Ferns and Petals Sales Analysis Report

Project Overview

This project executes a full data lifecycle analysis using Microsoft Excel as the primary tool, from ingesting raw data and building relational models to performing statistical analysis and creating interactive visualizations. The dataset belongs to Ferns and Petals (FNP), a leading Indian firm dedicated to gifting solutions for culturally significant occasions like Diwali, Holi, and Raksha Bandhan. By analyzing a comprehensive dataset containing granular details on products, orders, customers, and delivery timelines, the objective is to dissect sales performance and logistics efficiency. Ultimately, this report uncovers key insights into revenue trends, product popularity by occasion, customer spending habits, and delivery efficiency to help the company improve its sales strategy and optimize customer satisfaction.

1. **Dataset Summary**

- **Structure:** 3 Relational Tables (Orders, Customers, Products)
- **Rows:** 1,000 (Orders), 100 (Customers), 70 (Products)
- **Columns:** 24 Total (across all tables)
- **Key Features:**
   - **Customer Demographics:** (Name, Gender, City, Address, Contact details)
   - **Order & Logistics Details:** (Order Date & Time, Delivery Date & Time, Quantity, Location, Occasion)
   - **Product Specifications:** (Product Name, Category, Price($), Description)
- **Missing Data:** None reported in the provided schema details.
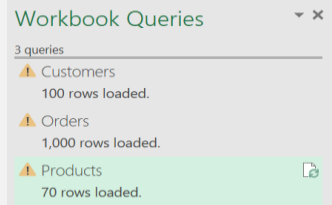

2. **Data Preparation and Transformation using Excel & Power Query**

We began with data extraction, transformation, and modeling using Microsoft Excel and Power Query to prepare the dataset for analysis.
- **Data Loading:** Imported the folder containing the three source tables (Customers, Orders, and Products) directly into Power Query Editor for consolidation.

- **Feature Engineering:**
  - o **Time-based attributes:** Derived Order_Month, Order_Hour, Order_Day (numeric), and Order_Day_Name from the Order_Date column. Similarly extracted Delivery_Month and Delivery_Hour from delivery timestamps.
  - o **Logistics metrics:** Calculated Order_Delivery_Diff to measure the lead time (in days) between order placement and delivery.
  - o **Financial metrics:** Merged the Price($) column from the Products table into the Orders table and calculated Total_Revenue by multiplying Price by Quantity.

- **Data Quality Check:** Performed a comprehensive audit for missing data across all columns and confirmed zero null values, ensuring data completeness.

- **Currency Standardization:** Standardized financial values to USD ($) by applying current exchange rates to ensure consistent revenue calculations.

- **Data Modeling:**
  - o **Loading:** Closed and loaded the transformed data into Excel, simultaneously adding it to the Data Model.
  - o **Relationship Management:** Established relational connections (One-to-Many) between the three tables in the backend using Customer_ID and Product_ID to facilitate dynamic analysis.
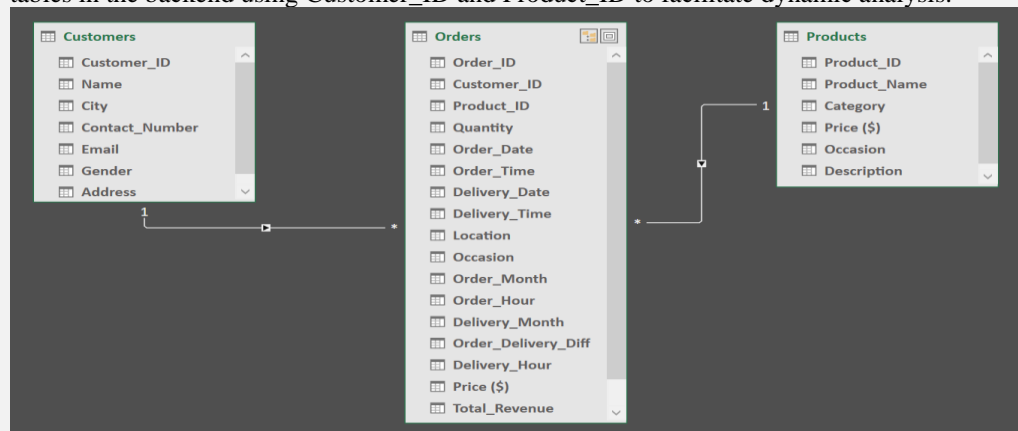
3. **Data Analysis using Excel**

We utilized Excel Pivot Tables to aggregate the data and derive meaningful insights, specifically addressing the key business questions outlined in the problem statement:

1. **Total Financial Metrics:** Calculated the overall financial health, identifying a **Total Revenue of $352,049.00** and an **Average Order Value of $352.05 Per customer**.

