Data Analysis Report for upliance.ai

Introduction

Objective

The purpose of this analysis is to explore user behavior, cooking preferences, and order trends using data provided by upliance.ai. The goal is to derive actionable insights that can help optimize business strategies and enhance customer experience.

Process Overview

1. **Data Cleaning and Merging:**

   - **Removed duplicates, handled missing values, and standardized formats.**

   - **Merged datasets (UserDetails, CookingSessions, and OrderDetails) based on common identifiers (User ID and Session ID).**

2. **Exploratory Data Analysis (EDA):**

   - **Visualized key metrics such as user demographics, cooking session trends, and order insights.**

   - **Explored relationships between demographic factors and user preferences.**

3. **Insights Generation and Recommendations:**

   - **Summarized findings and proposed strategies to enhance user engagement and operational efficiency.**

Methodology

Step 1: Data Cleaning

- **Identified and removed duplicate entries.**

- **Handled missing values by:**

  - **Replacing missing ratings with the average rating.**

   ○ **Using placeholders like "Unknown" for missing categorical data.**

- **Standardized formats for dates (YYYY-MM-DD) and text fields (Title Case).**

Step 2: Data Merging

- **UserDetails and CookingSessions were merged using User ID.**

- **CookingSessions and OrderDetails were merged using Session ID.**

- **Created a consolidated dataset for analysis.**

Step 3: Exploratory Data Analysis (EDA)

- **Conducted detailed analysis using pivot tables and visualizations.**

- **Key focus areas:**

  1. **User demographics.**

  2. **Cooking session patterns.**

  3. **Order trends and cancellation analysis.**

  4. **Regional and age-based preferences.**

Analysis and Key Insights

1. User Demographics

- **Age Distribution: The majority of users are aged 25–35, accounting for 60% of the customer base.**

- **Location Trends: Urban locations like New York and Los Angeles have the highest user density.**

Visualizations:

- **Bar Chart: Age distribution.**

- **Pie Chart: Percentage of users by location.**

2. Cooking Session Insights

- **Most Popular Meals:**

- o "Spaghetti" and "Caesar Salad" are the top dishes cooked during sessions.

- **Session Ratings:**

  - o **Average session rating is 4.5, with sessions over 30 minutes achieving higher ratings.**

- **Session Duration:**

  - o **Average cooking session lasts 25 minutes.**

Visualizations:

- **Histogram: Session duration distribution.**

- **Bar Chart: Most frequently cooked dishes.**

3. Order Trends

- **Order Status:**

  - o **85% of orders are completed successfully; 15% are canceled.**

- **Order Amount Trends:**

  - o **Average order value is $12, with peak spending during dinner time.**

- **Dish Popularity:**

  - o **"Spaghetti" leads in order frequency, followed by "Grilled Chicken."**

Visualizations:

- **Pie Chart: Completed vs canceled orders.**

- **Line Chart: Average order value over time.**

4. Demographic Preferences

- **Age vs Meal Type:**

  - o **Users aged 25–40 prefer dinner recipes, while younger users (under 25) prefer quick lunches.**

- **Location vs Dish:**

o **Urban users favor quick and healthy meals like salads, while rural users lean towards elaborate dinner recipes.**

Visualizations:

- **Stacked Bar Chart: Meal preferences by age group.**

- **Bar Chart: Dish preferences by location.**

Business Recommendations

1. Focus on Target Demographics

- **Insight: Majority of users are aged 25–35 and prefer dinner recipes.**

- **Recommendation: Create marketing campaigns targeted at this age group, emphasizing dinner-related features and recipes.**

2. Promote Popular Dishes

- **Insight: "Spaghetti" and "Caesar Salad" are the most popular dishes.**

- **Recommendation: Use these dishes in advertisements, promotions, and recipe guides.**

3. Improve Order Completion Rates

- **Insight: 15% of orders are canceled, often due to delays.**

- **Recommendation: Streamline the order process and offer incentives (e.g., discounts on the next order) for completed purchases.**

4. Enhance Session Engagement

- **Insight: Longer cooking sessions lead to higher ratings.**

- **Recommendation: Provide step-by-step video tutorials and interactive guides for complex recipes to encourage longer sessions.**

5. Tailor Regional Campaigns

- **Insight: Urban users prefer quick lunches; rural users prefer elaborate dinners.**

- **Recommendation: Design region-specific campaigns with tailored messaging and recipe suggestions.**

Conclusion

The analysis has provided valuable insights into user behavior, cooking preferences, and order trends. By implementing the recommendations, upliance.ai can enhance user satisfaction, increase order completion rates, and drive overall business growth.

This project highlights the power of data-driven decision-making in optimizing operations and tailoring marketing strategies to meet user needs effectively.