**📊 Level 1 – Task 3: Data Visualization (Detailed Explanation)**

**📌 Objective of Task 3**

In this task, we used **graphs and visualizations** to:  
✅ **Analyze city-wise restaurant distribution** 📍  
✅ **Understand cuisine popularity and ratings** 🍽️  
✅ **Examine the impact of price on restaurant ratings** 💰⭐  
✅ **Check how services (Table Booking & Online Delivery) affect ratings** 📦

Using **bar charts, scatter plots, and comparisons**, we extracted valuable insights from the dataset.

**1️.City-Wise Distribution of Restaurants 🌍**

**Visualization Used:** 📊 **Bar Chart**

* We plotted the **Top 10 cities** with the most restaurants.
* **New Delhi, Gurgaon, and Noida** had the highest restaurant count.

**Key Insights:**  
✔ These cities have **high restaurant density**, meaning **more food business opportunities**.  
✔ **Some smaller cities also have many restaurants**, showing local demand.  
✔ A **high number of restaurants does not always mean better ratings**.

**2️.Cuisine Popularity Analysis 🍽️**

**Visualization Used:** 📊 **Bar Chart / Pie Chart**

* We analyzed the **most popular cuisines** in the dataset.
* **Top cuisines included North Indian, Chinese, and Fast Food**.

**Key Insights:**  
✔ **Fusion cuisines (North Indian + Mughlai, Bakery + Desserts) are widely available**.  
✔ **American, European, and Mughlai cuisines receive the highest ratings**.  
✔ This suggests that **customers prefer variety and fusion flavors**.

**3️.Price vs. Rating Analysis 💰⭐**

**Visualization Used:** 📊 **Scatter Plot**

* We analyzed whether **expensive restaurants receive higher ratings**.
* The scatter plot showed the relationship between **cost and customer satisfaction**.

**Key Insights:**  
✔ **Higher-priced restaurants generally have better ratings**.  
✔ **Mid-range restaurants still perform well, indicating good value for money**.  
✔ **Some low-cost restaurants also receive high ratings**, proving that **quality matters more than price**.

**4️.Table Booking Impact on Ratings 📅**

**Visualization Used:** 📊 **Bar Chart**

* We compared **restaurants with & without table booking**.
* **Restaurants that offer table booking have higher ratings**.

**Key Insights:**  
✔ **Table booking improves customer experience**, leading to **higher satisfaction**.  
✔ Such restaurants are often **higher-end or premium** places.

**5️.Online Delivery Impact on Ratings 📦**

**Visualization Used:** 📊 **Bar Chart**

* We compared **restaurants with & without online delivery**.
* **Online delivery improves ratings because of customer convenience**.

**Key Insights:**  
✔ **Restaurants with online delivery receive higher ratings**.  
✔ Customers value **fast delivery & easy access to food**.  
✔ More reviews are generated for **delivery-based restaurants**.

**🎯 Final Summary of Task 3**

✔ **City-Wise Analysis** – Found major restaurant hubs and rating distribution.  
✔ **Cuisine Popularity** – Identified the most common and highest-rated cuisines.  
✔ **Price vs. Rating** – Confirmed that expensive restaurants generally have better ratings.  
✔ **Table Booking & Online Delivery** – Proved that these services enhance customer satisfaction.