIVIDE(Calculation Table [TotalRevenue],
Calculation Table' [Rooms Booked], 0)

3. RevPAR (Revenue per Available Room) =
DIVIDE(Calculation Table [Occupancy %],
100, 0) * Calculation Table [ADR]



- Compared:
Direct bookings vs. OTA bookings
- Identified peak and low-demand periods using time-series visuals
- Impact: Clear visibility into revenue drivers and demand cycles





Impact – How KPIs Guide Revenue Decisions

01

Pricing Optimization

Occupancy % and ADR help adjust room prices based on demand levels.

02

Revenue Efficiency Evaluation

RevPAR provides a combined view of pricing and occupancy performance.

03

Demand & Capacity Planning

Trend analysis supports forecasting and better room inventory planning.

04

Channel Strategy Improvement

Direct vs OTA insights help reduce commission costs and improve profitability.

Module 3 – Guest Analysis

- **Objective:** Understand guest behavior and value

- Segmented guests by purpose:

Business

Family

Solo travelers

- Visualized:

Nationality distribution

Booking source contribution

Length of stay patterns

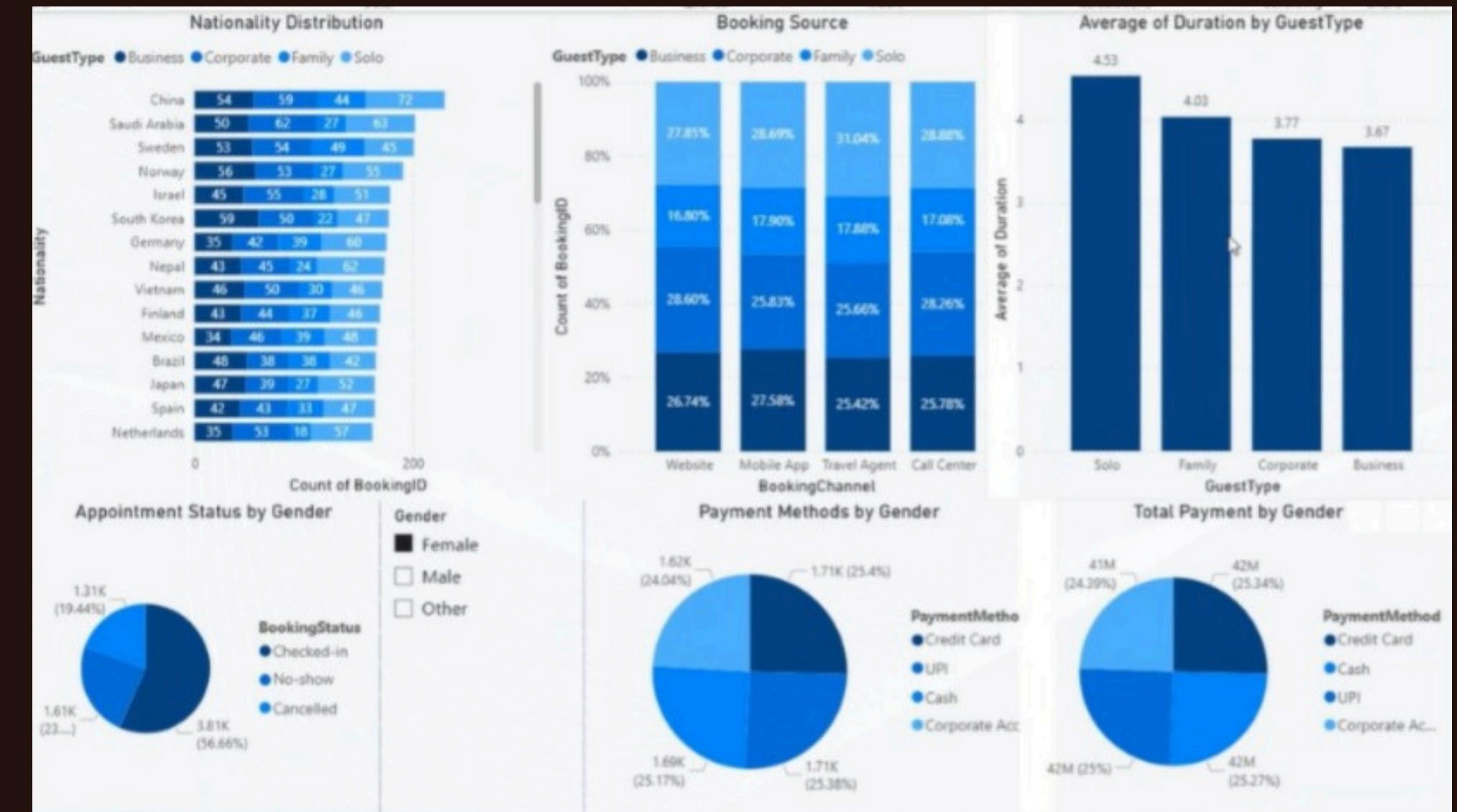
- Clustered customers into:

