**Overall Report**

**Introduction**

The objective of this analysis was to derive actionable insights from three datasets UserDetails, CookingSessions, and OrderDetails by examining user behavior, cooking habits, and order patterns. The primary objectives involved data cleaning and integration, exploring the connection between cooking sessions and orders, identifying trending dishes, and evaluating the impact of demographics. The results are enhanced with visual representations and provide strategic business recommendations for informed decision-making.

# Key Findings

# 1. User Behavior Analysis

**Sessions vs. Orders:**

Users with a higher number of cooking sessions tend to place more orders. This positive correlation was confirmed through scatterplots and statistical measures.

Histogram analysis revealed that a significant portion of users fall into a moderate range of session and order activity.

**Session Duration:**

Boxplots showed variations in session duration across demographic groups, highlighting potential user engagement differences.

**Activity Trends:**

Line charts indicated peak user activity during evenings and weekends, aligning with leisure hours.

# 2. Popular Dishes

**Dish Popularity:**

Top 10 dishes dominated both cooking sessions and order preferences. With a significant share illustrated through bar and pie charts.

**Demographics:**

Stacked bar charts revealed preferences for certain dishes among different age groups, genders, and locations.

# 3. Order Trends

**Order Frequency:**

Heatmaps showed that orders peaked on weekends and during evening hours.

**Order Size:**

Histogram and boxplot analyses highlighted that most orders contained 3-5 items, with occasional spikes for bulk orders.

# 4. Demographic Insights

**Gender and Age Group:**

Pie charts showed a balanced gender distribution among users, while bar charts indicated that users aged 25-34 were the most active in both sessions and orders.

**Location Trends:**

Map visualizations identified high activity regions, offering opportunities for localized promotions.

# 5. Ratings and Feedback

**User Ratings:**

Most cooking sessions received high ratings, as shown in histograms, suggesting user satisfaction.

Scatterplots linked longer session durations with higher ratings, indicating the importance of session engagement.

**Correlation Analysis:**

Heatmaps highlighted strong relationships between ratings, order frequency, and session durations, underscoring interconnected user behaviors.

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Business Recommendations

# 1. Target High Potential Users

Identify users with high session activity but low order counts and encourage conversions through personalized offers.

# 2. Promote Popular Dishes

Highlight top dishes in marketing campaigns, especially among demographics showing strong preferences.

# 3. Optimize Activity Timing

Schedule promotions during peak activity hours (evenings and weekends) to maximize engagement.

# 4. Leverage Demographics

Use insights about age, gender, and location to design tailored marketing campaigns, such as regional flavors or age-specific discounts.

# 5. Improve Retention Rates

Introduce loyalty programs and incentives for repeat cooking sessions and orders.

Engage inactive users through reactivation campaigns.

# 6. Enhance User Experience

Extend session durations with engaging content to increase satisfaction and ratings.

Provide additional support or tutorials for new users to boost engagement.

Conclusion

This analysis highlights key behavioral patterns, popular preferences, and demographic trends among users. By implementing the recommendations, businesses can improve user engagement, boost order volumes, and optimize marketing strategies. Continuous monitoring of these trends will ensure sustained growth and user satisfaction.