1. Summary of Findings

The analysis of customer reviews revealed several key trends and patterns:

- **Distribution:** Most of the restaurant ratings fall between 3 to 5 stars, with 5-star ratings being the most common, which indicates that most customers were generally satisfied with their experiences.
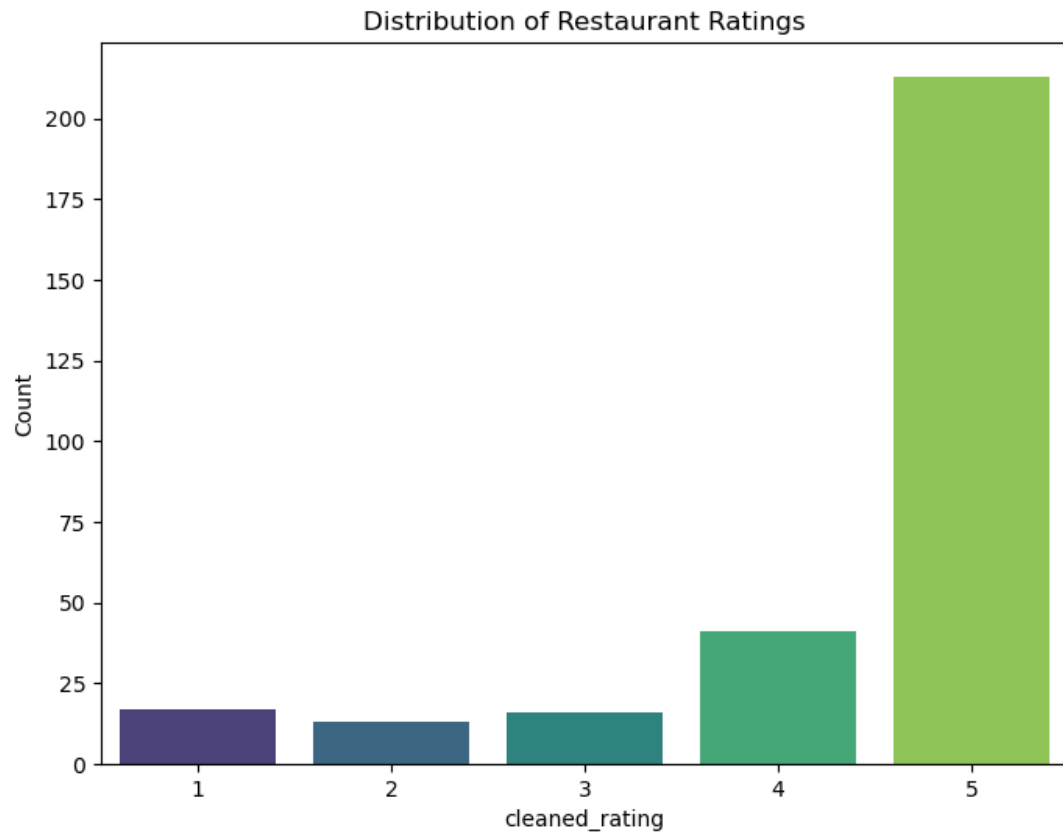

Fig: Distribution of Restaurant Ratings

- **Sentiment Analysis:** The overall sentiment of the reviews closely follows the star ratings, with positive sentiments associated with higher ratings and negative sentiments with lower ratings. However, some anomalies exist where customers provided a high rating but expressed neutral or negative sentiments in their written reviews.
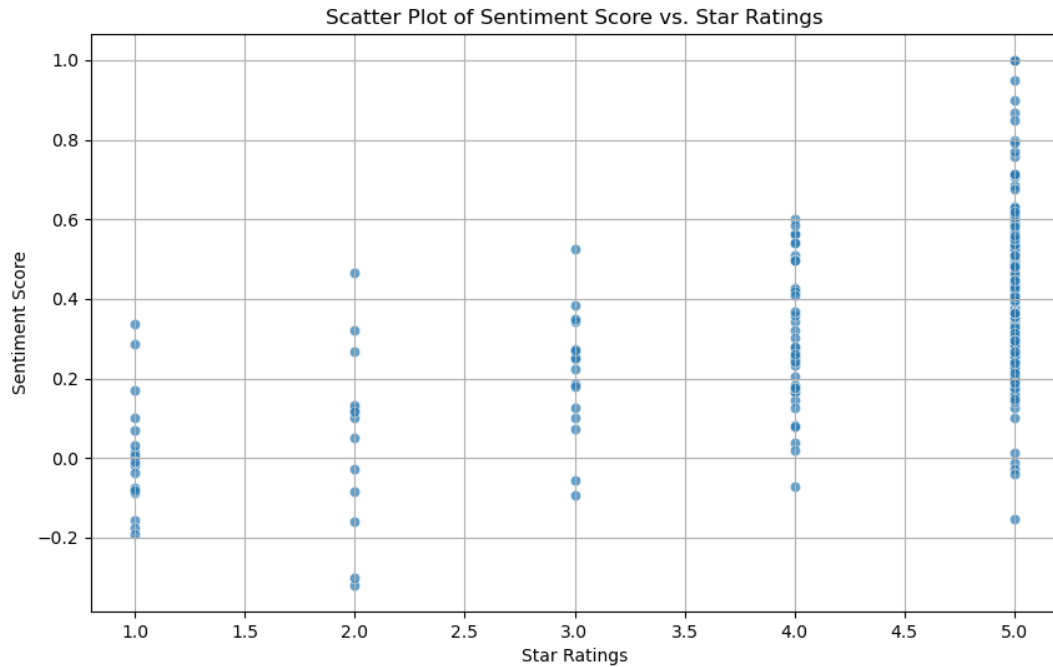

Fig: Scatterplot showing relation between sentiment score & star ratings.