First-time guests

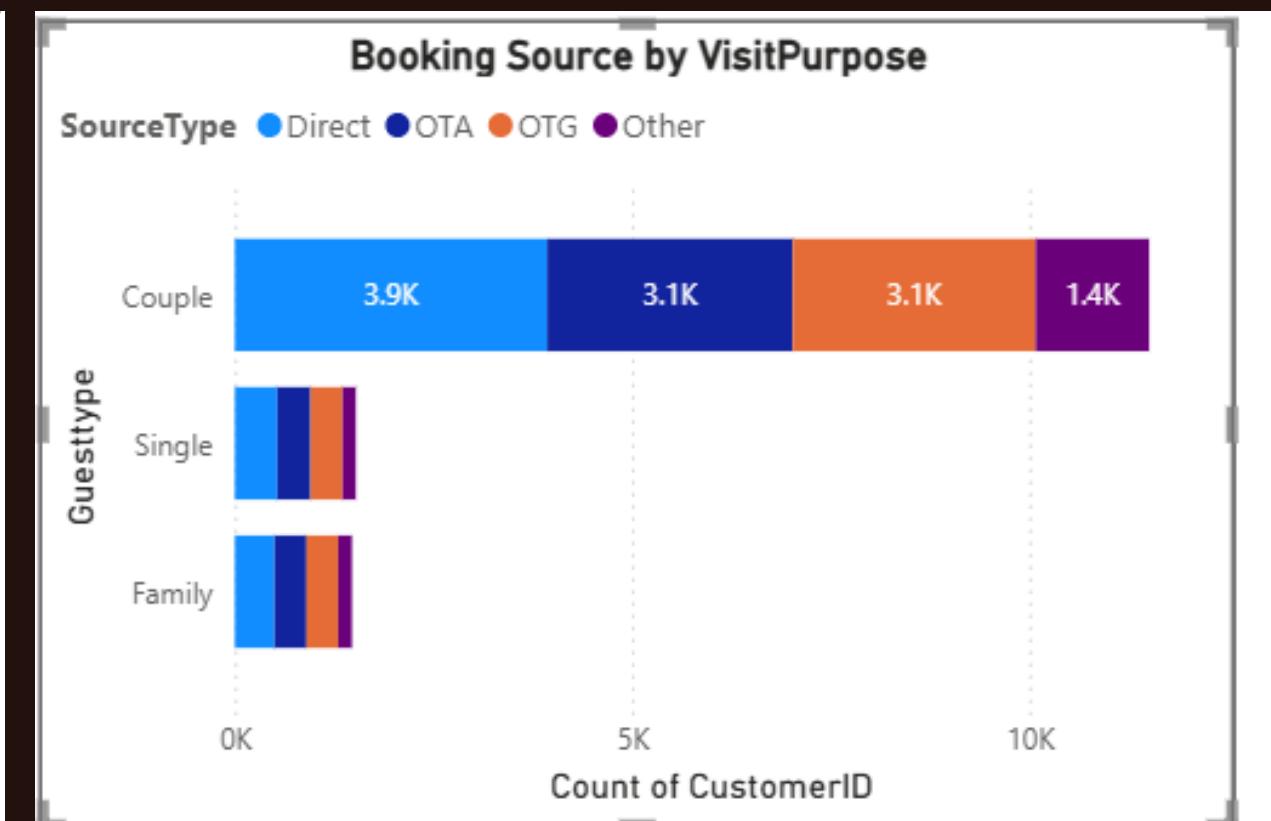
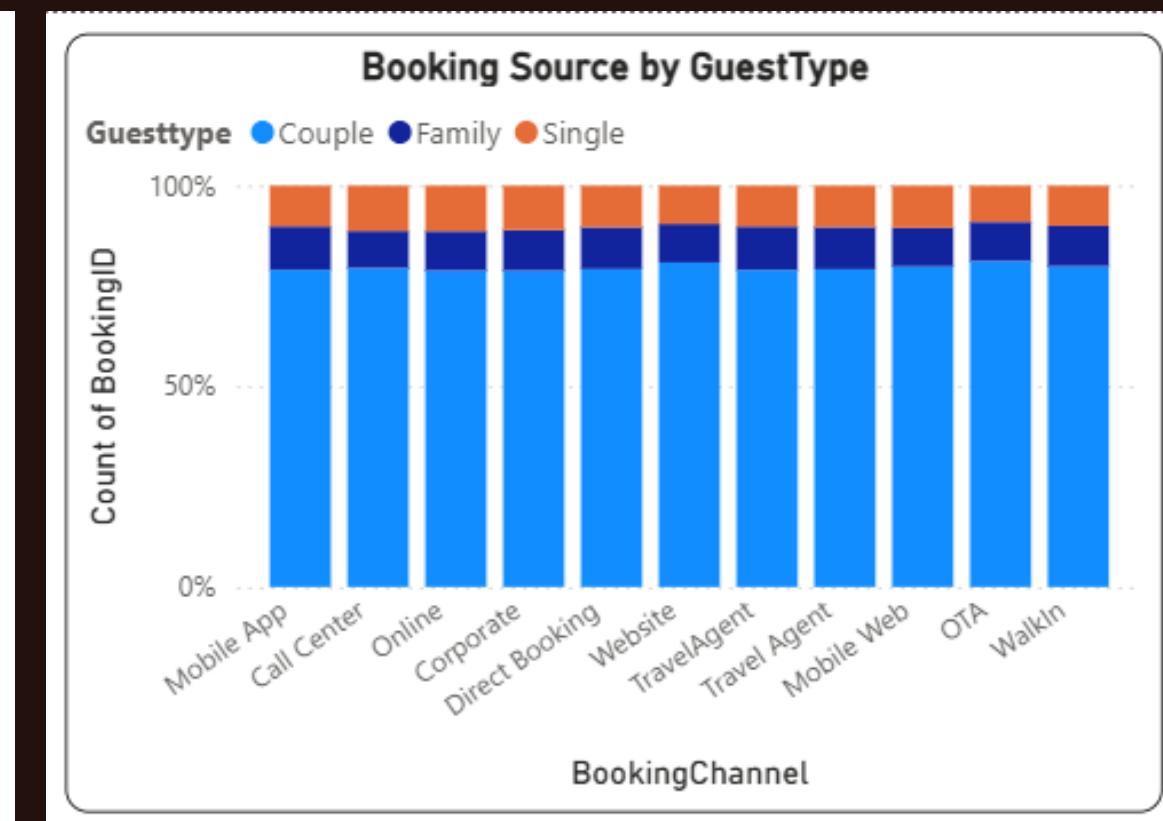
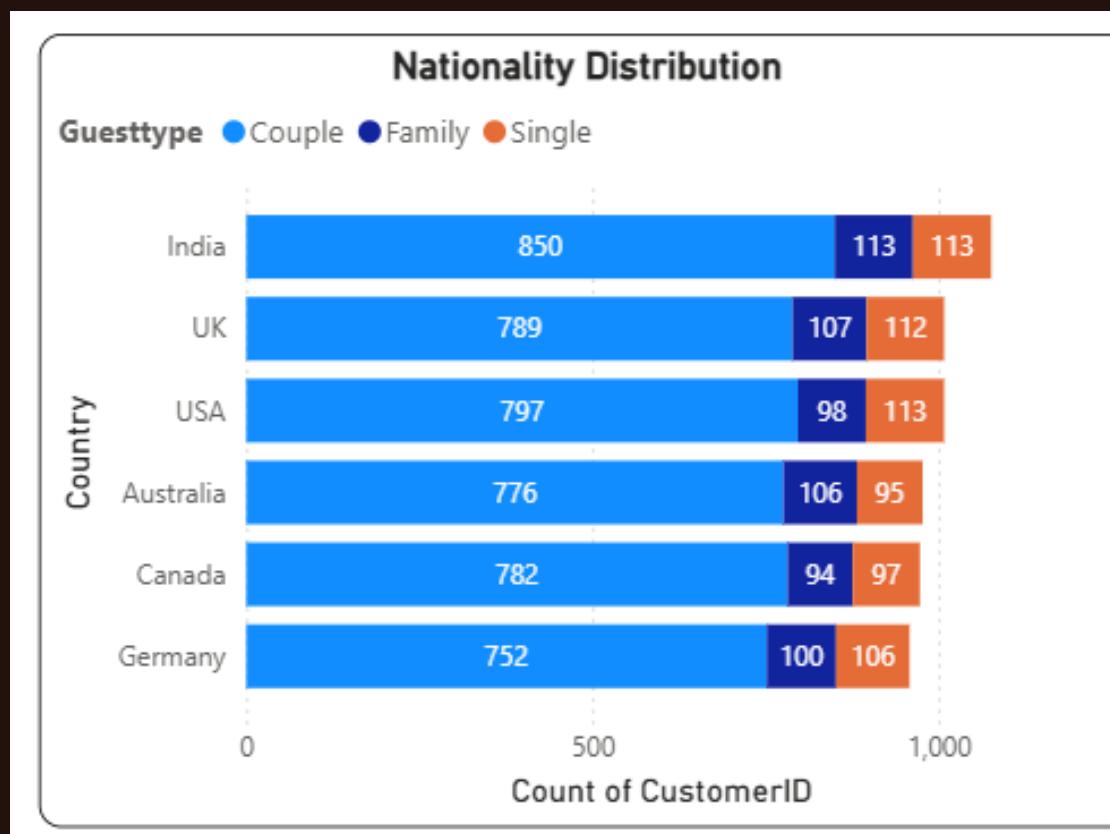
Loyal / repeat guests

