

DATA ANALYST INTERN ASSESSMENT REPORT

1. Introduction

This report presents an in-depth analysis of the booking dataset to extract key insights related to customer behavior, revenue patterns, and booking trends. The data was analyzed using **Power BI** after a structured data cleaning and preprocessing process in **Python**. The findings aim to assist in **business decision-making**, optimize resource allocation, and improve service offerings. This project is for **Omnify** selection process.

2. Data Cleaning & Preprocessing

Approach:

- **Data Import & Preliminary Cleaning:** The dataset was initially processed in **Python (Jupyter Notebook)** using **pandas** and **numpy** for data cleaning and preparation.
- **Date Format Standardization:** The Booking Date was converted to **YYYY-MM-DD** format and broken down into **Day, Month, and Year** for trend analysis.
- **Categorical Data Cleaning:** Standardized inconsistent labels in Service Type, Status, and Facility columns.
- **Dropped Columns:** Subscription Type was removed due to **null values across all records**.
- **Dropped Rows:** Excluded records with a Pending status and those missing essential details like Time Slot, Duration, and Price.

Handling Missing Values:

- **Price Adjustments:** Missing Price values were replaced with the **average price for the same service on the same day**.
- **Customer Details:** Missing Email and Phone Number fields were labeled as "Not Provided".

- **Time Slot Adjustments:** Missing values in Time Slot were filled with the **most common time slot** for each service.
- **Duration Adjustments:** Missing Duration values were replaced using the **mode of duration** grouped by Service Name.
- **Class Type & Instructor Assignment:** Missing values were filled based on Booking Type (Class).
- **Facility & Theme Adjustments:** Default values such as "Not Specified" and "Default Theme" were assigned to missing Facility and Theme fields.

3. Exploratory Data Analysis (EDA)

Key Observations:

- **Booking Trends:**
 - Peak booking months: **April - May**.
 - Lowest booking month: **June**.
- **Revenue Insights:**
 - **Total Revenue:** ₹1,55,365.
 - **Average Revenue per Booking:** ₹157.57.
- **Most Popular Services:**
 - Party Room, Play Area, Art, Gymnastics, and Dance were the top booked services.

4. Power BI Dashboard Development

Dashboard Components:

1. **Important Cards**
 - **Total Bookings**
 - **Total Revenue**
 - **Average Booking Price**
2. **Booking Trends & Revenue Analysis**
 - **Line & Column Chart:** Displays **Total Revenue** and **Total Bookings** over time.
 - **Matrix Table:** Shows **daily total bookings and revenue trends**
3. **Booking Preferences**

- **Decomposition Tree:** Visualizes **total bookings segmented by Month → Time Slot → Duration.**
 - **Bar Chart:** Ranks services by **number of bookings.**
 - **Pie Chart :** Shows **peak booking times across different time slots.**
 - **Matrix :** Total no. of bookings under each Service by day of the month.
- 4. Revenue Analysis**
- **Bar Chart:** Revenue by Month
 - **Matrix :** Total Revenue under each Service by day of the month.
 - **Pie Chart:** Revenue by time slot.
 - **Stacked Bar Chart:** Showing total revenue by Service type and Facility.
 - **Pie Chart:** Revenue by Services
- 5. Segmented Analysis:**
- Separate analysis for **Birthday Party, Classes, and Facility Bookings.**
 - **Matrix :** For prices of each time slot on each day for all the three booking types.
 - **Theme analysis , Class type analysis Facility analysis**

5. Business Insights & Recommendations

Maximize Revenue Opportunities:

- Promote high revenue services (**Party room and Play area**)

Reduce Pending Bookings:

- Implement **stricter policies** and provide **discounts for early confirmations.**

Customer Retention Strategy:

- Introduce a **loyalty program** with exclusive discounts for repeat customers.

Optimize Resource Allocation:

- Adjust staffing and facility management based on **peak booking hours (1 PM - 4 PM).**

Enhance User Experience:

- Develop the **online booking system** with **automated reminders and customer feedback collection.**
- Always take feedback of customers and improve over the shortcomings.
- **Offer photography at birthday parties** that will make users select themes for their parties.

Expand Service Offerings:

- Introduce new **corporate event options** like **Business Meetings & Press Conferences** to attract new customers.

Dynamic Pricing Strategy:

- Implement time-based pricing (higher prices during peak hours and discounts for off-peak slots).

