

Indian Cafe Order Transaction

<https://www.kaggle.com/datasets/ajayjaat/caf-order-transactions-dataset>

I. Project Background

Cafe Order Transaction contains transactional records from a cafe specializing in popular Indian snacks like samosa, chai, lassi, and Mom's Magic Biscuit. The purpose of this project is to analyze the sales of each product and provide recommendations from it.

II. Methodology

A. Dataset

There are two datasets that I'll be using: order and product. These are publicly available on Kaggle with over 7,383 unique values and 7 columns, and 50 unique values and 6 columns, respectively. The significant columns that I'll be diving into are the *product_id*, *quantity*, *total*, *item*, and *product_price*.

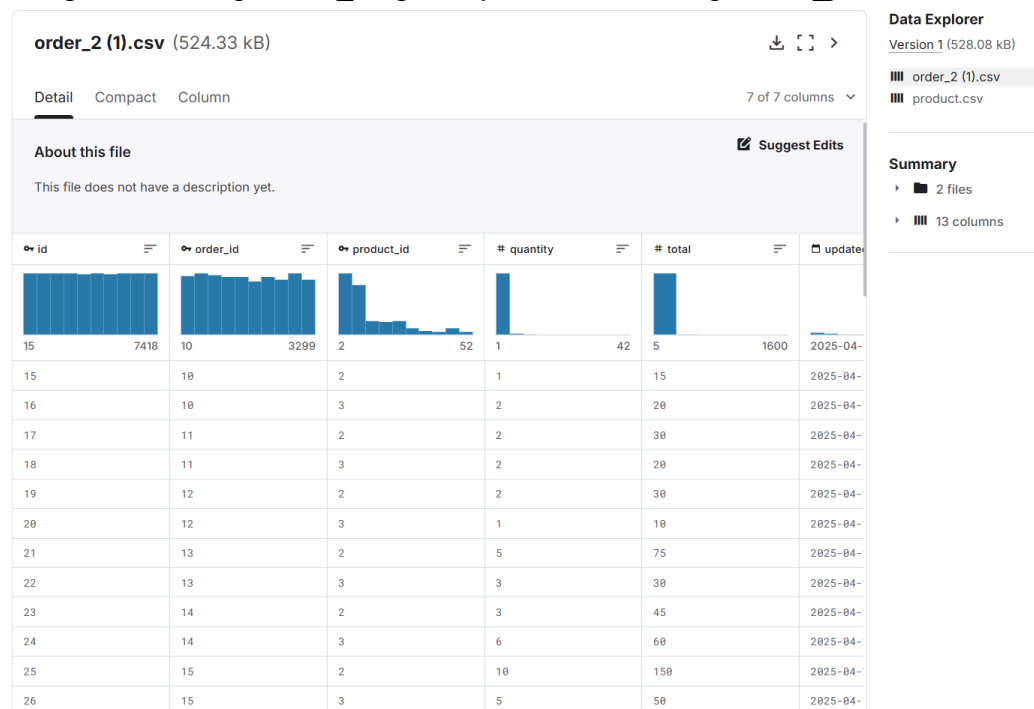


Figure 2.A.1. Dataset

B. Data Preprocessing

Both *order* and *product* datasets were cleaned by checking the missing values and removing duplicates. They were then merged, and unnecessary columns such as *created_at_y* and *updated_at_y* were dropped. Additionally, 4 columns were created from the *created_at_x* column, namely, *date*, *weekday*, *time*, and *hour* columns. This preprocessed data is then used for our analysis.

C. Process

1. Sales Analysis

This analysis was conducted to analyze the sales aspect of the cafe.

```
Total Sales

1 total_sales = df['total'].sum()
2 print(f"Total Sales: ₹{total_sales:,.2f}")

[15] ✓ 0.0s

... Total Sales: ₹288,795.00
```

Figure 2.C.1 Total Sales

```
Product

1 product_table = df[['product_id', 'name', 'price']].drop_duplicates().sort_values('product_id')
2 print(product_table.to_string(index=False))

[17] ✓ 0.0s

... product_id      name  price
2          samosa     15
3          chahi     10
4      moms magik biscute  10
6          Lassi     35
7          Chach     10
8      Lunch normal     60
9          Coffee     15
10         Dahi balla     35
11         Dahi papadi     35
12         Bread pakoda     15
13         Sandwich half     20
14         Sandwich full     40
15          Fruit     40
16      Girnar green tea     15
17         Idli / sambar bada     35
18          Poha     20
20      Oats biscuit per packet     20
21      Bakery biscuit per piece     5
22          Aam panna     20
23          Namkeen per plate     35
24          Spourats     25
25      Executive lunch    100
26      Paneer pakoda per plate     60
27         Tulsi green tea     10
...
49      GULAB JAMUN WITH PAKODi     45
50 PAWBAJI+FRIED RICE+GULAB JAMUN    100
51      Aalu/pyaz/mirchi pakodi     35
52      Chaumin per plate     20
```