High-spending customers

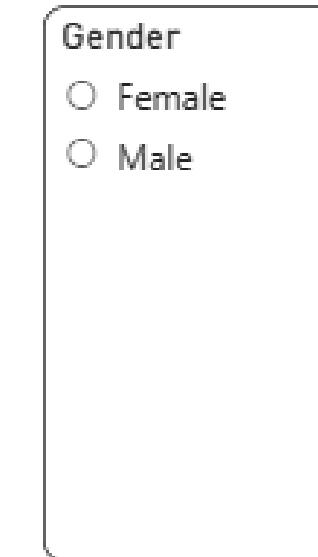
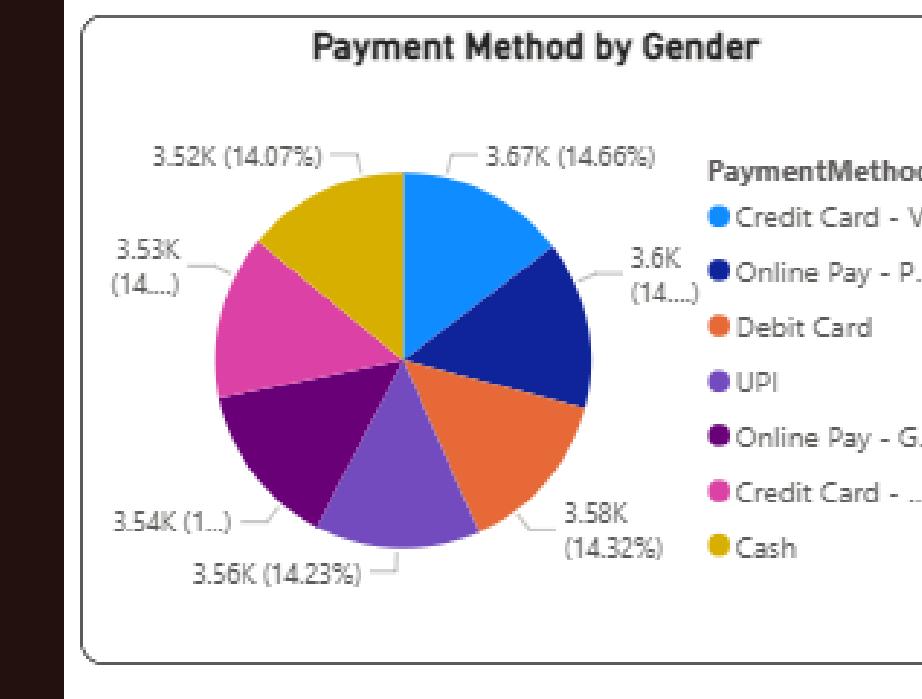
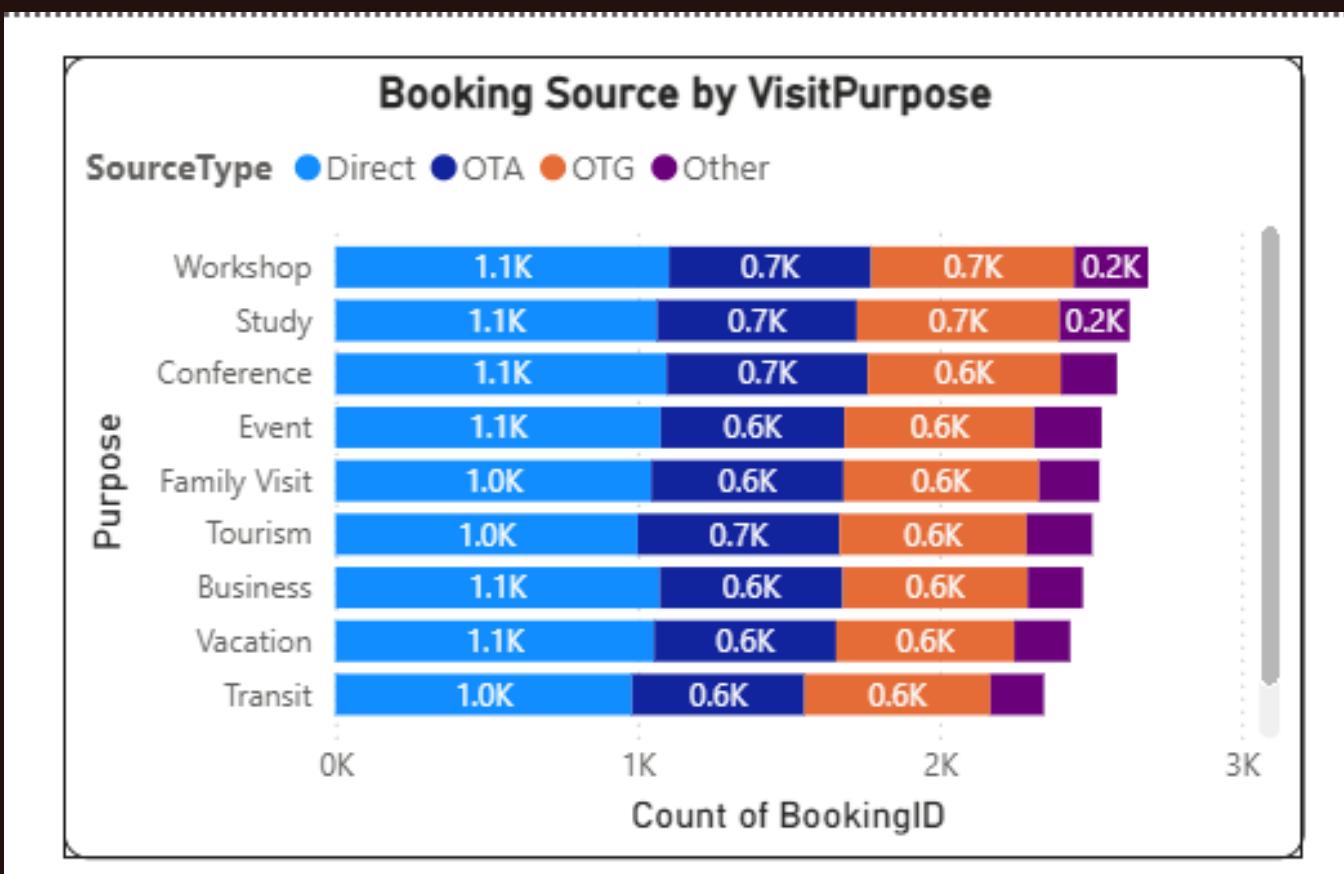
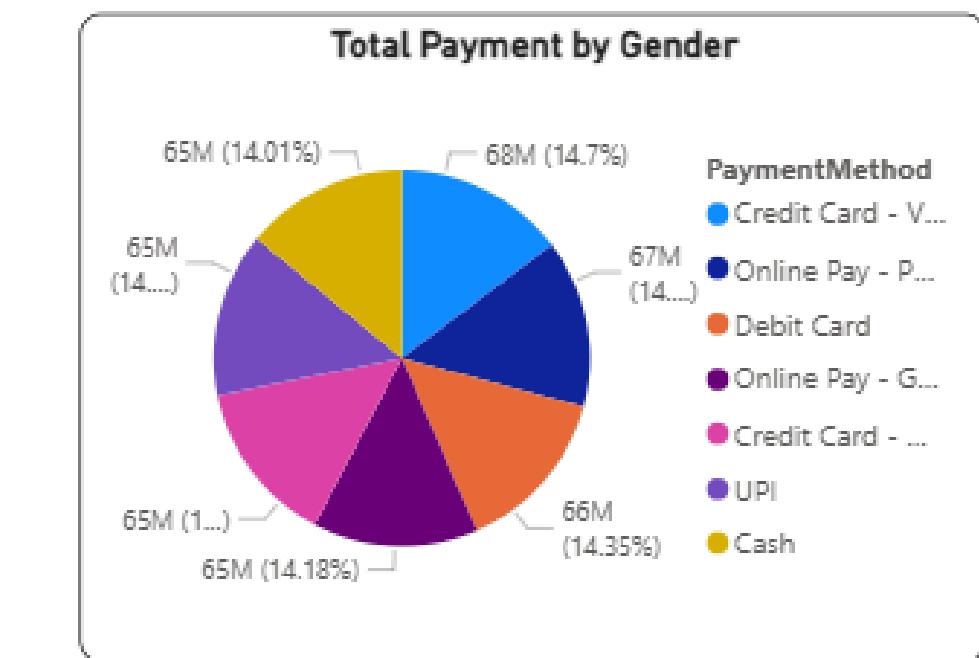
