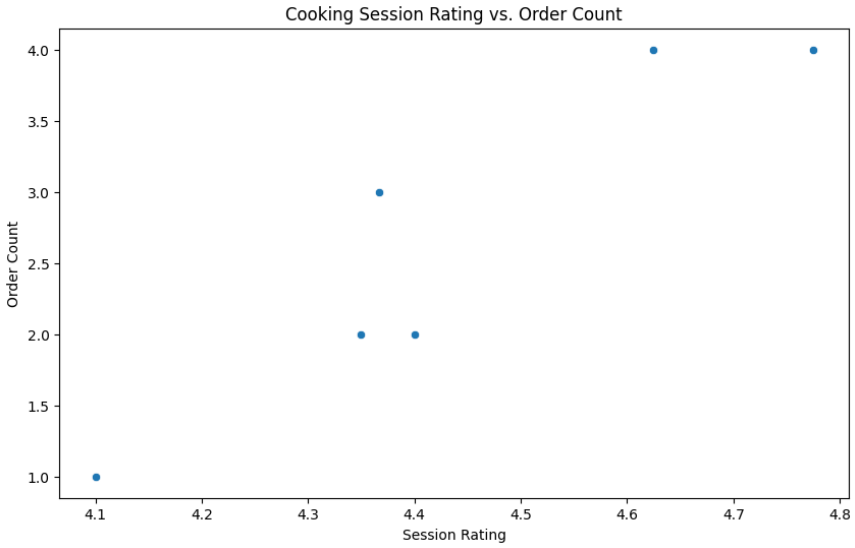
Comprehensive Data Analysis and Interpretations : Customer Demographics, Order Trends and Behavioral Insights

▼ Relationship between Cooking Sessions and Orders

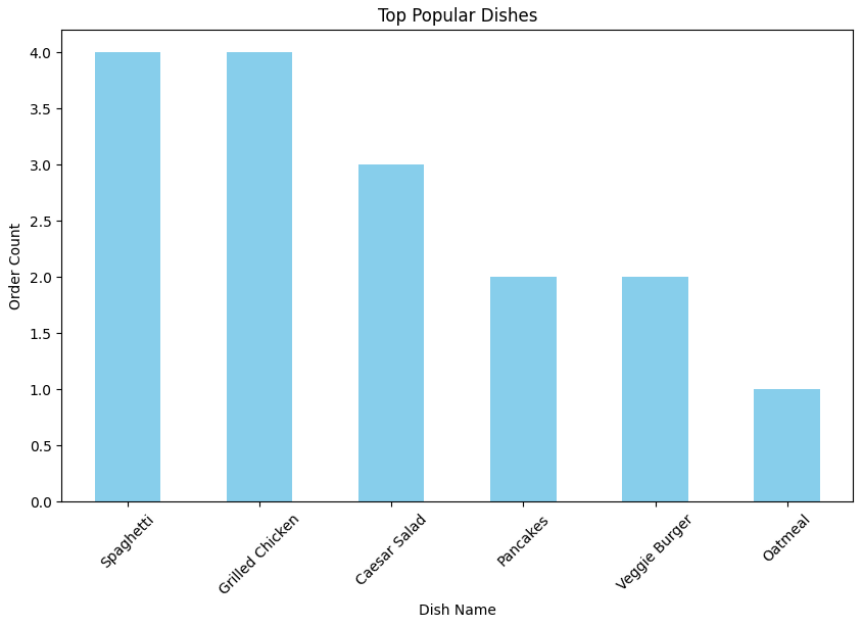
- A correlation was found between the ratings of cooking sessions and the frequency of orders for dishes prepared during those sessions. Higher-rated sessions tend to lead to increased order counts for the corresponding dishes, indicating that enhancing session quality could drive sales.