Figure 2.C.2 Product Info

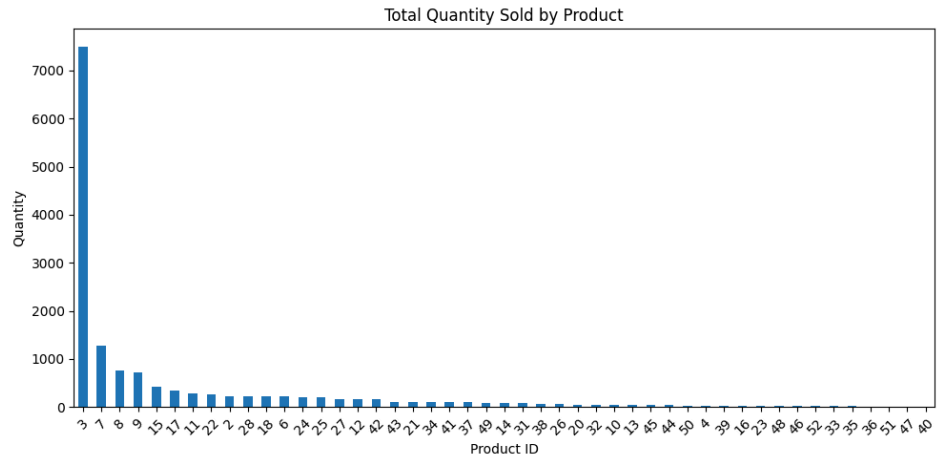


Figure 2.C.3 Total Quantity Sold by Product

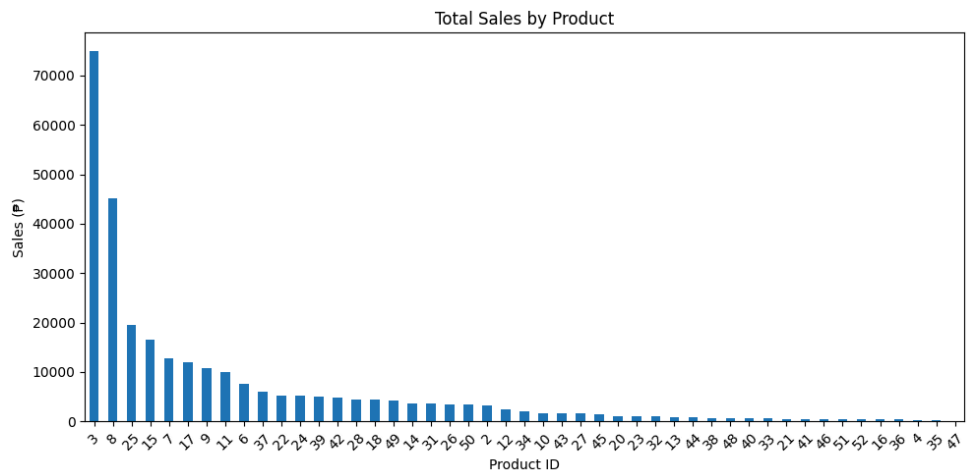


Figure 2.C.4 Total Sales by Product

2. Temporal Analysis

This analysis was conducted to analyze the temporal aspect of the sales.