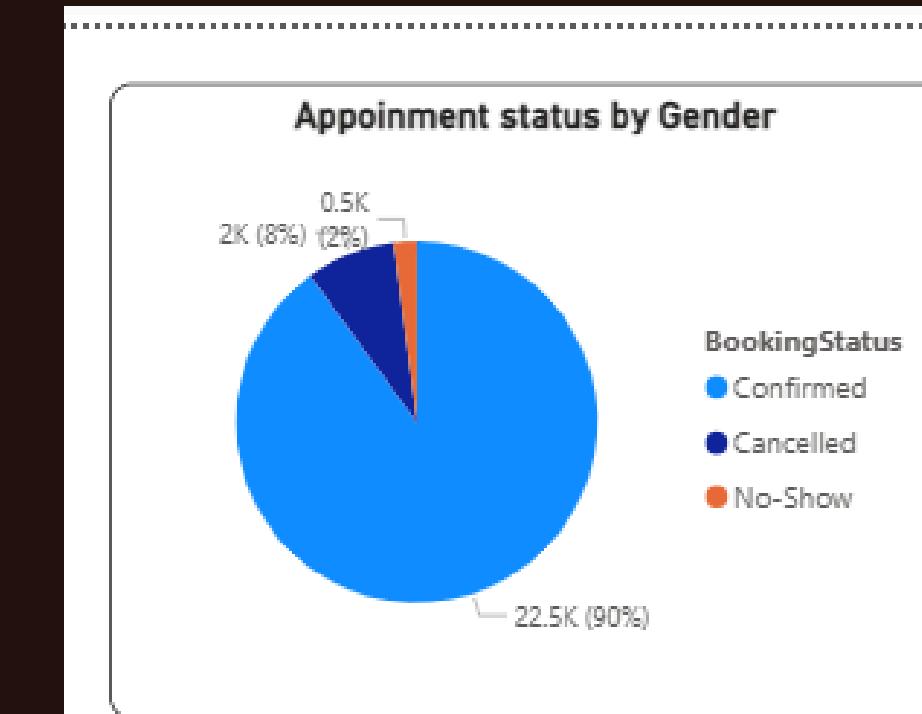
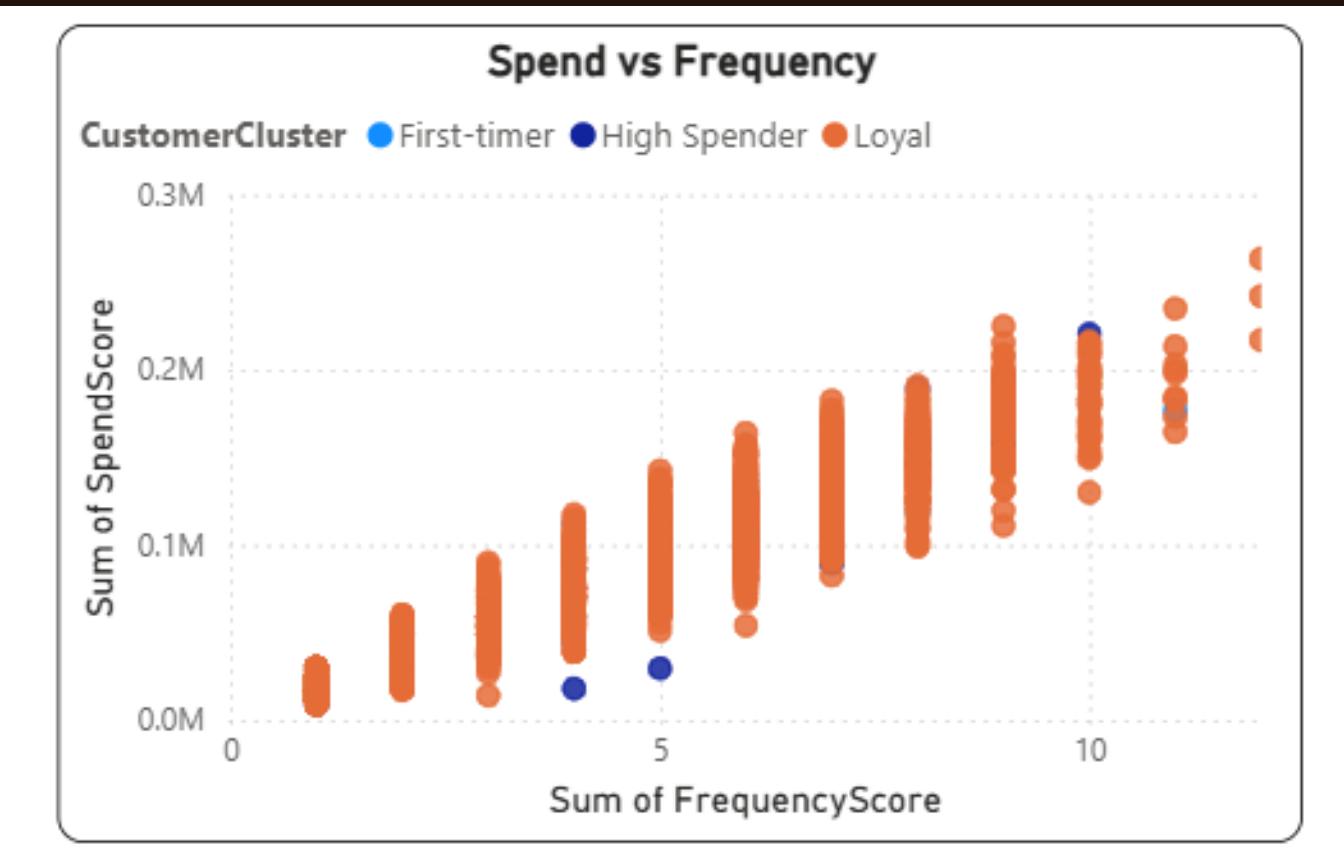
- **Impact:** Enabled personalized marketing and loyalty strategies



