Food Orders Data Analysis Project

Project Documentation

1. Introduction

This project demonstrates an end-to-end Business Intelligence workflow by integrating Python with Power BI. The dataset was processed using Python for data cleaning and exploratory data analysis (EDA), and then visualized using Power BI to generate interactive dashboards and business insights.

2. Project Objectives

- Perform data cleaning and preprocessing using Python.
- Conduct Exploratory Data Analysis (EDA).
- Identify order trends and business patterns.
- Develop an interactive Power BI dashboard.
- Generate actionable business insights.

3. Tools & Technologies Used

Tool	Purpose
Python (Pandas, NumPy)	Data Cleaning & EDA
Matplotlib	Basic Visualization during EDA
Jupyter Notebook	Development Environment
Power BI	Dashboard & Interactive Visualization
CSV File	Data Storage Format

4. Data Cleaning Process (Python)

- Handled missing values using appropriate techniques.

- Removed duplicate records to maintain data integrity.
- Converted date column into datetime format.
- Created Quarter column from the date field.
- Standardized and renamed column names.

5. Exploratory Data Analysis (EDA)

- Number of Orders per City – Identified high demand cities.
- Number of Orders per Quarter – Analyzed seasonal trends.
- Number of Cancelled Orders – Measured cancellation impact.
- Number of Orders per Restaurant – Evaluated performance.

6. Power BI Dashboard Development

- Imported cleaned CSV file from Python.
- Created Bar Charts for city and restaurant analysis.
- Created Pie Charts for cancellation insights.
- Built KPI Cards to display key metrics.
- Added interactive slicers and filters.

7. Key Business Insights

- Identified top-performing cities based on order volume.
- Determined peak business quarters.
- Analyzed cancellation trends for operational improvement.
- Recognized high-performing restaurants.

8. Conclusion

This project successfully demonstrates how Python can be used for data cleaning and exploratory analysis, while Power BI enhances visualization and reporting capabilities. The integration ensures an efficient and practical Business Intelligence solution.

Prepared By: Ashwin Kumar