# **User Behavior, Cooking Preferences, and Order Trends Analysis**

## **1. Introduction**

The objective of this analysis was to explore user behavior, cooking preferences, and order trends using three datasets: UserDetails, CookingSessions, and OrderDetails. The primary goals were:

* Cleaning and merging the datasets.
* Analyzing the relationship between cooking sessions and orders.
* Identifying popular dishes.
* Exploring demographic factors influencing user behavior.
* Providing actionable business recommendations.

## **2. Data Preparation**

### **2.1 Cleaning**

* Missing values should be imputed where relevant (No probable missing values in this case).
* Columns such as dates and numerical data were standardized for consistent analysis.

### **2.2 Merging**

* UserDetails and CookingSessions datasets were merged using User ID.
* The resulting dataset was joined with OrderDetails using User ID to create a comprehensive dataset for analysis.

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## **3. Key Analyses and Findings**

### **3.1 Relationship Between Cooking Sessions and Orders**

* **Rating Correlation**: A positive correlation (**0.67**) was observed between session ratings and order ratings, indicating a strong relationship between user satisfaction during sessions and order quality.

### **3.2 Popular Dishes**

* **Top 3 Dishes by Cooking Frequency**:
  1. Spaghetti Carbonara
  2. Grilled Chicken Salad
  3. Caesar Salad
* Demographics such as younger users (18-25 years) favored lighter meals like salads, while older demographics (45+ years) preferred heartier dishes.

### **3.3 Additional Insights**

#### **a. Order Timing Analysis**

* Most orders were placed during evening hours (6 PM - 9 PM), aligning with dinner meal preferences.

#### **b. Session Duration Impact**

* Sessions (31-60 minutes) had higher ratings (**4.79/5**) but lower conversion rates, suggesting diminishing returns on user engagement.

#### **c. Order Status Analysis**

* **Order Completion Rate**: 84.2%
* **Order Cancellation**: 15.8% due to delayed preparation or poor session experiences.

#### **d. Repeat Orders**

* **Repeat Orders**: 30% of users placed more than three orders and one order at least, indicating strong engagement from the platform.

#### **e. Session Popularity by Meal Type**

* Dinner sessions were the most popular (40%), followed by lunch (35%). Breakfast sessions had the lowest participation (15%).

#### **f. Session Ratings by Dish Name**

* Top-rated dish for sessions: "Grilled Chicken" (**4.57/5**).

## **4. Visualizations**

* **Trend Analysis**: Line charts showed a steady increase in cooking sessions and orders over time.
* **Dish Popularity**: Bar charts highlighted the top 10 dishes by frequency and ratings.
* **Demographics**: Heatmaps showcased preferences by age and location.
* **Session Duration**: Bar plots revealed ratings and order likelihood by duration ranges.

## **5. Business Recommendations**

1. **Enhance Evening Offerings**:
   * Focus marketing efforts on dinner-time promotions to capitalize on peak order times.
2. **Promote Popular Dishes**:
   * Highlight and offer discounts on top dishes like "Grilled Chicken" and "Spaghetti".
3. **Target Demographics**:
   * Create personalized promotions for younger users focusing on lunch deals.
   * Develop loyalty programs for users in other areas.
4. **Improve Session Quality**:
   * Shorten session durations while maintaining quality to enhance conversion rates.
   * Encourage users to provide feedback to continuously refine session experiences.
5. **Address Order Cancellations**:
   * Focus on reducing delays by optimizing preparation workflows.

## **6. Conclusion**

The analysis provided actionable insights into user behavior, cooking preferences, and order trends. These findings can inform strategic decisions to enhance user engagement, improve satisfaction, and drive revenue growth.