# 🏨 **Hotel Review Analysis & Text Processing with Visualization**

Welcome to my exploration of **TripAdvisor hotel reviews**! This project combines **text preprocessing, analysis, and visualization** to uncover patterns and insights from a sample dataset of user reviews. ✨📊

## 🛠️ ****Tools & Libraries****

* **Python**
* **NLTK** for text preprocessing (tokenization, stopwords removal, and n-gram extraction).
* **Regular Expressions** for text cleaning and pattern matching.
* **Matplotlib** for visualizations to better understand review trends.
* **Pandas** for data manipulation and preparation.

## 🔍 ****What’s Covered****

The analysis covers a range of techniques and insights:

1. **Text Preprocessing with NLTK and Regex:**
   * Tokenization
   * Stop Words Removal
   * Text Cleaning (utilizing regular expressions to clean patterns)
   * Lemmatization and Stemming
2. **N-Gram Analysis:**
   * Extracted common n-grams (unigrams, bigrams, trigrams, etc.) to uncover common phrases in review text.
3. **Visualization with Matplotlib:**
   * Visualized trends, review distributions, and n-gram frequencies.
   * Insights on customer sentiment trends and common patterns in user feedback.

## 📊 ****Key Insights from Visualizations****

The visualizations generated using Matplotlib helped identify:

* **Trends in Hotel Ratings:** Frequency of different review scores and patterns in customer sentiment.
* **Common Review Patterns:** Insights from n-grams and phrases.
* Distribution of user sentiment across key topics.

## 🏆 ****Highlights****

This project combines natural language processing techniques (NLTK + regex) with data visualization to transform raw user review data into actionable insights. Understanding patterns in customer sentiment has real-world applications for understanding reviews, improving hotel services, and enhancing user experience.

## 💬 ****How to Use This Repository****

1. Clone this repository to your local environment:
2. git clone <https://github.com/Lanor-Jephthah1/Natural> Language Processing.git
3. Install necessary dependencies:
4. pip install matplotlib nltk pandas
5. Run the Jupyter Notebook or scripts to explore preprocessing workflows and visualizations.

## 🌱 ****Next Steps****

This project serves as a starting point for my journey into NLP, visualization, and data analysis. My goals include:

* Enhancing the analysis with more advanced NLP techniques.
* Exploring sentiment analysis using machine learning models.
* Creating more dynamic visualizations to uncover patterns in customer reviews.

## 📫 ****Connect with Me****

I'm always excited to connect, collaborate, and learn. If you’re working on similar projects, exploring NLP, visualization, or just want to chat about tech:

Let’s connect and share ideas! 🚀