- There is a clear positive correlation between session ratings and order counts, indicating that higher session ratings often drive more orders. Sessions with ratings around 4.7 to 4.8 achieve the highest order counts, highlighting the impact of excellent session quality in boosting customer confidence and encouraging higher purchase volumes. Conversely, a session rating of 4.1 is associated with the lowest order count, underscoring the negative effect of lower ratings on customer trust and order frequency

▼ Analysis of the Dishes

The bar chart provided offers an insightful glance at the top popular dishes based on order counts. Here's a detailed analysis:



Top Performers:

- *Spaghetti and Grilled Chicken*: Both dishes top the list with an equal order count of 4.0, indicating their strong popularity among customers.

Moderately Popular:

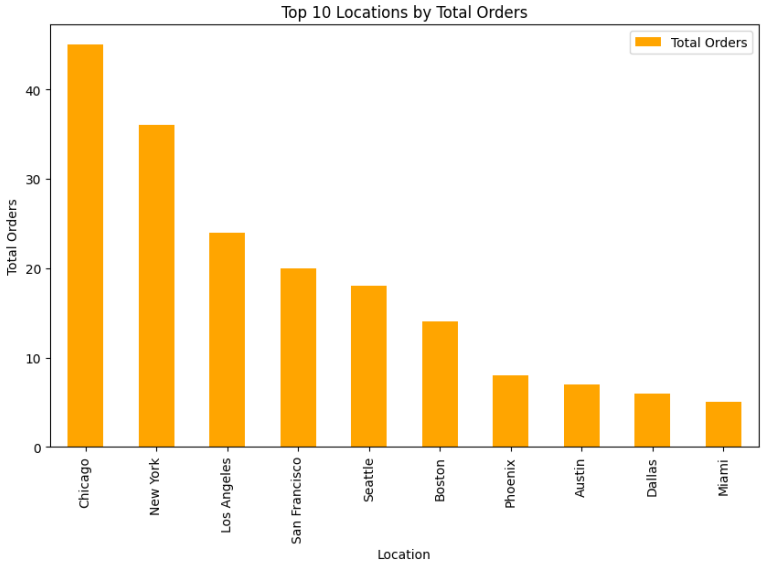
- *Caesar Salad*: Following closely, this dish has an order count of 3.0, showing a significant interest from the diners.
- *Pancakes and Veggie Burger*: These two dishes have a decent following with an order count of 2.0 each.

Least Popular:

- *Oatmeal*: This dish has the lowest order count of 1.0, suggesting it might not be as appealing to the restaurant's customer base.

▼ Demographics Analysis

▼ Top 10 Locations by Total Orders



- **Concentration of Orders:** The top three locations—Chicago, New York, and Los Angeles—account for a significant portion of the total orders, highlighting their importance as primary markets.
- **Opportunity for Growth:** Lower-performing locations like Phoenix, Austin, Dallas, and Miami present opportunities for strategic marketing and resource allocation to drive higher order volumes.

▼ Total Orders by Age Group

- The bar chart titled **"Total Orders by Age Group"** presents valuable insights into the distribution of orders across two distinct age groups: 18 to 30 and 30 to 50.

- **Total Orders Count**:
  - The **age group (18, 30]** has approximately **45 orders**.
  - The **age group (30, 50]** significantly leads with **around 70 orders**.
- **Comparison and Insights**:
  - The data reveals a clear trend: individuals aged **30 to 50** are responsible for a higher number of orders compared to their younger counterparts. This difference of approximately **25 orders** underscores that the older age bracket is more active or frequent in placing orders.
- **Potential Reasons**:
  - The higher order rate in the 30 to 50 group could be attributed to several factors such as increased disposable income, a more established lifestyle, or different consumer behaviors and preferences.