Module 3 Dashboard



Module 3 Dashboard



POWER BI FORMULAS:

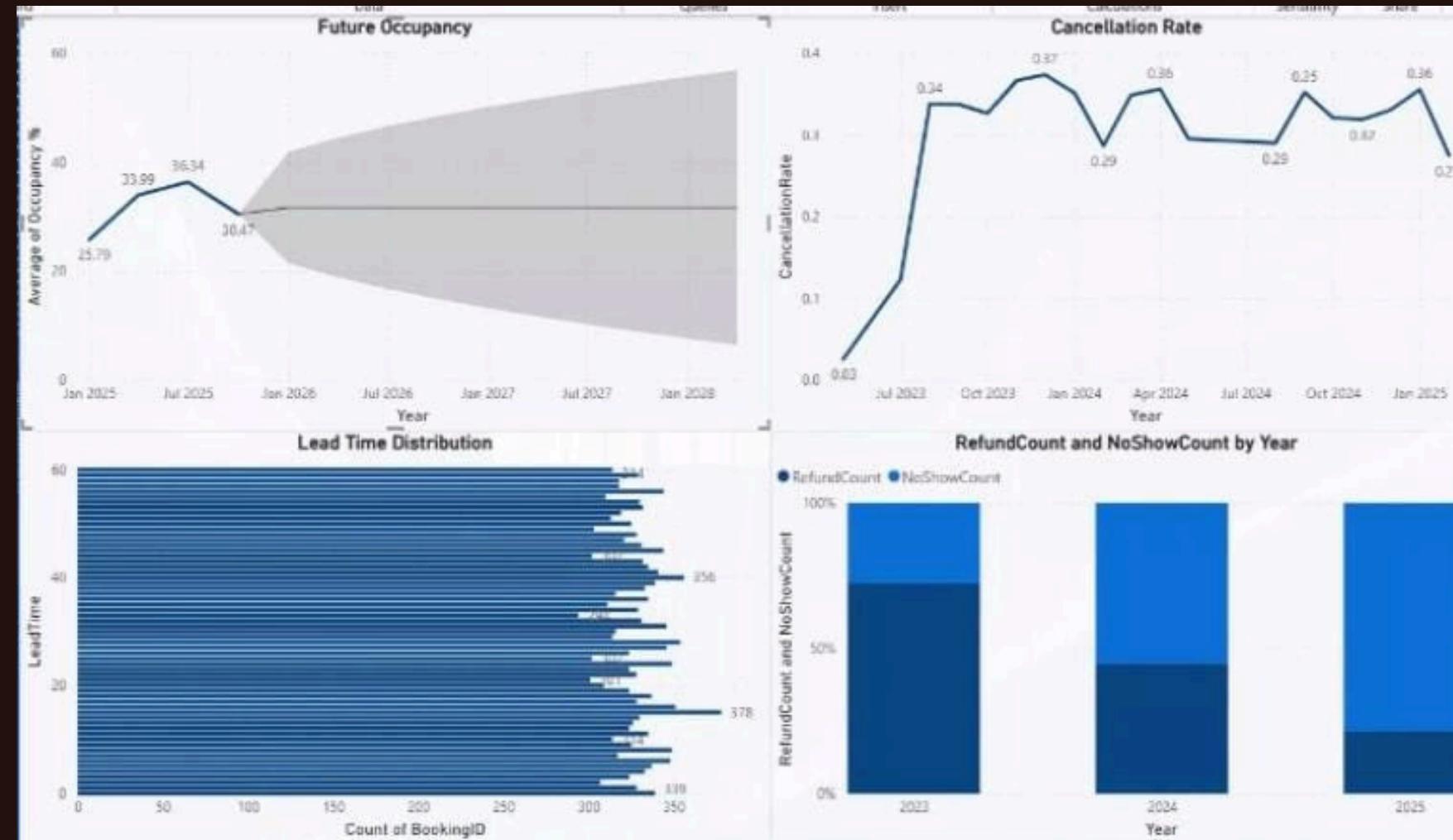
```
CustomerCluster =  
SWITCH(TRUE(),  
    [NumOfBookings] = 1 && [Revenue] < 5000, "First-Timer", [NumOfBookings] >= 3 && [Revenue] < 15000, "Loyal  
Guest", [Revenue] >= 15000, "High Spender", "Other")
```

```
GuestType = SWITCH(Customer[Purpose], "Honeymoon", "Couple", "Family Visit", "Family", "Business  
Trip", "Single", "Conference", "Single", "Tourism", "Couple", "Medical Visit", "Single", "Wedding", "Family", "Education  
Visit", "Single", "Sports Event", "Family", "Transit Stay", "Single", "Couple")
```

Key Insights:

- High spenders contribute the highest revenue.
- Loyal guests show frequent repeat bookings.
- Couples and families are the dominant guest types.
- India, UK, and USA are top source markets.
- Digital payments are most preferred.

Module 4 – Forecasting & Cancellation Trends



- **Objective:** Reduce uncertainty and revenue loss
- Forecasted future occupancy using:
 - Historical trends
 - Seasonal patterns
- Analyzed:
 - Cancellation rates over time
 - Lead time distribution (days before check-in)
- Visualized:
 - No-show trends
 - Refund patterns
- **Impact:** Improved demand planning and overbooking decisions

KEY MEASURES & CALCULATIONS USED IN POWER BI

1. Occupancy %

Measures the percentage of available rooms that are occupied, indicating room utilization efficiency.

Occupancy % = DIVIDE([Room Booked], [Total Rooms]) * 100

2. Cancellation Rate

Measures the proportion of bookings that are cancelled, indicating booking reliability.

**Cancellation Rate =DIVIDE(COUNTROWS(FILTER(Bookings,
Bookings[CancellationFlag] = "Yes")),
COUNTROWS(Bookings))**

3. Lead Time

Measures the number of days between booking date and check-in date, reflecting customer booking behavior.