Service Expansion & New Revenue Streams

- **Corporate Events:** Introduce event spaces for **business meetings, product launches, and workshops**.
- **Customizable Party Packages:** Allow users to personalize event bookings with additional services.
- **Merchandise Sales:** Sell branded merchandise (e.g., T-shirts, event souvenirs) to boost revenue.
- **Partnerships with Local Businesses:** Collaborate with **caterers, photographers, and entertainers** for bundled service offerings.

Marketing & Outreach Strategies

- **Referral Program:** Provide discounts for customers who refer new users.
- **Influencer Partnerships:** Collaborate with local influencers to promote services.
- **Social Media Engagement:** Increase engagement through interactive campaigns, user-generated content, and testimonials.
- **Google & Facebook Ads:** Use targeted ads for services that generate the highest revenue.

6. Detailed Data Observations.

Booking Insights

- **Total Bookings:** 986
- **Max Bookings in April-May(329-333)**
- **April:**
 - **1:00 pm slot :** 50 bookings
 - **2:00 pm slot :** 60 bookings
- **May:**
 - **1:00 pm slot :** 48 bookings
 - **2:00 pm slot :** 57 bookings

- **Dates with High number of Bookings:**
 - **April: 7, 19 (18 each)**
 - **May: 7, 4, 10 (2 each)**
 - **Preferred Time Slots 11:00 PM & 2:00 PM**
- **Most bookings come for services like**
 - **Play Area: 36%**
 - **Party Room: 31%**

Revenue Analysis

- **Total Revenue: ₹155.3K**
- **Highest Revenue (Days): 7 and 10 (over all 4 month period)**
- **Highest Average Spending (Day): 11th of each month shows highest avg spending**
- **Top Revenue Contributors:**
 - **Play Area & Party Room: 67%**
 - **Classes: Each class contributes 32-34%**
 - **Themes: Events with themes contribute 42K in total revenue .**
- **Instructor Preferences:**
 - **Dance & Art: Amanda is preferred**
 - **Gymnastics: Lisa is preferred**
- **Highest Booking Earning in a Day:**
 - **19 April: ₹3209 (₹1635 from Facilities)**
 - **Party Room Revenue: ₹1709 on the same day**

Class Analysis

- **Total Revenue: ₹50.89K from 324 Bookings**
- **Peak & Low Months by earnings:**
 - **Highest in May: ₹18K**
 - **Lowest in March: ₹3.6K**
- **Most Preferred Instructor: Amanda Davis**
- **Equal Revenue Distribution: Across all three class types**
- **Most Preferred Duration: 90-minute classes**
- **High Revenue Day: April 10 – ₹1460**
- **Trend: Higher revenue at the beginning of the month dates like (7, 10 ,11).**

Birthday Party Analysis

- **Total Revenue:** ₹50.34K from 329 **Bookings**
- **Peak Revenue Month:** April
- **Most Popular Themes:**
 - Superhero & Sports – highest revenue generators
- **High Booking Day:** April 2
 - 9 Birthday Parties
 - 6 with Sports Theme
 - 4 in 1 PM & 2 PM time slots

Facility Analysis

- **Total Revenue:** ₹54.13K from 333 Bookings
- **Most Preferred Facility:** Play Area (56% of bookings)
 - Generates ₹30K out of ₹54K total revenue
- **Preferred Duration:** 90-minute slots
- **Low Booking Time Slot:** Between 9-10 AM and 3 - 5 PM
- **Most Preferred Dates:** April 11 & 7
- **High Revenue Day:** April 11
 - ₹1K revenue from 7 Play Area bookings in 90-minute slots

7. Conclusion

This comprehensive booking data analysis has uncovered key insights into customer preferences, revenue trends, and operational efficiencies. The structured approach—spanning data cleaning, exploratory analysis, and visualization using Power BI—allowed for an in-depth understanding of business performance.

Key takeaways include the dominance of **Party Room and Play Area** bookings, the **significant revenue impact of theme-based events**, and the **seasonality of bookings, with peak months being April and May**. The findings highlight opportunities to **enhance customer**

retention through loyalty programs, optimize pricing models, and introduce new service offerings.

By leveraging data-driven strategies, the business can **maximize revenue, improve customer experience, and streamline resource allocation.** Implementing the recommended **marketing initiatives, service expansions, and dynamic pricing** will further strengthen the brand's position and drive future growth.

This report provides a roadmap for data-driven decision-making, ensuring the business remains competitive and continues to meet customer demands efficiently.

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