▼ Trends in User Behaviour

- **Power Users**

  A segment of users, identified as power users, place orders significantly more frequently than the average. The power users are:

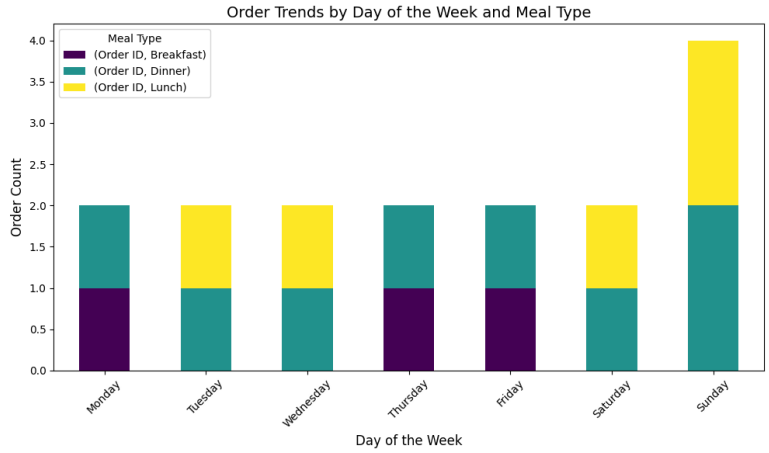
  - **User ID U001, U002, U003**: Each with 3 orders.
  - **User ID U004, U005**: Each with 2 orders.

> 💡 *These users demonstrate higher engagement and are crucial for driving repeat business. They represent a valuable segment for targeted marketing strategies and loyalty programs*

- **Users Attending Sessions Without Orders**:
  - There are 2 unique users who attend cooking sessions but do not place any orders. This segment highlights a potential area for increasing conversion rates, as these users are engaged but not yet making purchases. Strategies could include session follow-up offers or personalized recommendations to encourage orders

▼ Order Trends

The bar chart illustrates the distribution of order counts for different meal types (Breakfast, Lunch, and Dinner) across the days of the week. The x-axis denotes the days, while the y-axis represents the total order count for each day. Different colors are used to distinguish between meal types: purple for Breakfast, yellow for Lunch, and teal for Dinner.



1. **Sunday Peak**: Sunday stands out with the highest overall order count. This spike is predominantly driven by a significant increase in Lunch orders compared to other days, highlighting that Sunday is a popular day for dining in or ordering out, especially for lunch.
2. **Consistent Weekdays**: From Monday to Friday, the order counts show a balanced distribution among Breakfast, Lunch, and Dinner. This consistency suggests that

weekdays have a stable pattern of meal orders, possibly due to regular work schedules and routine eating habits.

3. **Saturday Dip**: Interestingly, Saturday shows a lower total order count than other days, especially with fewer Lunch orders. This could indicate a shift in consumer behavior, where people might be dining out or engaging in activities that disrupt their usual meal ordering patterns.
4. **Meal Preferences**: Across the week, Dinner orders maintain a steady presence, indicating that dinner is a reliably popular meal choice. The relatively balanced number of Breakfast and Lunch orders during weekdays suggests that all three meal types are critical for meal planning and inventory management.

▼ Dish-Level Insights

The analysis delves into the loyalty of users towards specific dishes by examining how often they reorder the same dish. This insight is crucial for understanding customer preferences and optimizing the menu.

Reorder Frequency: The table below presents the number of orders and users for each dish along with the calculated reorder rate, which indicates how frequently users reorder the same dish.

```
Order ID  User ID  Reorder Rate
Dish Name
Caesar Salad            3        3          1.0
Grilled Chicken         4        4          1.0
Oatmeal                 1        1          1.0
Pancakes                2        2          1.0
Spaghetti               4        4          1.0
```

Average Reorder Rate: Each dish shows a reorder rate of 1.0, indicating that every user who ordered a dish has reordered it. This high reorder rate reflects strong dish loyalty and suggests that the menu items are well-received and enjoyed by the users.

