2.Train multiple models: Naive Bayes, Logistic Regression, XGBoost.
3.Evaluate models using accuracy, precision, recall, and F1-score

Stage 4: Model Selection:

- Naive Bayes: Accuracy 83.36%
- Logistic Regression: Accuracy 80.09%
- XGBoost: Accuracy 79.85%

- **Selected Model:** Considering the performance and model size, Logistic Regression might be the best choice for deployment due to its balance between accuracy and handling of class 2. It also has the smallest model size, which could be beneficial for server deployment.

Stage 5: Deployment and Results

Deployment:

- **Platform:** Streamlit
- **Steps:**
    1. Saved trained model ("C:\Users\madas\Downloads\Prudent_Hackathon\logistic_regression1.pkl")
    2. Created a Streamlit app for user interaction and prediction.
    3. Host the application on Streamlit Cloud.

Streamlit App Features:

- **User Input:** Text box for users to input hotel reviews.
- **Prediction Output:** Display predicted sentiment (Positive, Negative, Neutral)

Usage Example:

1. **Review Prediction:**
    o User enters: "The hotel was fantastic with great service!"
    o Predicted Sentiment: Positive

Future Enhancements:

- Improve performance on Neutral class by tuning hyperparameters.
- Explore additional models and feature engineering techniques.
- Enhance the user interface of the Streamlit app for better user experience.

Access the Deployed Application:

You can access the deployed sentiment analysis application using the following link:

Sentiment Analysis Web App