Total_Revenue	Average_Revenue
$ 352,049.00	$ 352.05

2. **Delivery Efficiency:** Evaluated logistics performance by calculating the **Average Order Delivery Time**, which stands at **5.5 days**.

Average_Order_Delivery_Days
5.5

3. **Monthly Sales Trends:** Analyzed revenue fluctuation across the months of 2023, revealing significant peaks in **August and February**.

Order_month	Revenue_Per_Month
January	$9,550.00
February	$70,390.00
March	$51,173.00
April	$14,053.00
May	$15,041.00
June	$15,798.00
July	$13,581.00
August	$73,719.00
September	$13,697.00
October	$15,162.00
November	$44,921.00
December	$14,964.00
Grand Total	$352,049.00

4. **Top Products by Revenue:** Ranked the highest-grossing items, identifying **Magnam Set and Quia Gift** as the top revenue generators.

Top 10 products	Total_Revenue
Deserunt Box	$9,792.00
Dignissimos Pack	$9,020.00
Dolores Gift	$10,640.00
Error Gift	$9,734.00
Exercitationem Pack	$9,676.00
Harum Pack	$10,168.00
Magnam Set	$12,222.00
Nam Gift	$9,114.00
Nostrum Box	$9,776.00
Quia Gift	$11,436.00
Grand Total	$101,578.00

5. **Geographical Performance:** Identified the Top 10 Cities by order volume, with **Imphal (29 orders)** and **Dhanbad (28 orders)** placing the highest number of orders.

Top 10 Cities	Number_Of_Orders
Bhatpara	18
Bidhannagar	21
Bilaspur	18
Dhanbad	28
Dibrugarh	21
Guntakal	20
Haridwar	24
Imphal	29
Kavali	27
North Dumdum	19
Grand Total	**225**

6. **Occasion Analysis:** Compared revenue across different events, finding that **Anniversaries and Raksha Bandhan** drive the most sales.

Occasion	Sum of Total_Revenue
Anniversary	$67,454.00
Raksha Bandhan	$63,139.00
All Occasions	$58,614.00
Holi	$57,457.00
Birthday	$40,855.00
Valentine's Day	$33,141.00
Diwali	$31,389.00
Grand Total	**$352,049.00**

7. **Correlation Analysis:** Performed a correlation check between Order Quantity and Delivery Time, resulting in a coefficient of **0.003**, indicating that higher order quantities do not significantly impact delivery speed.

Correlation between quantity ordered and delivery
0.003478174

8. **Category Performance:** Broke down total revenue by category, with **Colors (Holi powders/Gulal) and Soft Toys** being the highest earning segments.

Categories	Total_Revenue
Colors	$100,474.00
Soft Toys	$74,112.00
Sweets	$73,407.00
Cake	$33,004.00
Raksha Bandhan	$29,738.00
Plants	$21,166.00
Mugs	$20,148.00
Grand Total	**$352,049.00**