***Note** : The above insights could be due to the limited size of the dataset.*

▼ Revenue Analysis

- **Top Revenue-Generating Users**

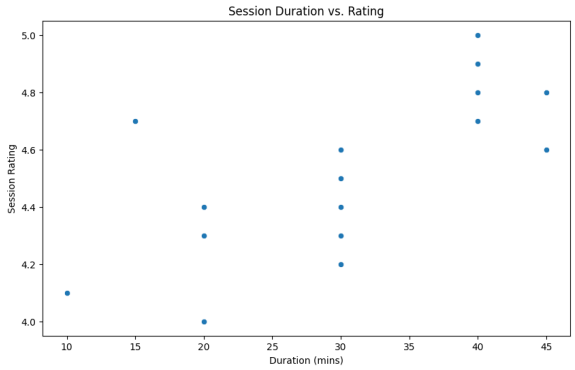
  The analysis focuses on identifying users who contribute the most revenue to the business. By examining revenue distribution across different user IDs, we can gain valuable insights into user spending patterns and revenue concentration.

```
User ID  Revenue
U001     35.0
U003     32.0
U002     31.0
U005     22.5
U004     21.5
U007     14.0
U006     13.0
U008     11.0
U009      0.0
U010      0.0
```

  - **Top Revenue-Generating Users**: User U001 tops the list with ₹35.0 in revenue.
  - **Zero Revenue Users**: Users U009 and U010 have contributed zero revenue.

▼ Session Level Insights

The scatter plot titled "Session Duration vs Rating" visually represents the relationship between the duration of sessions and their corresponding ratings. The x-axis indicates the session duration in minutes, ranging from 10 to 45 minutes, while the y-axis represents the session rating, spanning from 4.0 to 5.0.



Positive Correlation: The plot reveals a general positive correlation between session duration and session rating. This suggests that, on average, longer sessions tend to receive higher ratings.

Optimal Duration: The data points demonstrate that sessions lasting around 40 minutes typically achieve the highest ratings, often above 4.6. This could imply that users find longer, more in-depth sessions to be more valuable and satisfying.

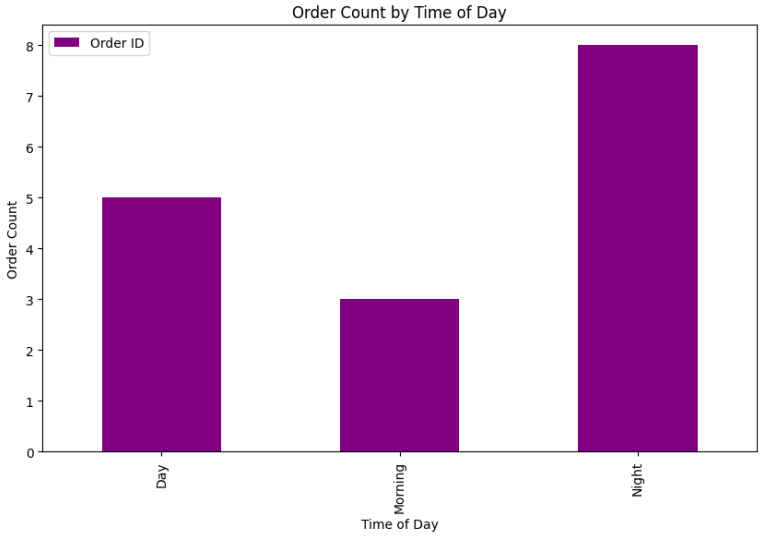
> ❗ ***Note :*** *There are a few outliers where shorter sessions also received high ratings, and longer sessions received relatively lower ratings. These anomalies highlight the importance of session content and delivery quality, in addition to duration.*

▼ Time-Based Insights

▼ Order Timing Patterns

The chart provided illustrates the distribution of orders placed at different times of the day. The data is categorized into three time segments: **Day**, **Morning**, and **Night**. Here's a detailed breakdown:

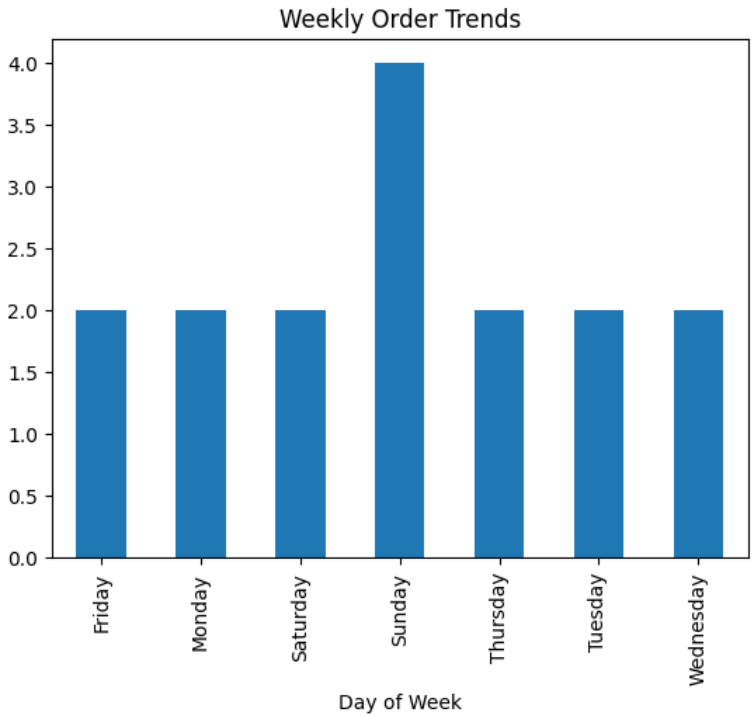
```
Order Timing Patterns:              Order ID
Time of Day
Day                    5
Morning                3
Night                  8
```



- **Day**: This segment records a total of **5 orders**.
- **Morning**: This segment shows a **lower count of 3 orders**, indicating relatively less activity during the morning hours.
- **Night**: This segment stands out with the **highest number of orders, totaling 8**.

▼ **Weekly Order Trends**

- The chart titled "Weekly Order Trends" presents the number of orders placed on each day of the week.



- **Peak Day:** Sunday emerges as the most active day with the highest number of orders (4.0). This indicates a strong customer preference for placing orders on weekends.
- **Moderate Activity:** Friday, Monday, and Saturday show moderate order volumes (2.0 each). These days represent consistent, albeit lesser, customer engagement compared to Sunday.
- **Low Activity:** Thursday, Tuesday, and Wednesday have the lowest order counts (1.5 each). These days may require targeted marketing efforts or promotional campaigns to boost activity

▼ Advanced Behavioral Insights

- **High User Engagement:**
- The 80% conversion rate signifies that a substantial majority of users participating in cooking sessions are proceeding to place orders. This suggests a strong user interest and satisfaction with the cooking sessions
- **Average Spending by Rating**
  - The data analysis reveals an intriguing correlation between session or order ratings and average spending. The results are summarized in the following table:

```
Average Spending by Rating:          Amount (USD)
Rating
4.000000         10.25
4.285714         11.75
5.000000         13.50
```

- From the table, we observe a clear trend where higher ratings are associated with increased spending. Specifically, users who rated their sessions or orders with a 5.0 spend, on average, $13.50, whereas users with a rating of 4.0 spend, on average, $10.25. This positive correlation suggests that customer satisfaction, as reflected by higher ratings, is directly linked to higher spending behavior.

▼ Location based Analytics

▼ Location and Meal Type

The chart provides a detailed breakdown of meal orders by type (Breakfast, Lunch, Dinner) across various locations.

High-Performing Locations:

- **Chicago** and **Los Angeles** lead in total order count, each recording 3 orders. This indicates a diverse meal demand in these cities, as they feature orders across all three meal types (Breakfast, Lunch, Dinner).

Strategic Focus for Dinner Promotions:

- **New York** stands out with a high count of Dinner orders, alongside some Breakfast orders, totaling to 2.5 orders. This suggests a significant consumer interest in Dinner offerings, presenting an opportunity for targeted dinner promotions in this region.

