**Gujarati Sentiment Analysis (Logistic Regression and accuracy 83.52%)**

**Project Overview**

This project is a **Gujarati Sentiment Analysis** system that classifies text into different sentiment categories. It includes a **machine learning model** built using **Logistic Regression** and a **web-based user interface** for real-time analysis.

**Features**

* **Supports only Gujarati text input** (Non-Gujarati text is restricted).
* **Machine Learning Model** trained using **TF-IDF vectorization** and **Logistic Regression**.
* **User Interface** with two buttons:
  1. **Perform Sentiment Analysis**
  2. **Re-enter Sentence**
* **Web App** built using **Flask**.

**Project Structure**

📂 Gujarati-Sentiment-Analysis

├── 📁 model

│ ├── gujarati\_sentiment\_model.pkl # Trained sentiment model

│ ├── tfidf\_vectorizer.pkl # TF-IDF vectorizer

├── 📁 web-app

│ ├── app.py # Flask application

│ ├── templates/

│ │ ├── index.html # User Interface

│ ├── static/

│ │ ├── Aakar.ttf # Gujarati font

├── FinalModel.ipynb # Jupyter Notebook with model training code

├── requirements.txt # List of dependencies

├── README.md # Project description

**Installation**

1. Clone the repository:
2. git clone https://github.com/your-username/Gujarati-Sentiment-Analysis.git

cd Gujarati-Sentiment-Analysis

1. Install dependencies:

pip install -r requirements.txt

1. Run the web application:

python web-app/app.py

1. Open the browser and go to:

http://127.0.0.1:5000/

**Model Details**

* **Preprocessing**: Tokenization, Stopword Removal (using NLTK and Indic NLP Library).
* **Feature Extraction**: TF-IDF Vectorization.
* **Classification Algorithm**: Logistic Regression.
* **Evaluation Metrics**: Accuracy, Precision, Recall, Confusion Matrix.

**Future Enhancements**

* Add support for **Deep Learning models (LSTMs, Transformers)**.
* Extend for **multilingual sentiment analysis**.
* Improve UI with real-time suggestions.

**License**

This project is open-source under the **MIT License**.