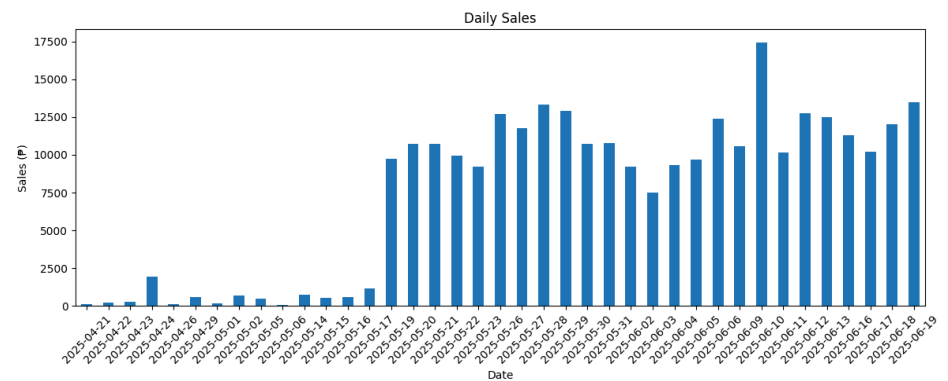


Figure 2.C.5 Daily Sales Trends

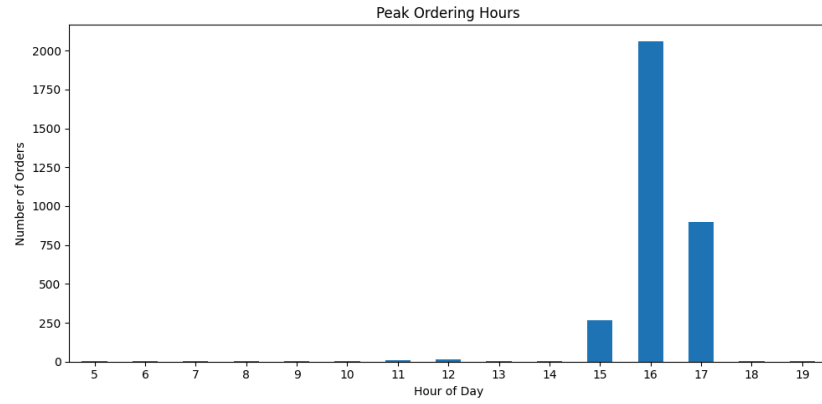


Figure 2.C.6 Peak Ordering Hours

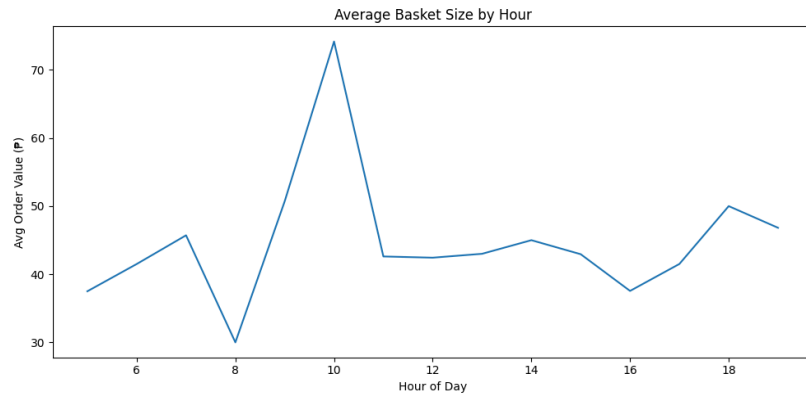


Figure 2.C.7 Average Basket Size by Hour

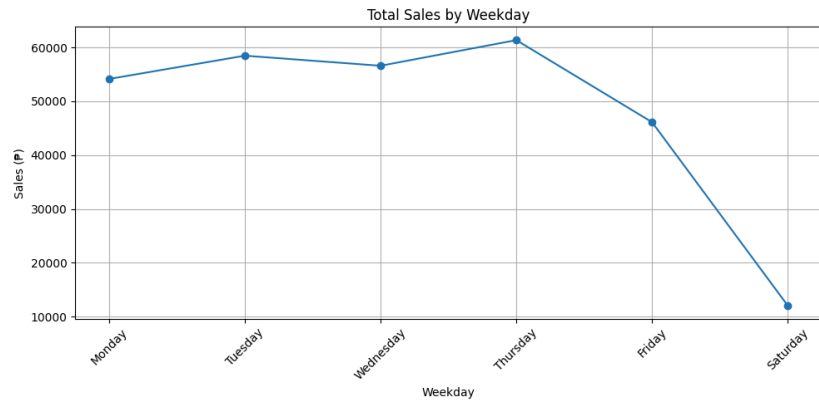


Figure 2.C.8 Total Sales by Weekday

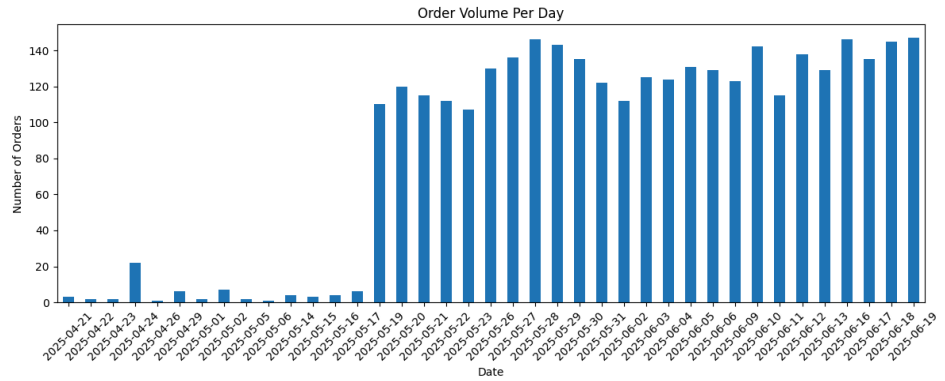


Figure 2.C.9 Order Volume per Day

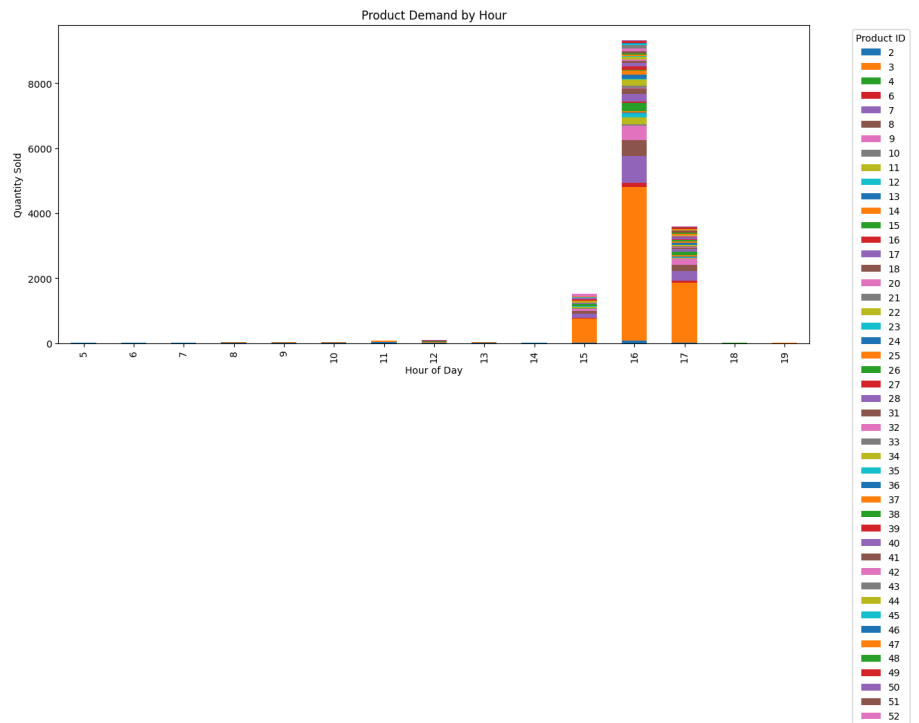


Figure 2.C.10 Time-Based Product Demand

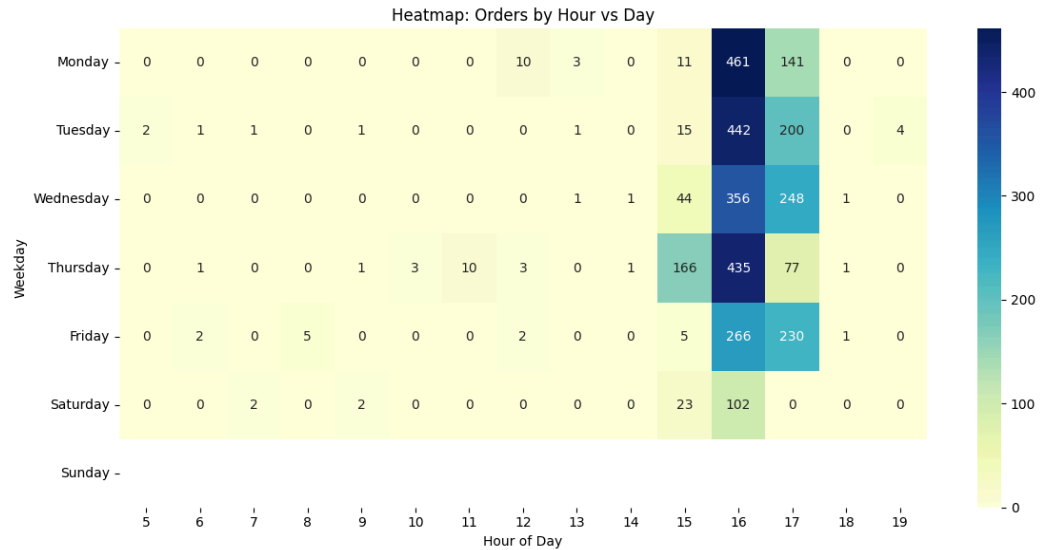


Figure 2.C.11 Heatmap: Orders by Hour vs Day

III. Insights Deep-Dive

A. Sales Analysis

The cafe has 52 products in total, ranging from ₹5 to ₹100. It sold a total quantity of 14,835 varieties of products. The most sold product is *Chaii* with 7,492 sales, followed by *Chach* and *Lunch Normal* with 1,270 and 754 sales, respectively. On the other hand, the lowest product sales are *Bisleri Water Bottle Cartoon* with 4 sales, followed by *Chips* and *Aalu/pyaz/mirchi pakodi* with 6 and 13 sales, respectively.

On the other hand, the most income-generating products are *Chaii* with ₹74,920, followed by *Lunch Normal* and *Executive Lunch* with ₹45,240 and ₹19,600, respectively. The least income-generating products are *moms magik biscute* with only ₹340, followed by *Raita* and *Chips* with ₹315 and ₹120, respectively.

B. Temporal Analysis

The cafe has recorded its sales from April 21 to June 19. The daily sales started low until it spiked around May 14 to May 20. The sales were fluctuating but remained better than average compared to the earlier sales. The order volume of the products followed the same pattern.

