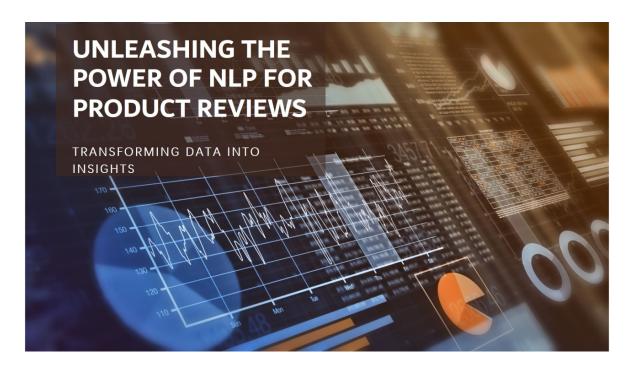
# Sentiment Analysis Web Application User Manual

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## **Overview**

This application provides real-time sentiment analysis for customer reviews and other text content using state-of-the-art Transformer models. Built with Streamlit and powered by Deep learning, it offers:

- **Instant sentiment prediction** (Positive/Negative classification)
- Confidence scoring with percentage certainty
- Feedback mechanism/Data Drift to improve model accuracy
- Automatic retraining when sufficient feedback is collected
- Version control with Git and DVC for complete reproducibility
- Model deployment and analytics MLflow allows to load model and switch between versions seamlessly. It also tracks performance metrics of the model allowing insights into overall model analytics.

Tip: The model improves with your feedback! Incorrect predictions help retrain the system.

# **Getting Started**

**Option 1: Local Installation** 

Prerequisites:

- Python 3.8+ (python --version)
- Docker (for containerized deployment)

#### **Installation Steps:**

1. Clone the repository:

git clone https://github.com/ehindasche/Amazon-Review-Sentiment-Analysis

2. Install dependencies:

pip install -r requirements.txt

3. Launch the application:

streamlit run app.py

Access: http://localhost:8501

#### **Option 2: Docker Deployment (Recommended)**

docker-compose up --build

• Streamlit UI: http://localhost:8501

• MLflow Dashboard: http://localhost:5000

• Monitoring: Grafana (http://localhost:3000)

## **Using the Application**

#### Step 1: Text Analysis

- 1. Enter text in the input box
- 2. Click the **Analyze** button

#### Step 2: Interpretation of Results

The system will display:

- **POSITIVE** (with confidence percentage)
- **NEGATIVE** (with confidence percentage)

#### Step 3: Feedback Submission

# exclamation-triangle Found an incorrect prediction?

1. Select correct sentiment from dropdown

- 2. (Optional) Add explanatory comments
- 3. Click Submit Feedback

**Note:** After **2+ feedback submissions** (2 is a configurable parameter. I as a developer may increase this as required), the system automatically initiates model retraining.

# **Troubleshooting**

Issue	Solution
App crashes on launch	Check logs/app_errors.log and verify dependencies
Model fails to load	Ensure MLflow server is running (http://localhost:5000)
Docker container issues	Run docker system prune and rebuild containers

### **Advanced Features**

#### For Administrators

- Model Retraining: Automatic when feedback threshold reached
- Data Tracking: All feedback stored /data/feedback.csv
- Performance Monitoring: Grafana dashboard with real-time metrics

#### **FAQs**

- Multilingual Support? Currently English-only. Contact team for custom language model requests.
- Training Frequency? Only when 2 feedback submissions are received.
- Data Privacy? All user data is anonymized and stored locally by default.

## **Support**

- Email: Eshan-Kulkarni-Developers.pvt.ltd
- GitHub: GitHub link for New Issue

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