Lead Time =DATEDIFF(Bookings[BookingDate], Bookings[CheckInDate], DAY)

4. Refund Count

Measures the total number of refunded bookings, highlighting revenue leakage.

**Refund Count =CALCULATE(COUNTROWS(Bookings,
Bookings[RefundAmount] > 0))**

Module 5 – Revenue Strategy Dashboard

- **Objective:** Support management decision-making

- Identified upsell opportunities:

Spa services

Dining

Add-on amenities

- Recommended dynamic pricing strategies:

Season-based pricing

Room-type-based pricing

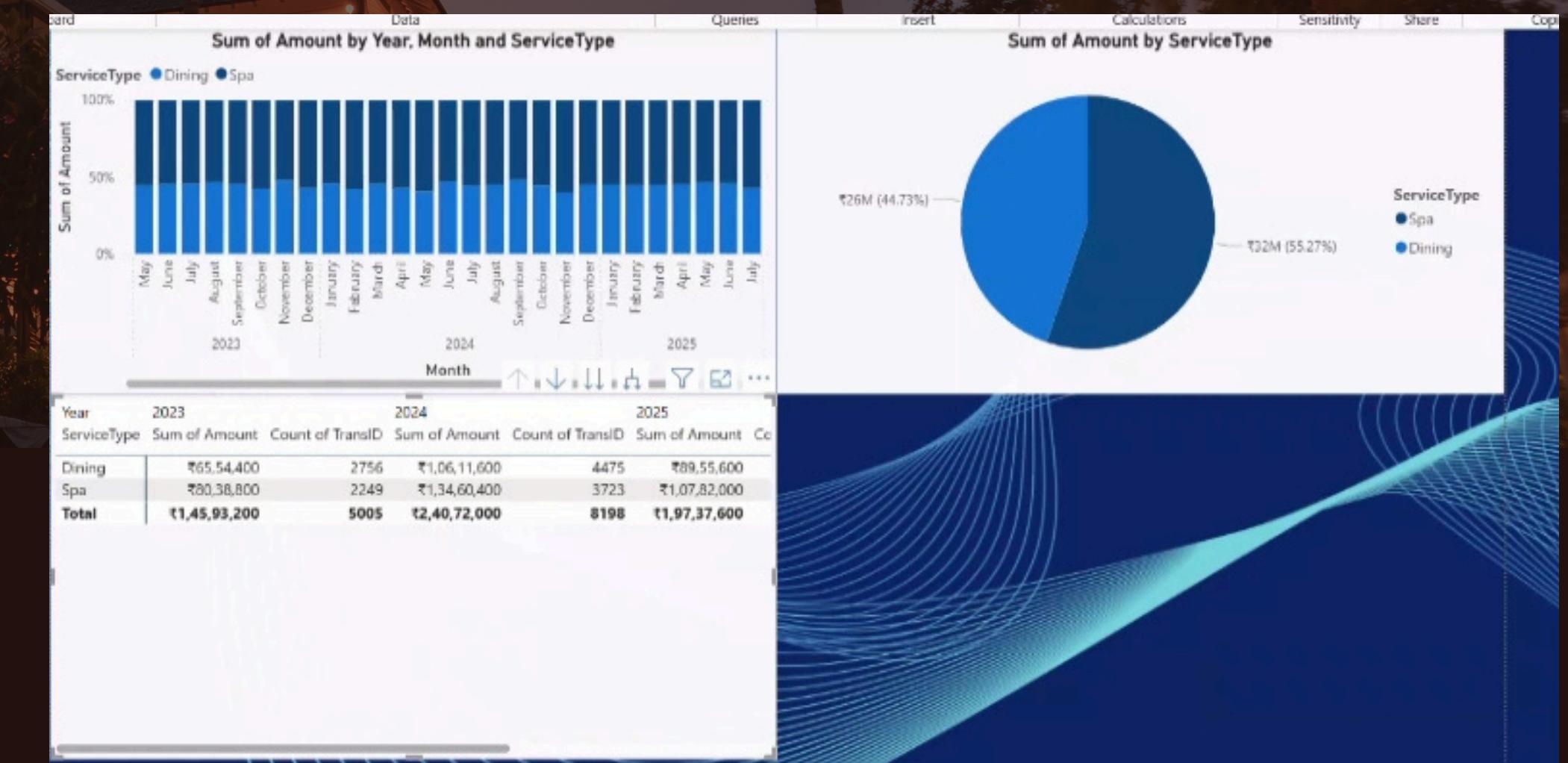
- Built a single interactive dashboard for:

General Managers

Revenue Managers

- Enabled drill-down and filter-based analysis

- **Impact:** Direct support for revenue optimization decisions



Upsell Potential – Ancillary Services

1. Upsell Potential (Ancillary Services)

- Analyzes guest spend on spa, dining, services
- Identifies high-value & repeat guests
- Highlights high-margin but underperforming outlets

2. Pricing Tiers (Seasonal + Room Type)

- Peak season → premium pricing
- Weekends → mid-tier pricing
- Off-season → discounts & bundles
- Different pricing logic per room category

Scenario Testing & Business Impact

Interactive Decision-Making

What-If Parameters

- Price Uplift %
- Occupancy Sensitivity (demand elasticity)

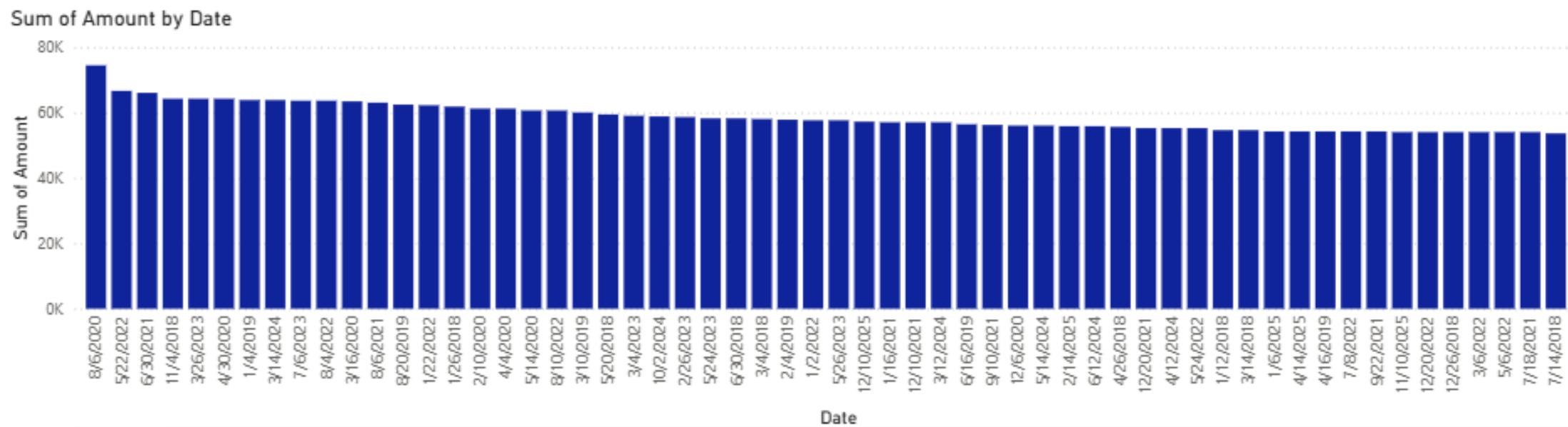
Scenario Demo

- Baseline vs adjusted ADR, Occupancy, RevPAR
- Real-time KPI updates using sliders

