**📊 Level 3 – Task 3: Data Visualization**

**📌 Objective**

The goal of this task is to use **visualizations** to explore restaurant ratings and identify trends in the dataset.

**🎯 Key Goals:**

1️⃣ **Visualize the distribution of ratings** using histograms, bar plots, and other charts.  
2️⃣ **Compare average ratings of different cuisines and cities** to find the best-rated categories.  
3️⃣ **Analyze relationships between various features and restaurant ratings** using scatter plots, box plots, and bar plots.

This analysis helps in understanding:  
✔ **How restaurant ratings are distributed**.  
✔ **Which cities and cuisines tend to have higher ratings**.  
✔ **What factors influence restaurant ratings the most**.

**1️⃣ Step 1: Visualizing the Distribution of Ratings**

**🔹 Process:**

✔ Used **histograms and bar plots** to analyze the **frequency of ratings**.  
✔ Created **box plots and violin plots** to detect **outliers and patterns**.  
✔ Used a **pie chart** to visualize **the proportion of restaurants in each rating category**.

**📊 Key Insights:**

✔ **Most restaurants have ratings between (your observed range, e.g., 3.0 to 4.5)**.  
✔ **Outliers exist at both low and high ends of ratings** (shown in box plots).  
✔ **Some rating values appear more frequently** (e.g., many restaurants may have a rating of exactly 4.0).

**2️⃣ Step 2: Comparing Ratings Across Cuisines and Cities**

**🔹 Process:**

✔ Created **bar plots** to compare **average ratings across different cuisines**.  
✔ Analyzed **city-wise restaurant ratings** to find **which cities have the highest-rated restaurants**.

**📊 Key Insights:**

✔ **(Your top-rated cuisines)** tend to have the **best customer feedback**.  
✔ **(Your top-rated cities)** have the best-rated restaurants.  
✔ **Some cuisines and cities consistently receive better ratings**, indicating higher customer satisfaction.

**3️⃣ Step 3: Visualizing Feature Relationships**

**🔹 Process:**

✔ Used **box plots** to check how **price range** affects ratings.  
✔ Created **scatter plots** to analyze if **restaurants with more votes tend to get higher ratings**.  
✔ Used **bar plots** to check if **table booking influences customer ratings**.

**📊 Key Insights:**

✔ **Higher price range restaurants tend to get better ratings**, but not always.  
✔ **Restaurants with more votes usually have higher ratings**, suggesting customer engagement is linked to quality.  
✔ **Table booking does/does not have a strong impact on ratings** (**based on your results**).