**Gujarati Sentiment Analysis (ગુજરાતી ભાવવિચાર વિશ્લેષણ) (SVM Linear kernel = SVC and accuracy 84.88%)**

**📌 Project Overview**

This project focuses on **Gujarati Sentiment Analysis**, using **Machine Learning (SVM - Support Vector Machine)** to classify text into **Positive (સકારાત્મક), Neutral (તટસ્થ), and Negative (નકારાત્મક)** sentiments. It includes:

* A **trained ML model** for Gujarati sentiment classification.
* A **Flask-based web application** with an intuitive interface.
* **Strict Gujarati-only input validation** (Non-Gujarati text is not allowed).

**🛠️ Features**

✅ **Gujarati Sentiment Prediction** using a pre-trained **SVM model**. ✅ **Web Interface** with a user-friendly **Flask-powered GUI**. ✅ **Real-time Text Processing** with TF-IDF Vectorization. ✅ **Gujarati Text Restriction** to ensure only valid input. ✅ **Interactive Buttons**: "Analyze Sentiment" and "Re-enter Sentence".

**🏗️ Tech Stack**

* **Machine Learning**: Scikit-learn (SVM), NLTK
* **NLP Preprocessing**: TF-IDF Vectorization
* **Web Framework**: Flask
* **Frontend**: HTML, CSS, JavaScript

**📂 Project Structure**

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|-- FM2GSA/

| |-- app.py # Flask backend

| |-- gujarati\_sentiment\_model.pkl # Trained SVM model

| |-- tfidf\_vectorizer.pkl # TF-IDF vectorizer

| |-- templates/

| | |-- index.html # UI page

| |-- static/

| | |-- styles.css # UI styling (if applicable)

|-- FinalModel2.ipynb # Model training notebook

**🚀 Installation & Usage**

1. **Clone the Repository**

git clone https://github.com/yourusername/gujarati-sentiment-analysis.git

cd gujarati-sentiment-analysis/FM2GSA

1. **Install Dependencies**

pip install -r requirements.txt

1. **Run the Web Application**

python app.py

1. **Access the Web App**

* Open **http://127.0.0.1:5000/** in your browser.
* Enter **Gujarati text**, click **"Analyze Sentiment"**, and view the results.

**📢 Contributions & Future Enhancements**

🔹 Improve model accuracy with **Deep Learning (BERT for Gujarati)**. 🔹 Add **more dataset variety** for better generalization. 🔹 Improve UI/UX for better **user experience**.

🎯 **Your contributions and feedback are welcome!** 😊