5. Data Presentation using Excel Dashboard

Finally, I built an interactive dashboard using Excel to present insights visually.
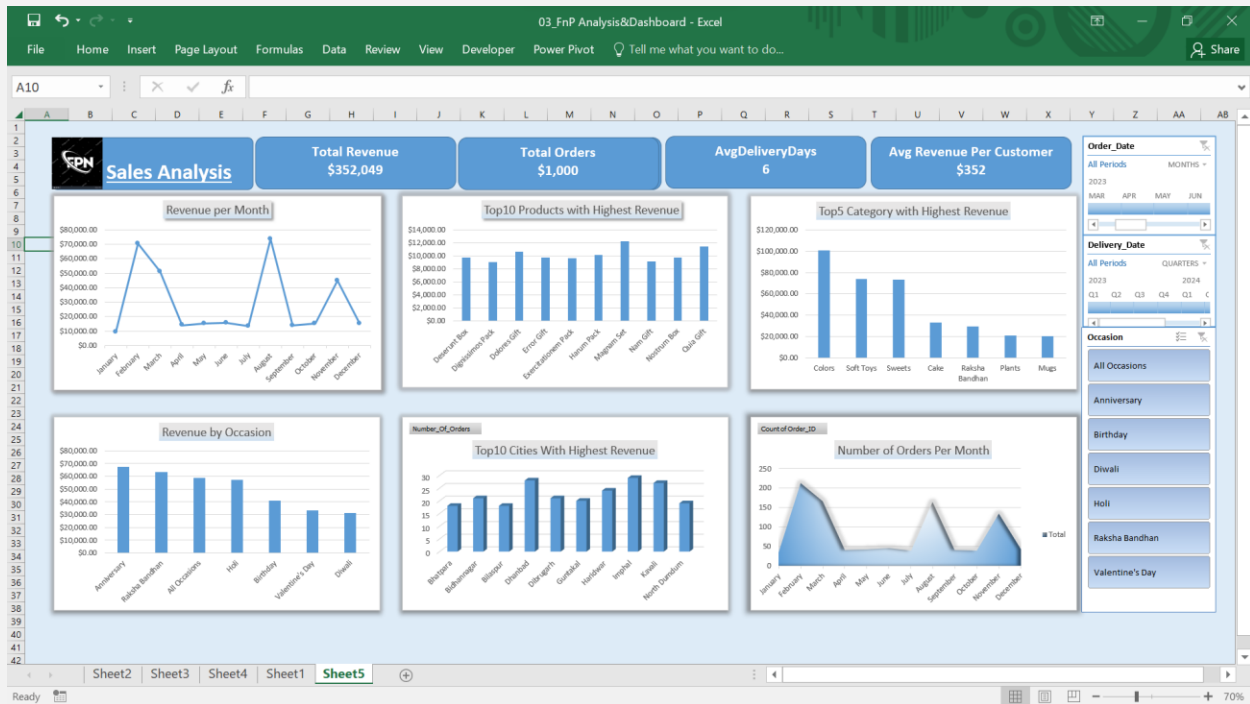
6. Business Recommendations

- **Capitalize on Festive Peaks (February & August)** – The analysis reveals that February (Valentine's Day) and August (Raksha Bandhan) are the highest revenue-generating months. The company should ensure maximum inventory availability, employ aggressive marketing campaigns, and optimize logistics staffing during these specific windows to prevent stockouts and delivery delays.

- **Target the "Anniversary" Market for Retention** – Since Anniversaries generate the highest revenue ($67,454) among all occasions, FNP should implement an automated "Anniversary Reminder" email system. By contacting customers 11 months after their initial purchase, the company can drive repeat sales and foster long-term customer loyalty.

- **Focus on the "Colors" and "Soft Toys" Categories** – The "Colors" category is the dominant revenue driver ($100,000+), followed by "Soft Toys." Marketing budgets should be prioritized for these categories. Additionally, creating "Bundle Offers" (e.g., pairing a "Colors" item with a "Soft Toy") could increase the Average Order Value (AOV).

- **Strengthen Logistics in Emerging Cities** – Top performing cities include Imphal, Dhanbad, and Kavali, indicating strong demand in Tier-2 and Tier-3 regions. FNP should focus on strengthening its delivery partner network in these specific geographic areas to ensure reliability and perhaps reduce the average delivery time from the current 6-day average.

- **Revamp Strategy for Low-Performing Months** – Sales drop significantly in April, June, and September. To counter this seasonality, FNP could introduce "Just Because" gifting campaigns, flash sales, or corporate gifting initiatives during these off-peak months to maintain a steady revenue stream.

- **Optimize Delivery Time** – With an average delivery time of 5.5 to 6 days, there is room for improvement, especially in the gifting sector where timing is crucial. Investigating the supply chain to offer "Express Delivery" options could justify a premium shipping fee and increase customer satisfaction.