Exploratory Data Analysis (EDA) was conducted on a dataset of Bengaluru restaurants to uncover insights and understand patterns in the data. The analysis focuses on understanding distributions, relationships, and correlations between variables, as well as preparing the data for further use in modeling or decision-making processes.

**Objective** The primary objective of this EDA is to:

1. Identify and handle missing values in the dataset.
2. Analyze the data using univariate, bivariate, and multivariate statistical methods.
3. Visualize key insights to facilitate decision-making.

**Dataset Overview** The dataset contains 9,291 entries with 20 columns, including:

* **name**: Name of the restaurant.
* **cuisine**: Types of cuisines offered.
* **rating**: Ratings received by the restaurants.
* **numberOfReviews**: Number of customer reviews.
* **latitude** and **longitude**: Geographical coordinates of the restaurant.

**Data Cleaning**

* Missing values in the description column were filled with "No Description."
* Rows with missing latitude, longitude, or rating values were removed.
* Data types were corrected where necessary, such as converting numberOfReviews to a numeric type.

**Univariate Analysis**

* Summary statistics were computed for numerical variables (latitude, longitude, numberOfReviews, and rating).
  + Example: Average restaurant rating is 4.2, with ratings ranging from 1.0 to 5.0.
* Visualizations:
  + **Rating Distribution**: A histogram showed a concentration of ratings between 4.0 and 5.0.
  + **Number of Reviews**: A histogram highlighted a long-tailed distribution, with most restaurants having fewer than 100 reviews.
  + **Top 10 Cuisines**: A bar plot showed popular cuisines, including Indian and Chinese.

**Bivariate Analysis**

* **Correlation Analysis**:
  + A correlation matrix of numerical variables (latitude, longitude, numberOfReviews, rating) was visualized.
  + No significant correlation was observed between location and ratings or reviews.
* **Box Plots**:
  + Rating distributions were explored for different cuisines.
  + Indian and Chinese cuisines showed higher median ratings compared to others.

**Multivariate Analysis**

* Pair plots (created using base R) explored relationships between numerical variables:
  + No clear patterns emerged between ratings, reviews, and geographical locations.

**Key Findings**

1. Restaurants in Bengaluru tend to have high ratings, with most in the range of 4.0 to 5.0.
2. Indian and Chinese cuisines are among the most popular and highly rated options.
3. Geographical location (latitude and longitude) showed little to no correlation with restaurant ratings or the number of reviews.

**Conclusion** The analysis provided useful insights into the distribution of ratings and reviews among Bengaluru restaurants. The cleaned dataset is now ready for more advanced modeling or use in decision-making processes.

**Recommendations**

1. Restaurant managers should prioritize maintaining high ratings, as customers largely rate restaurants in the 4.0-5.0 range.
2. Focus marketing efforts on popular cuisines like Indian and Chinese, which receive the highest customer interest.
3. Further studies could investigate non-numerical factors, such as customer sentiments from reviews, to identify additional trends.