

AI-POWERED SOCIAL MEDIA SENTIMENT ANALYSIS FOR BRANDS

Sentiment analysis model to categorize tweets into positive,negative or neutral sentiments

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OVERVIEW

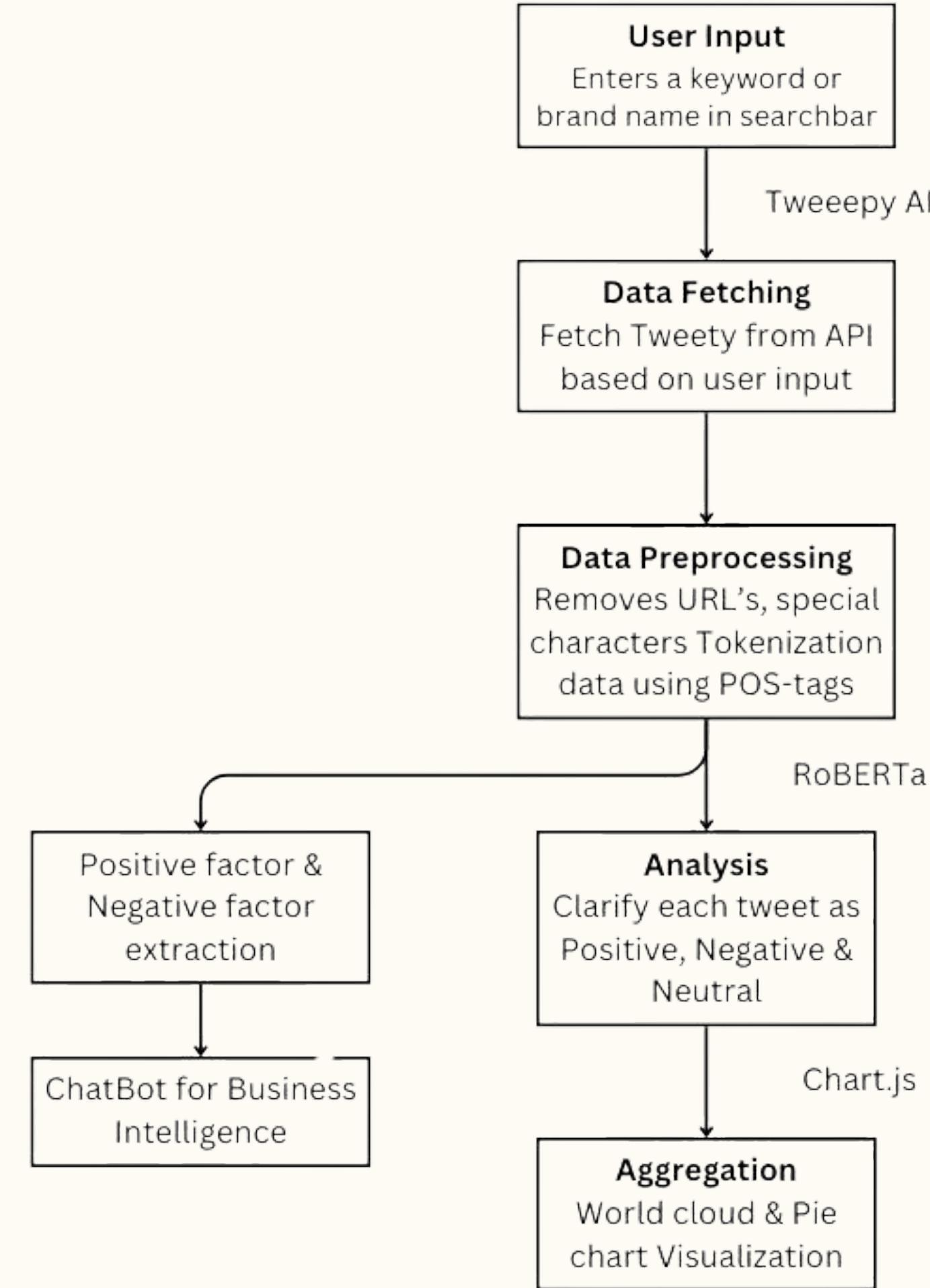
- PROBLEM STATEMENT
- WORKFLOW
- UNIQUENESS
- FEASIBILITY
- TECH STACK
- OUTCOMES