Impact for Managers

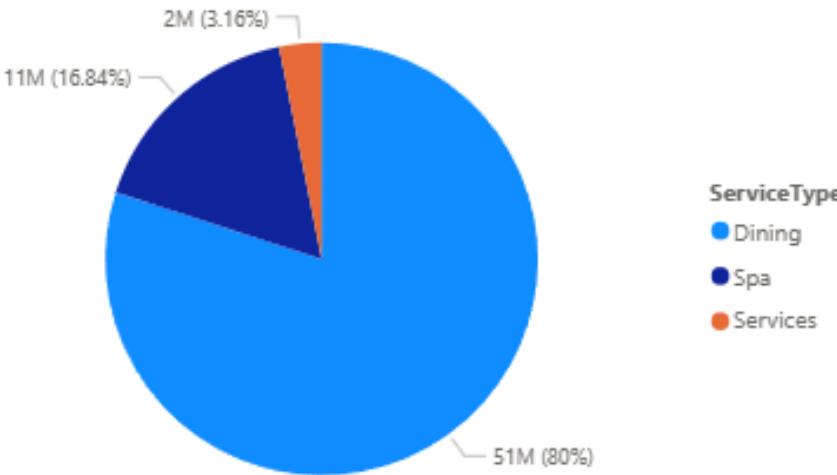
- Higher ADR & RevPAR
- Improved upsell conversions
- Faster, confident pricing decisions
- Reduced dependency on intuition

sum of amount by date



ServiceType
Dining
Services
Spa

Sum of Amount by ServiceType



Revenue generated on the basis of room type by season

RoomType	Autumn	Spring	Summer	Winter	Total
Deluxe	18,546.26	17,340.23	18,716.99	18,791.48	17,920.39 18,522
Economy	12,671.39	13,036.51	13,988.64	11,840.30	13,102.86 12,701
Executive	17,024.10	16,350.38	17,144.87	16,291.15	17,872.36 17,015
Standard	14,989.18	16,513.46	14,126.79	16,655.56	13,547.92 15,004
Suite	20,166.78	21,202.83	18,646.73	18,130.56	18,699.06 20,079
Total	17,252.72	17,264.83	17,066.98	17,013.30	16,977.56 17,238

Occupancy Sensitivity

1.05

Price Uplift %

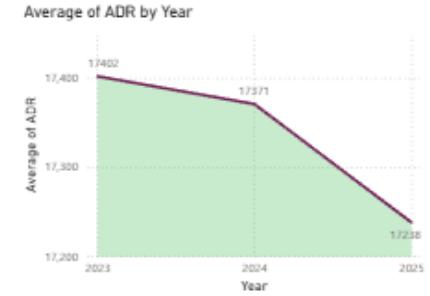
0.04

Revenue Manager Dashboard

kpi

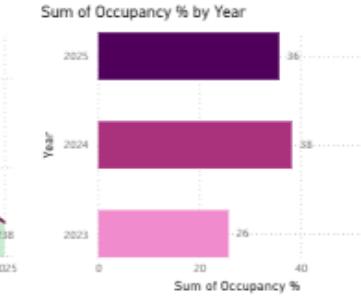
537.28K

Sum of ADR



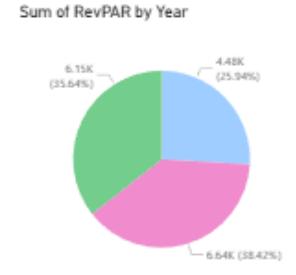
17.27K

Sum of RevPAR



99.64

Sum of Occupancy %



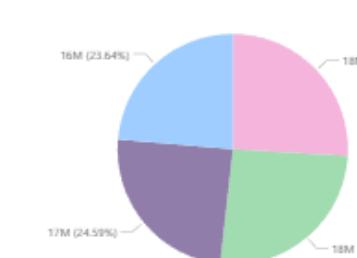
Revenue on the basis of customers

REVENUE ON THE BASIS OF CUSTOMERS

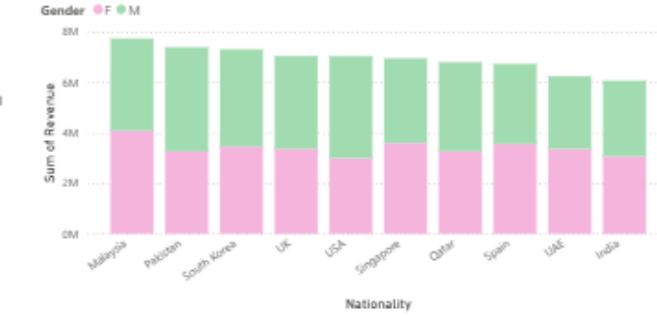
Sum of Revenue and First CustomerID by Nationality and BranchName



