ZOMATO RESTAURANT ANALYSIS PROJECT

1. Introduction

The **Zomato Restaurant Analysis Project** aims to extract insights from restaurant data to understand customer preferences, pricing trends, and business performance. The project involves **data cleaning, exploratory data analysis (EDA), and visualization** to uncover meaningful patterns that can help businesses make informed decisions.

2. Objectives

- Analyze the distribution of restaurant types.
- Examine the rating patterns across different restaurants.
- Study the correlation between number of ratings and average rating.
- Evaluate the average cost for two people in various restaurants.
- Investigate the impact of online ordering and table booking trends.
- Identify the most popular cuisines.
- Understand restaurant distribution across different locations.
- Integrate Power BI for advanced reporting and visualization.

3. Dataset

The dataset used in this project (**zomato.csv**) contains information on restaurants, including:

- Restaurant Name
- Restaurant Type
- Ratings (out of 5)
- Number of Ratings
- Average Cost for Two People
- Online Ordering Availability
- Table Booking Availability
- Cuisines Type
- Location (Area and Address)

4. Data Cleaning

- **Handling Missing Values:**
    - rate (out of 5) was filled with an average value of 3.4.
    - avg cost (two people) was filled with 290 as the default value.

5. Exploratory Data Analysis (EDA)

- **Distribution of Restaurant Types:**
  - A bar chart visualizes the number of restaurants for each type.
- **Restaurant Ratings Distribution:**
  - A histogram shows the most common ratings given by customers.
- **Number of Ratings vs. Average Rating:**
  - A scatter plot demonstrates how customer reviews affect ratings.
- **Average Cost Distribution:**
  - A histogram provides an overview of restaurant pricing trends.
- **Online Ordering Distribution:**
  - A pie chart highlights the percentage of restaurants that offer online ordering.
- **Online Ordering vs. Table Booking:**
  - A grouped bar chart displays the relationship between online ordering and table reservations.
- **Popular Cuisines:**
  - A bar chart identifies the most preferred cuisines.
- **Restaurants Distribution by Area:**
  - A visualization shows which areas have the highest number of restaurants.
- **Cost Analysis by Cuisine Type:**
  - A box plot helps understand the cost differences among cuisine categories.
- **Correlation Between Ratings and Cost:**
  - A scatter plot shows whether expensive restaurants receive higher ratings.

6. Power BI Integration

To enhance analysis and reporting, **Power BI** was integrated using powerbiclient. The generated report includes:

- Interactive dashboards for filtering data
- Detailed insights on restaurant trends
- Comparative analysis across different restaurant types and locations

7. Conclusion

This project successfully analyzes restaurant trends using **Python, Pandas, Matplotlib, Plotly, and Power BI**. The insights derived can assist businesses in making data-driven decisions to optimize restaurant services, pricing, and customer satisfaction.