PROBLEM STATEMENT



- Sentiment analysis model to categorize **tweets** into **positive, negative, or neutral sentiments**
- Our project aims to analyze Twitter sentiment using AI-powered **RoBERTa, a transformer-based NLP model.**
- We will classify tweets into Positive, Negative, or Neutral categories, associate them with a **chatbot for interactive insights, and visualize the sentiment trends over time.**

SYSTEM WORKFLOW



TECH STACK

Sentiment Analysis

- RoBERTa (Hugging Face Transformers), VADER for sentiment classification.

Large Language Model (LLM):

- Mistral AI for generating insights and powering the chatbot

Data Collection:

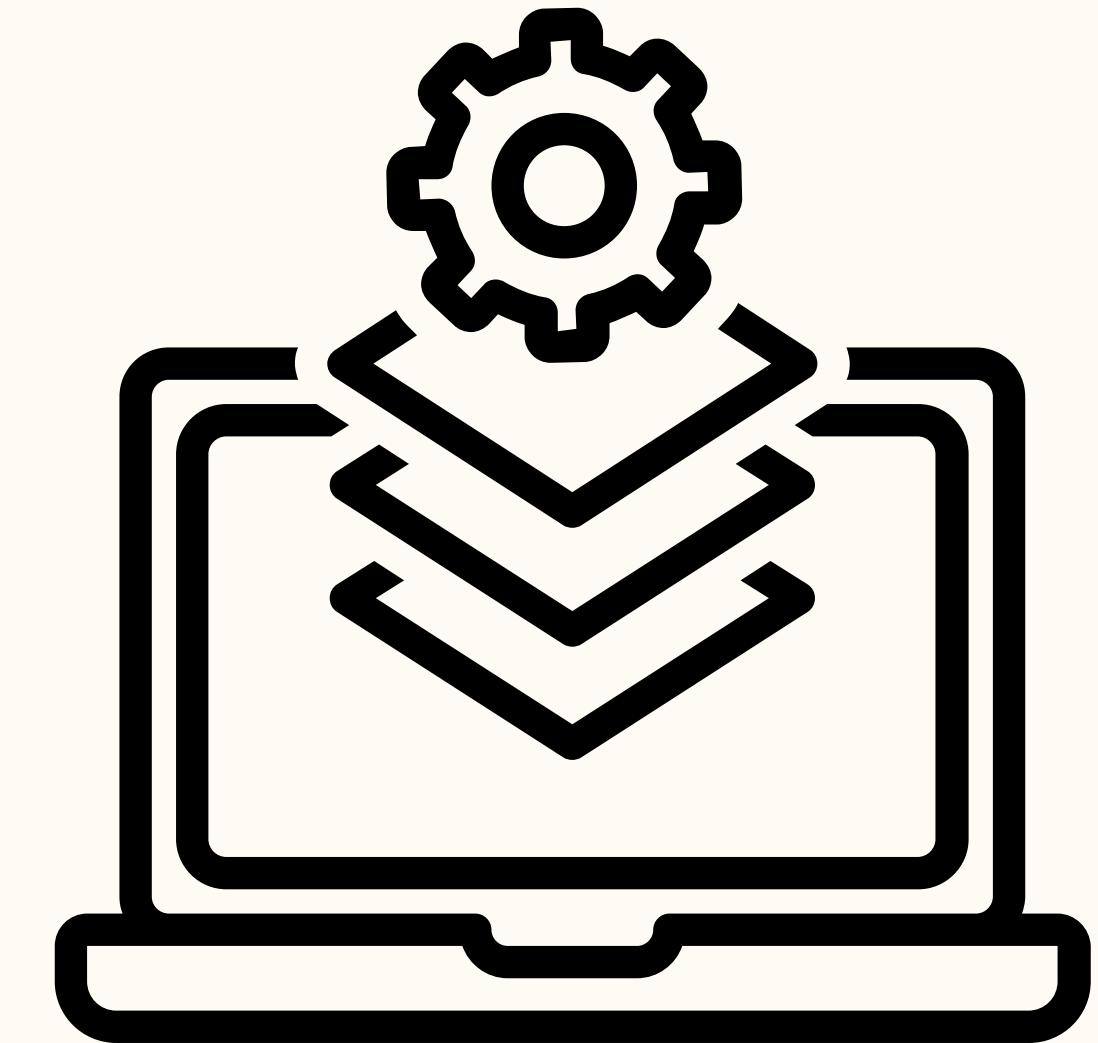
- Tweepy (Twitter API) for fetching tweets.

