



# Restaurant Review Classifier

## Sentiment Analysis for Restaurant Feedback

# Group Members



K. Asrith



Rakesh Reddy



Vajrapu Venkata  
Sat yanarayana



A. Rakesh



Thota Siva Ritin

# Problem Statement & Objectives

## Problem Statement

Manually analyzing large volumes of customer feedback is time-consuming and can miss valuable insights.



## Objectives

- Classify reviews as Positive or Negative
- Extract key aspects (Food Quality, Service, Hygiene, Staff)
- Provide summarized insights for decision-making
- Improve brand monitoring and customer satisfaction



# Proposed Solution & Workflow

1

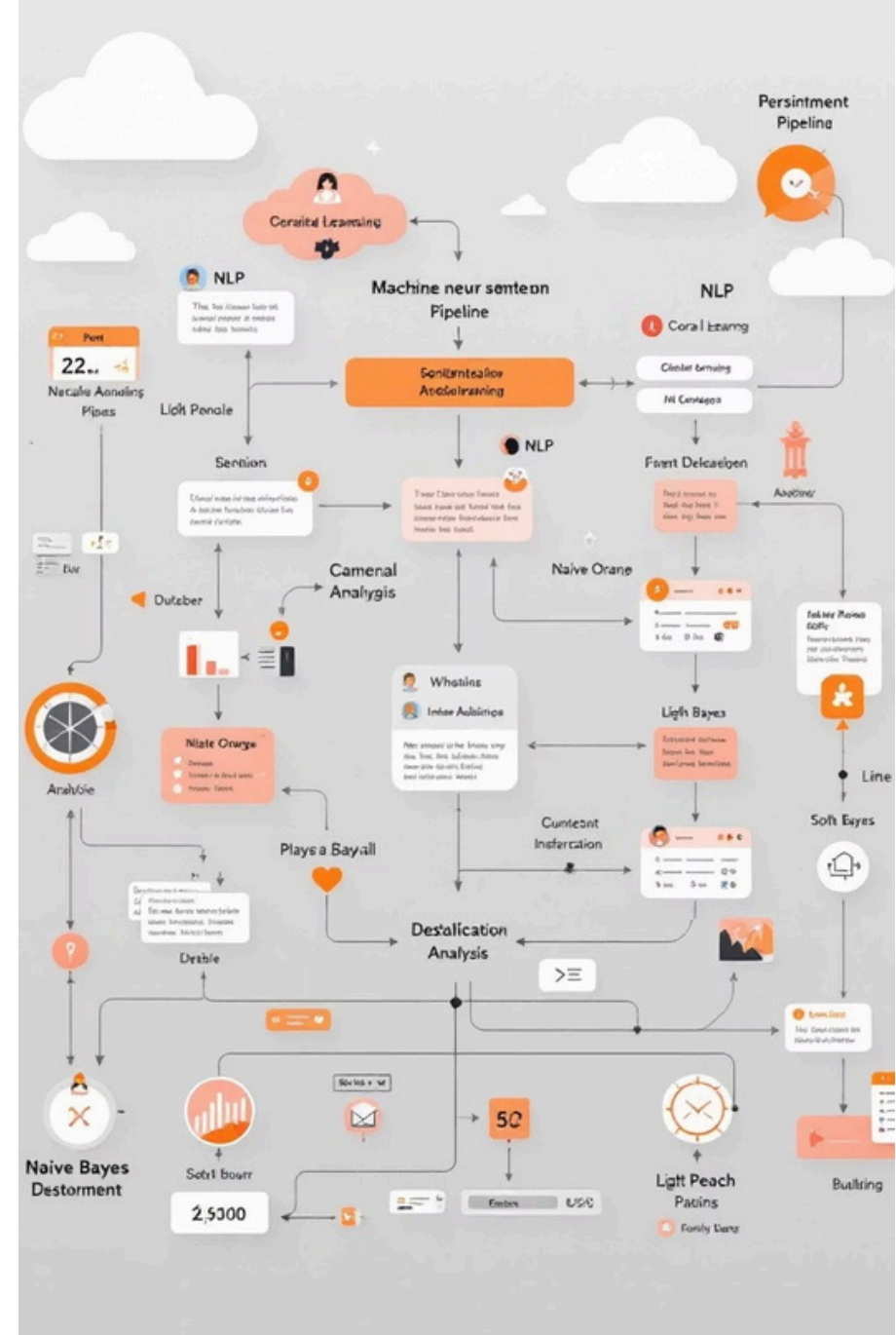
## Proposed Solution

A machine-learning system using NLP and Naive Bayes to predict Positive/Negative sentiment from restaurant reviews.

2

## Workflow

- Load & Preprocess Data TF-IDF
- Vectorization Train Naive Bayes
- Save Model (.pkl) Build UI (HTML, CSS, Jinja2) Deploy Backend
- (FastAPI + Uvicorn) Real-time
- Prediction





# Dataset & Methodology



## Dataset Used

**Restaurant\_Reviews.tsv:** Contains review text and sentiment labels for model training and testing.



## Data Preprocessing

Using NLTK for cleaning (punctuation, numbers, stopwords), tokenization, and stemming.



## Feature Extraction

TF-IDF Vectorization to convert text into numerical features.



## Model Training

Naive Bayes algorithm for sentiment classification.



## Deployment

FastAPI backend with a Jinja2 template frontend.

# Technologies Used



## Frontend

HTML,CSS,Jinja2 Templates



## Backend

FastAPI, Uvicorn



## Programming Language

Python



## ML / NLP Tools

Scikit-Learn,NaiveBayes, TF-IDF, NLTK



## Storage

Pickle(.pklmodel & vectorizer)



## Dataset

Restaurant\_Reviews.tsv

# Results & Findings

## Good Accuracy

Naive Bayes model achieved strong performance on the dataset.

## Improved Features

TF-IDF significantly enhanced feature quality for better prediction.

## Effective Classification

System successfully distinguishes Positive and Negative reviews.

## Real-time Prediction

Fast API deployment enables instant sentiment analysis.

## Quick Insights

Helps restaurants rapidly understand customer satisfaction.

# Conclusion & Future Scope

## Conclusion

The RestaurantReview Classifier effectively automates sentiment prediction using NLP and ML, offering a lightweight, fast, and deployable solution via FastAPI.



## Future Scope

- Full analytics dashboard
- Multi-language support
- Aspect-based analysis (Food, Service, Ambience)
- Upgrade to transformer models (BERT, RoBERTa)
- Cloud deployment (AWS / Render / Azure)

