

User Behavior and Order Trends Analysis Report

Introduction

This report analyzes user behavior and order trends related to cooking and food delivery. It examines data from three datasets: UserDetails, CookingSessions, and OrderDetails. The analysis aims to understand the relationship between user cooking habits and food ordering behavior. The report includes data cleaning and preprocessing, data merging, exploratory data analysis (EDA) with visualizations, and business recommendations based on the findings.

Data Used

- **UserDetails.csv:** Contains user information like ID, name, age, location, registration date, contact information, favorite meal, and total orders.
- **CookingSessions.csv:** Holds details about user cooking sessions, including session ID, user ID, dish name, meal type, session start/end times, duration, and session rating.
- **OrderDetails.csv:** Provides information about user orders, including order ID, user ID, order date, meal type, dish name, order status, amount, time of day, rating, and session ID (if applicable).

Analysis Steps

1. **Data Cleaning and Preprocessing:**
 - Converted date and time columns to a datetime format.
 - Handled missing values and converted relevant columns to numeric types.
 - Standardized the "Time of Day" category.
 - Calculated accurate cooking session durations.
2. **Data Merging:** The three datasets were merged based on **User ID** and **Session ID** to create a comprehensive dataset for analysis.
3. **Exploratory Data Analysis (EDA):**
 - Analyzed the frequency of cooked and ordered dishes to understand user preferences.
 - Examined the distribution of meal types for cooking and orders to identify user tendencies.
 - Investigated the relationship between cooking sessions and total orders using correlation analysis and regression plots.
 - Analyzed order status distribution and calculated the cancellation rate.
 - Explored user demographics (age distribution and orders by location).
 - Analyzed the distribution of cooking session durations.
 - Calculated the average rating of orders associated with cooking sessions.
4. **Business Recommendations:** Formulated recommendations based on the EDA findings.

Key Findings

- **Popular Dishes:** Dishes like Spaghetti and Grilled Chicken are both frequently cooked and ordered, suggesting user preferences.
- **Cooking and Orders:** A slight positive correlation exists between the number of cooking sessions and total orders, indicating users who cook more tend to order more.
- **Order Cancellations:** A notable order cancellation rate suggests potential issues with the ordering process or user experience.
- **Cooking Impact on Ratings:** Orders linked to cooking sessions tend to have higher average ratings, implying a positive impact of cooking on customer satisfaction.
- **User Demographics:** The age distribution of users offers insights into the target demographic. Orders by location reveal varying order frequencies across different locations, highlighting potential regional preferences.
- **Cooking Session Durations:** The distribution of cooking session durations provides insights into user preferences for long or short cooking times.

Business Recommendations

- **Promote Cooking Sessions for Popular Dishes:** Focus on promoting cooking sessions for popular dishes to increase user engagement and potentially drive more orders.
- **Targeted Promotions by Location:** Implement location-based promotions to cater to regional preferences and increase order volume in specific areas.
- **Address Order Cancellations:** Investigate the root causes of order cancellations and implement strategies to reduce them, such as improving the ordering process or offering incentives.
- **Encourage Cooking for Increased Orders:** Promote cooking as a way to enhance the overall food experience, potentially leading to increased order frequency.
- **Highlight Positive Impact of Cooking on Ratings:** Emphasize the connection between cooking sessions and higher order ratings to incentivize users to participate in cooking activities.

Future Analysis

- Analyze the average order value for users who cook versus those who don't.
- Investigate the time lag between cooking sessions and subsequent orders.
- Explore more granular relationships between user demographics and cooking/ordering preferences.

Conclusion

This analysis provides valuable insights into user behavior and order trends related to cooking and food delivery. The identified relationships and patterns pave the way for targeted business strategies to improve customer engagement, satisfaction, and potentially order frequency. By

continuing to analyze user data and incorporate these recommendations, businesses can create a more engaging and rewarding experience for their customers.