Data Preprocessing:

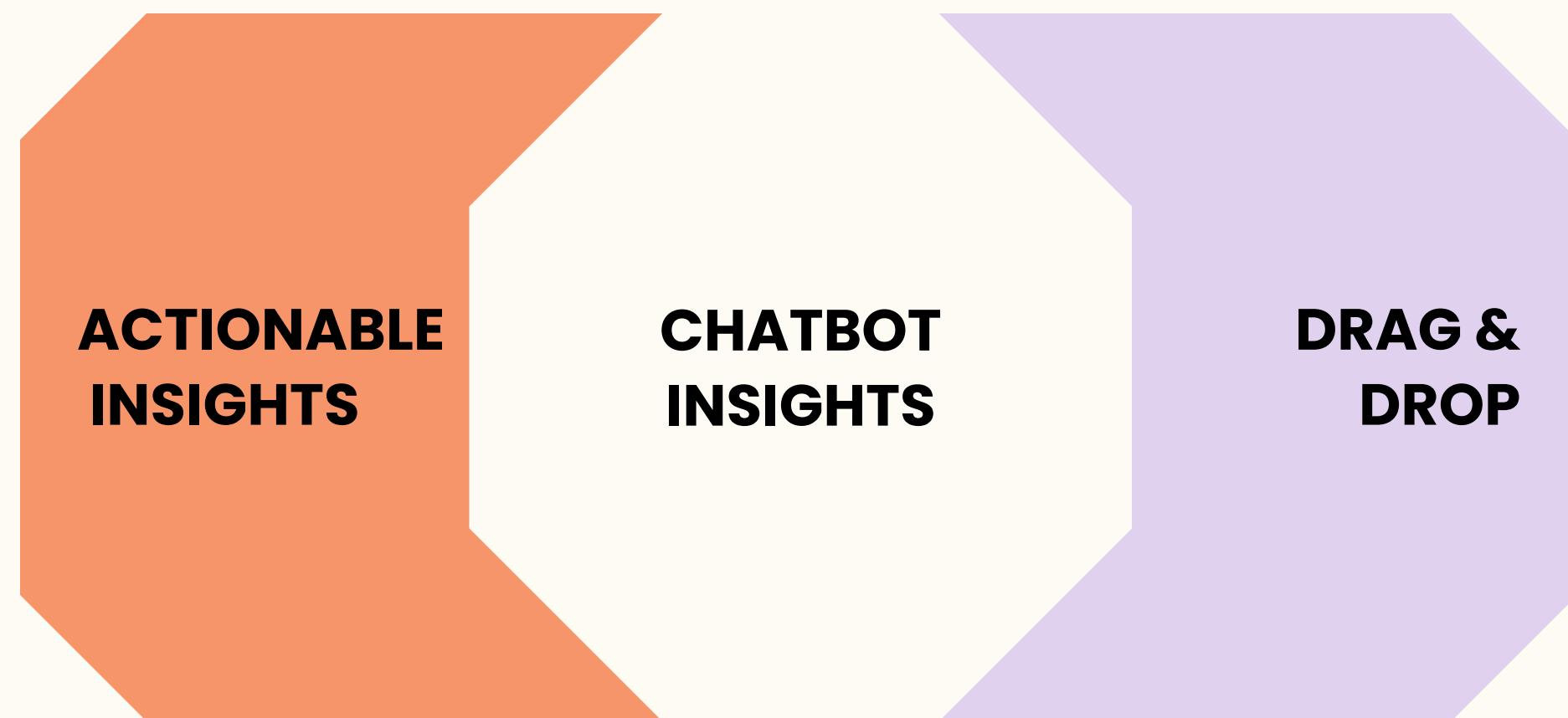
- spaCy and Regex for cleaning and preprocessing tweets.

