Ideation Submission - Team Information Template

Team name - Data Dragons
College name - Future Institute of Technology

Team Name	Team Member Name	Mail ID	Department	Year of passing
Data Dragons	Sukanya Das	sukanya.das.fit.cseaiml21@teamfuture.in	CSE(AI-ML)	2025
Data Dragons	Isshita Roy	isshita.roy.fit.cseaiml21@teamfuture.in	CSE(AI-ML)	2025
Data Dragons	Sangram Banerjee	sangram.banerjee.fit.cseaiml21@teamfuture.in	CSE(AI-ML)	2025
Data Dragons	Reetom Chakraborty	reetom.chakraborty.fit.cseaiml21@teamfuture.in	CSE(AI-ML)	2025

| Business Plan (1/2)

WHY

Explain the Problem

Problem Description & Business Scenario: Analyzing the sentiment in text data involves the understanding of emotions or opinions from the text generated from customer reviews. Understanding the sentiment of customers can help businesses to determine customer satisfaction and identify areas for improvement.

Problem Scope: Analyzing sentiments across languages to gain fruitful insights from diverse textual data which enhances decision-making processes for businesses.

Target Users/Stakeholders: Business analysts and marketing teams seek insights from customer feedback data to determine satisfaction levels, identify areas of improvement, and modify marketing strategies effectively.

How

Explain the Solve

Solution Overview: To solve the problem, we have created a sentiment classification model. A review from a customer is analyzed by our smart model to determine if it is positive, negative, or neutral. Our model can classify the sentiment of multilingual reviews which makes the model globally implementable. Besides, the keywords in every review are identified using our model thus providing critical information that concerns the item's performance. The model also extracts fake/spam reviews.

Technical Details: A systematic three-step process was used to construct this model. At first, the review is translated into the English language. Then, using the RoBERTa model the review goes through sentiment classification which classifies it as a positive, negative, or neutral review. Last but not least, we implemented the RAKE (Rapid Automatic Keyword Extraction) algorithm that finds important key phrases within the review comments.

Innovation: Our model can detect the sentiment of sarcastic, ironic, and other forms of figurative language. At the same time, it can process multilingual reviews making it highly scalable. Additionally, keyword extraction has made it possible for users to have an in-depth analysis of their product. Hence, it helps to find out the exact reasons for customer satisfaction or dissatisfaction

Market Potential: According to a report by Market Research Future, the global sentiment analysis market is expected to reach USD 6.5 billion by 2025, growing at a CAGR of 13.5% during the forecast.

Why are the technologies you used appealing for the solution:

1. The RoBERTa model that we selected for our solution has an exceptional capability to determine intricate word sentiments, which gives accurate results in the classification of sarcastic and ironic sentences and it's a pivotal aspect of customer review analysis.
2. To tackle multilingual challenges, we have employed a translation module that is renowned for its precision in providing accurate translations across various languages.
3. Implementing the RAKE model has facilitated the extraction of valuable keywords from reviews, which enhances the depth and precision of the analysis.

WHAT

Value proposition

Efficiency Gains: Reduction of time spent on manual analysis.

Cost Savings: Reduction in labor costs.

Flexibility: The solution supports analysis of feedbacks across 50+ languages making it scalable across the globe.

cognizant

Financials & Timelines | Business Plan (2/2)

Investments

What does it take & How much does it cost to solve?

Investments	Pricing
• Running and maintaining the model requires high-level infrastructure like a high-end GPU for training and inference. • Cloud-based services like Google Cloud, Microsoft Azure, or AWS provide these services.	• Google Cloud provides GPU services which range from $0.35 to $2.48 per GPU per hour. • GPU services by AWS range from $0.35 to $3.06 per GPU per hour. AWS also offers GPU instances with AMD GPUs, which might have different pricing. • GPU services by Microsoft Azure range from $0.45 to $3.06 per GPU per hour.
• Ensuring data privacy measures with regulations like GDPR or CCPA is a crucial feature which significantly contributes to the overall investment.	• Subjected to company policy.

Returns

Quantify the benefits & What if I don't solve?

- While many sentiment analysis tools are limited to English, ours differs by analyzing sentiments from multilingual reviews, making it scalable across the globe.
- Our model uses the keyword extraction feature to identify both flaws and necessities in the reviews, which helps in extracting a deep analysis of the products. It enables companies to improve their goods according to what their clients want hence enabling business growth which in turn opens up new areas of development.
- The model offers detailed statistical analyses that provide actionable insights for making effective business decisions.

Timelines

Time to realize benefits

We've estimated the implementation timeline for our product as follows:
- Dataset gathering, data engineering, and preprocessing: **1 week**
- Implementation of translation, sentiment analysis, and keyword extraction modules: **2 to 3 weeks**
- Web app development: **1 to 2 weeks**
- Cloud deployment: **1 week**
- Product testing: **2 to 3 weeks**

Once implemented, our model empowers businesses with a comprehensive product analysis. With these insights, businesses can make effective decisions to enhance and optimize their products for better customer satisfaction and market performance.

cognizant