With regards to the weekly sales, it stays moderately even during the weekdays and drops on Friday and on the weekends. Lastly, the sales are at their peak from 3-5 pm. The highest-selling products during these hours are *Chaii*, *Chach*, and *Lunch Normal*, which aligns with our sales analysis. However, the most stream of revenue the store is making is at 10 am.

IV. Conclusion

We conducted *Sales Analysis* and *Temporal Analysis* of the Indian Cafe Order Transaction. A total of 14,835 products were sold, and 64.14% of them come from the top 3 most sold items, which are *chaii*, *Chach*, and *Lunch Normal*. *Chaii* is contributing 50.48% of the sold items. The total sale of the store is ₹288,795.00, and the top 3 products that contributed the most is *Chaii*, *Lunch Normal*, and *Executive Lunch*. *Chaii* is contributing 25.95% of the total sales.

While for our *Temporal Analysis*, we can conclude that the start of the cafe has a low sale, from April 21 to May 14. And gained popularity after May 14 and stayed at a relative sales level then. Most sales are made during the weekday and drop when it's closer to the weekend. On an hourly basis, the store's peak hour is at 3 - 5 pm. While the most sold products during those times are *Chaii*, *Chach*, and *Lunch Normal*. However, the most revenue is generated at 10 am.

V. Recommendation

Based on the sales and temporal analysis, the following recommendations are proposed to help the cafe optimize its operations and boost profitability:

A. Maximize Chaii Sales with Bundling or Upsells

- Since Chaii accounts for over 50% of total items sold and 26% of total revenue, consider offering bundle promos (e.g., *Chaii + Biscuit* or *Chaii + Pakodi*) during peak hours to increase average order value.
- Introduce loyalty cards or discounts for frequent Chaii buyers to encourage retention.

B. Focus Operational Staffing Around Peak Hours

- Peak sales occur between 3–5 PM, so the cafe should ensure enough staff are on shift during this period for faster service and better customer experience.
- Since revenue peaks at 10 AM, consider offering a *morning combo* (e.g., *Executive Lunch + Chaii*) to take advantage of the higher spending at that time.

C. Boost Low-Performing Product Visibility

- Products like *Chips*, *Raita*, and *Mom's Magik Biscuit* have extremely low sales and revenue. These could either be:
 - Promoted more through in-store signage and limited-time offers, or
 - Removed from the menu to reduce inventory and operational costs.

D. Improve Weekend Promotions

- Sales drop significantly on Fridays and weekends. Consider implementing *weekend-exclusive offers* or *family bundles* to drive traffic during off-peak days

E. Consider Capital Costs and Net Profit

- The analysis is based solely on gross sales. To make more informed decisions, the cafe should:
 - Track the cost of goods sold (COGS) and operational expenses.
 - Analyze net profit per product to understand which items are truly profitable, not just popular.