Visualization:

- Matplotlib, Chartjs and Streamlit for interactive dashboards.



Uniqueness



- **Actionable Insights** – RoBERTa efficiently interprets context, sarcasm, and complex sentences more accurately than traditional methods.
- **Chatbot Insights** – Users can interact with the chatbot to receive sentiment-based insights instead of manually analyzing reports.
- **Drag & Drop** – It allows users to visualize sentiment trends over time through graphs for better decision-making.

FEASIBILITY



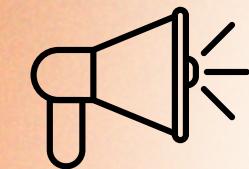
Technical Feasibility

Uses Python-based libraries (Tweepy, Pandas, Hugging Face Transformers, Matplotlib, chart.js)



Operational Feasibility

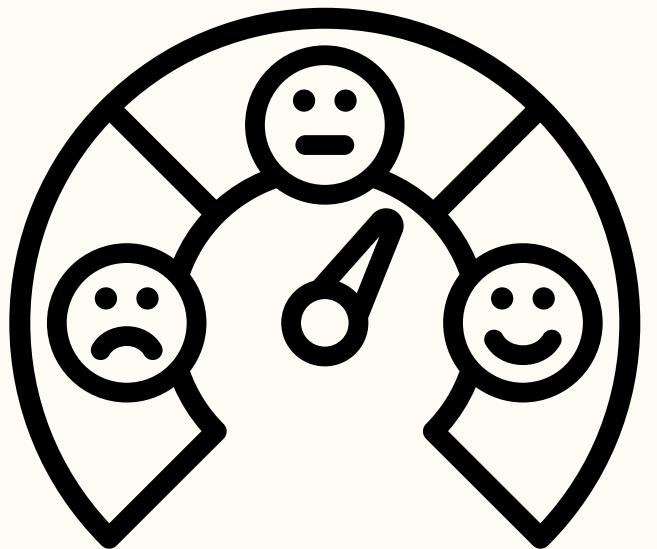
Used by businesses, marketers, researchers, and policymakers to analyze customer opinions and feedbacks.



Efficient Processing

Converting JSON to CSV ensures structured data, making analysis and visualization faster.

Deliverable



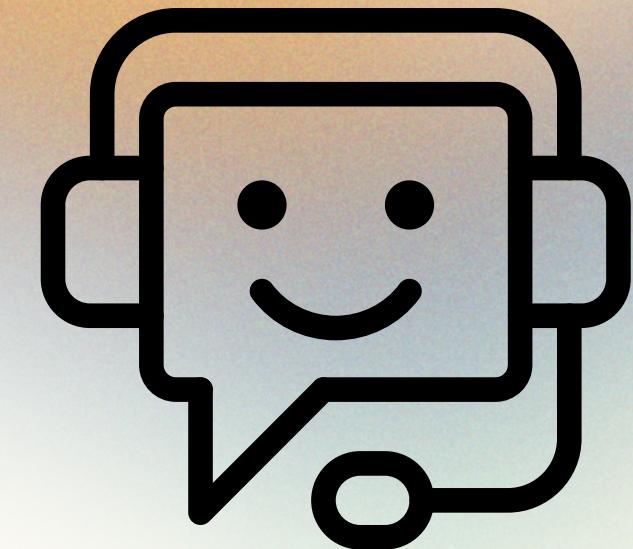
Sentiment Analysis Model

Fine-tuned RoBERTa model and VADER model for classifying tweets into positive, negative, or neutral sentiments.



Interactive Dashboard

Flak based dashboard with interactive visualizations using ChartJS or Matplotlib.



Business Intelligence Chatbot

Business Intelligence Chatbot powered by Mistral AI for interactive querying and insights.

Thank
you!