Underperforming Market:

- **Miami** exhibits the lowest activity with just Lunch orders, indicating potential for market development. Efforts to introduce and promote Breakfast and Dinner options could be explored to boost overall meal orders.

Consistency in Order Types:

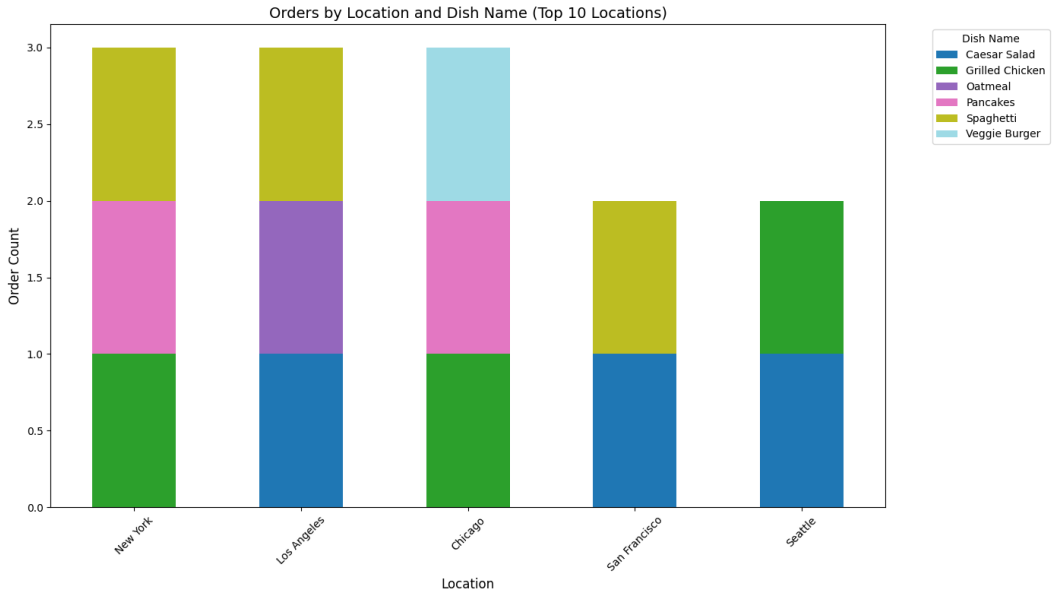
- **Austin** and **Boston** show identical ordering behavior, each with 1 Dinner order.

Balanced Demand Across Meal Types:

- Locations like **Chicago** and **Los Angeles** exhibit balanced demand across all meal types, providing a stable market for diverse meal offerings.

▼ Location and Dishes

The bar chart provides insightful data on the distribution of various dish orders across five key locations: New York, Los Angeles, Chicago, San Francisco, and Seattle.



Key Takeways :

- **Diverse Preferences Across Locations**:
  - **New York** and **Los Angeles** exhibit the highest variety of ordered dishes, indicating a wide range of customer preferences. Both cities have substantial order counts for multiple dishes, with **New York** showing particular popularity for Grilled Chicken and Pancakes.
  - **Chicago** displays a balanced demand across all featured dishes, making it a critical market for various menu offerings.
- **Popular Dishes Analysis**:
  - **Caesar Salad** and **Grilled Chicken** are consistently popular across all locations. They are high performers, especially in New York and Los Angeles.
  - **Oatmeal** and **Pancakes** show moderate popularity, suggesting they are reliable but not standout items in terms of orders.
- **Niche Markets**:
  - **San Francisco** and **Seattle** have a notable preference for Veggie Burgers and Spaghetti. These niche preferences can inform targeted marketing and menu customization efforts.
- **Strategic Growth Opportunities**:
  - **San Francisco** and **Seattle** display lower total order counts compared to other cities, presenting potential for growth. Strategies to boost these locations could involve emphasizing popular dishes like Caesar Salad and Grilled Chicken to align with consumer trends.