

# **SENTIMENTAL ANALYSIS**

## **DOCUMENTATION**

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## 1. Objective:

The primary objective of this sentiment analysis project is to develop a machine learning model capable of predicting the sentiment (positive or negative) of consumer reviews. The model will analyze the textual content of each review and determine whether the sentiment expressed by the consumer is favorable (Liked = 1) or unfavorable (Liked = 0).

## 2. Business Context:

In the context of the business, understanding customer sentiment is crucial for making informed decisions and improving overall customer satisfaction. The sentiment analysis model aims to provide insights into the sentiment expressed by customers in their reviews, which can be valuable for the following business aspects:

### Customer Experience Enhancement:

- Identify positive sentiments to understand what aspects of the business are wellreceived by customers.
- Address negative sentiments to enhance areas that may be causing dissatisfaction.

### Menu Optimization:

- Analyze sentiments related to specific dishes to optimize the menu based on customer preferences.
- Identify popular dishes that receive positive reviews and may attract more customers.

### Operational Improvements:

- Use sentiment analysis to identify operational issues mentioned in negative reviews.
- Promptly address concerns related to service, food quality, or other operational aspects.

### Marketing Strategies:

- Leverage positive sentiments in marketing campaigns to highlight strengths and positive customer experiences.
- Identify areas for improvement to tailor marketing messages effectively.

### Competitive Analysis:

- Compare sentiment scores with competitors to understand the relative standing in the market.
- Identify opportunities to differentiate and improve competitive positioning.
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### Customer Engagement:

- Engage with customers by responding to their feedback, especially negative sentiments, to demonstrate responsiveness.
- Encourage positive sentiments through targeted engagement strategies.

### **3. Data:**

The dataset consists of consumer reviews, each accompanied by a binary label indicating whether the review is liked (1) or not liked (0). The textual content of the reviews will be utilized for training and evaluating the sentiment analysis model.

### **4. Model Development:**

The project involves the following key steps::

- Data preprocessing, including cleaning the text and handling missing values.
- Feature extraction using TFIDF vectorization.
- Model selection and training using various classification algorithms.
- Evaluation of model performance using metrics such as accuracy, precision, recall, and F1 score.

### **5. Deployment:**

The sentiment analysis model can be deployed in various ways, such as through a web application, API, or integration into existing business intelligence tools. Deploying the model allows real time analysis of customer reviews, providing continuous insights into customer sentiment.

### **6. Conclusion:**

By developing and deploying a sentiment analysis model, the business aims to gain actionable insights from consumer reviews, enhance customer satisfaction, and make informed decisions to improve overall business performance. The project aligns with the goal of leveraging data driven approaches to enhance customer experience and drive business success.