- **Time Trends:** the customer sentiment over time remained consistent. However, occasional dips in sentiment trend were observed. That may be due to operational challenges or changes in service.
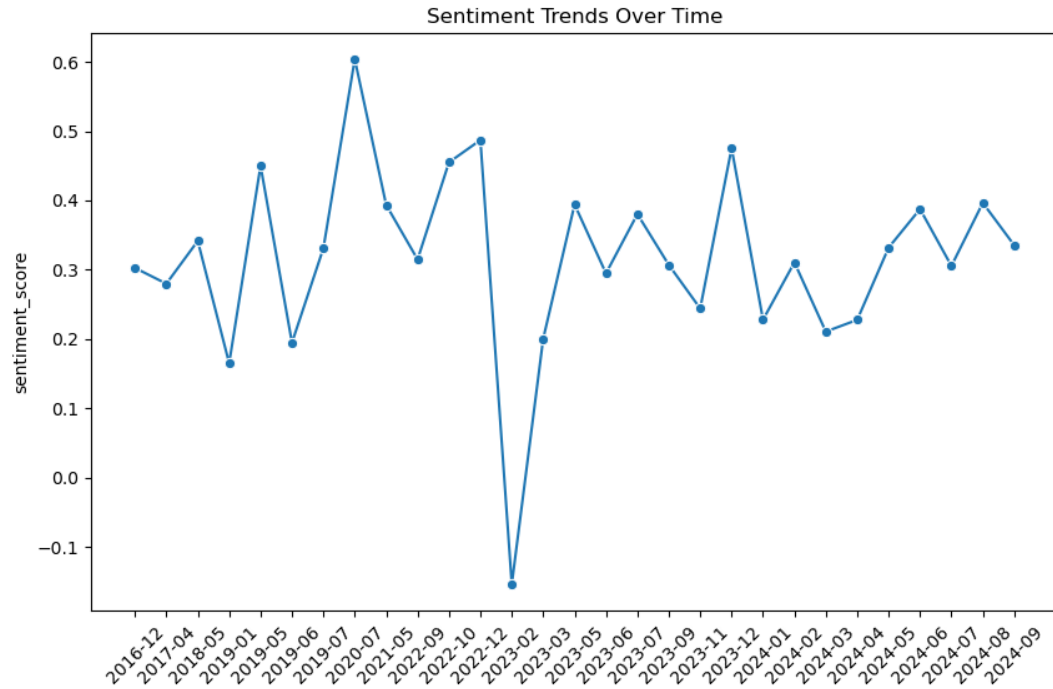

Fig: Showing how sentiment score over time changes.

2. Significant Correlations:

- From the Text blob analysis, we got the correlation factor of 0.55 and from VADER analysis we got the correlation of 0.68**.**
- Both correlation coefficients indicate a moderate to strong positive relationship between sentiment scores and star ratings.
- This means that as the sentiment score of a review increases the star rating tends to increase as well.

3. Common Feedback words:

- **Positive Feedback:** Customers frequently praised the food quality, ambiance, and friendly staff, with terms like "Amazing", "delicious", "excellent", "Good" and "friendly" appearing frequently in the reviews.

- **Negative Feedback:** Common complaints centered around long wait times, poor service, and pricing issues, with terms like "waited", "expensive", "Worst" and "rude" appearing in reviews with lower ratings.

4. Recommendations for Restaurants:

Based on the analysis of customer feedback, the following actionable recommendations are provided for restaurant owners to improve customer satisfaction:

- **Improve Service:** Many low-rate reviews mentioned long waiting times. There is enough room to improve customer experience and ratings.

- **Focus on Stuff Training:** Most of the reviews with low rating issues with rude or inattentive staff. Proper training should be provided to staff who can make better this.

- **Price Adjustments:** Some customers have a saying about pricing like the price was too high for the value they received. Ensuring a balance between quality and pricing could help improve sentiment and reduce negative feedback about pricing.

- **Capture and Utilize Positive Feedback:** The most common positive feedback highlighted 'food' and 'Great'. Emphasizing these strengths in marketing strategies can attract more customers.

Fig: Word cloud showing the most frequent positive words in Reviews.

- **Regular Feedback Monitoring:** Continuously monitor and analyze customer reviews to identify emerging trends or other issues. Implementing quick solutions based on customer feedback will help prevent negative feedback.