Sum of Revenue by LoyaltyLevel

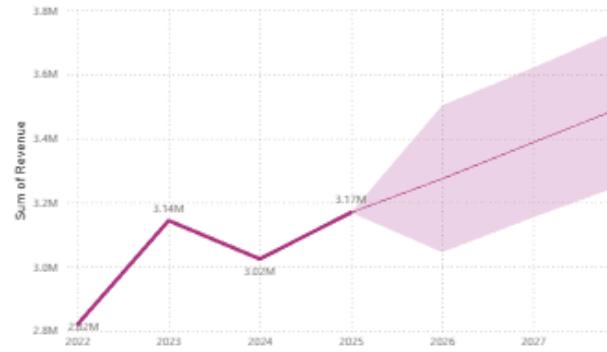


Sum of Revenue by Nationality and Gender

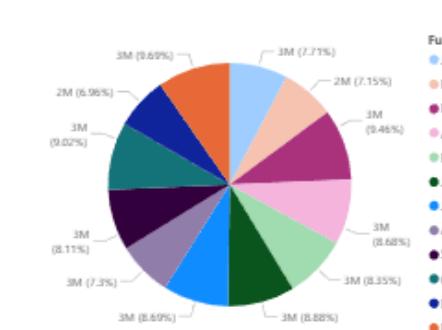


Revenue by seasonality

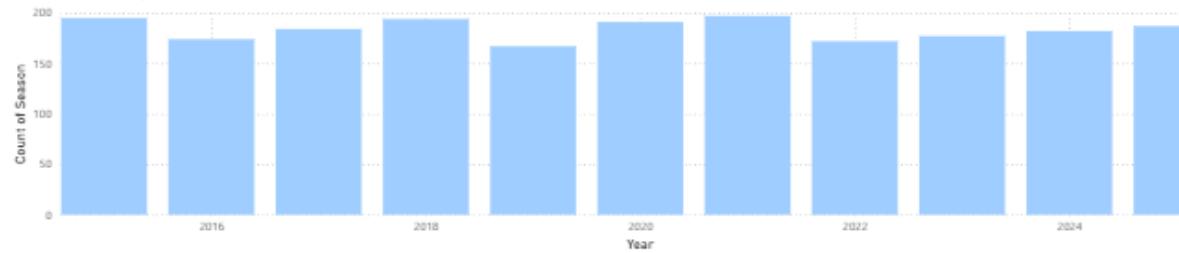
Sum of Revenue by Year



Sum of Revenue by Month



Count of Season by Year



Revenue analysis by Branch

101K

Sum of DurationOfStay

101K

173K

Sum of RoomNightsSold

173K

431M

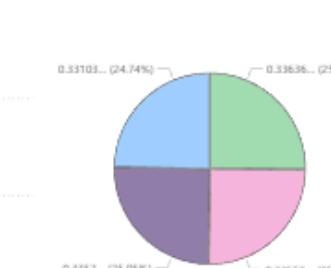
Sum of Revenue

431M

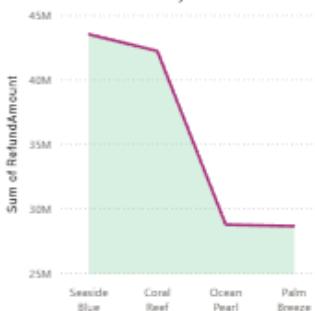
Sum of Revenue by BranchName



CancellationRate and CancellationRate by BranchName



Sum of RefundAmount by BranchName



Revenue Manager Dashboard

- DESPITE A SLIGHT DECLINE IN ADR, STABLE REVPAR AND IMPROVING OCCUPANCY INDICATE EFFECTIVE ROOM UTILIZATION AND RESILIENT REVENUE PERFORMANCE.
- REVENUE GROWTH IS STEADY WITH MILD SEASONALITY, DRIVEN LARGELY BY HIGH-VALUE CUSTOMER SEGMENTS SUCH AS KEY INTERNATIONAL MARKETS AND GOLD/PLATINUM LOYALTY MEMBERS.
- PERFORMANCE VARIES ACROSS BRANCHES, AND HIGHER CANCELLATIONS AND REFUNDS AT CERTAIN LOCATIONS HIGHLIGHT OPPORTUNITIES TO IMPROVE BOOKING POLICIES AND CUSTOMER EXPERIENCE.

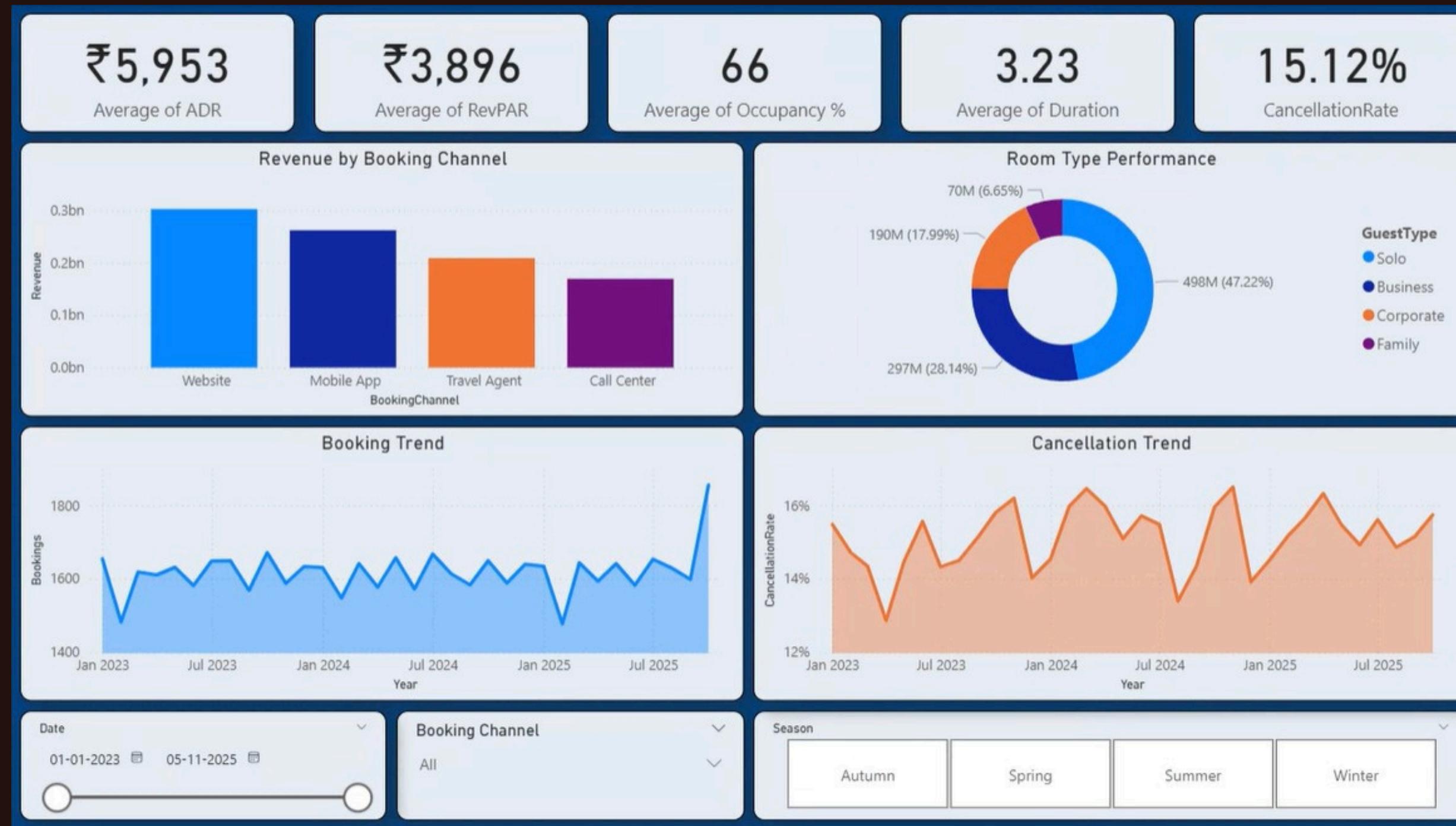
General Manager Dashboard

- Bookings are stable week-to-week with seasonal peaks, driven mainly by Solo and Business travelers, while Family and Corporate segments remain underutilized.
- Long stays and Vacation travel generate the highest value, contributing most to room nights sold and overall revenue.
- Suite and Premium rooms are the key revenue drivers, while Economy rooms offer stable but low-margin occupancy.

General Manager Dashboard



Revenue Manager Dashboard





THANK
YOU