 CANTILEVER AIML PROTERNSHIP 2025

**ABSTRACT**

# Project Title:

Customer sentiment analysis for product improvement

# Team Details:

|  |  |  |
| --- | --- | --- |
| **S.No** | **Name** | **Roll No** |
| 1 | P.Sujith | 23R11A05Y2 |
| 2 | D.RomithKumar | 23R11A05V4 |
| 3 | S.Anuroop | 23R11A05D0 |

## Abstract:

This project focuses on leveraging customer sentiment analysis to drive continuous product improvement by systematically analyzing diverse forms of user feedback. Utilizing advanced natural language processing (NLP) techniques and state-of-the-art transformer-based machine learning models, the system extracts sentiments, emotions, and recurring themes from sources such as online reviews, social media platforms, and customer support conversations. The models classify sentiments into positive, negative, or neutral categories, while also identifying specific product features or issues mentioned in the feedback.

The methodology includes robust data preprocessing steps such as text normalization, language detection for multilingual inputs, and specialized handling of complex language patterns including sarcasm and ambiguity. A hybrid learning approach—combining supervised and unsupervised techniques—ensures the solution is scalable, adaptive, and effective across various product domains.

A central feature of the project is the development of a dynamic sentiment analysis dashboard that visualizes sentiment trends, feature-specific feedback, and frequently occurring customer concerns. This enables product and marketing teams to prioritize actionable insights, align developments with user expectations, and track improvements over time. The system incorporates feedback loops to refine model accuracy continuously, adapting to evolving language patterns and emerging topics in customer discourse.

Designed to be platform-agnostic, the solution allows seamless integration with existing Customer Relationship Management (CRM) systems and analytics platforms. It also addresses critical challenges such as data privacy, ethical use of consumer data, and bias in training datasets through strict compliance with data protection regulations and bias mitigation strategies.

Ultimately, the project aims to bridge the gap between customer expectations and product performance by fostering a culture of data-driven decision-making. Expected outcomes include enhanced customer satisfaction, reduced churn rates, improved user experience, and a stronger product-market fit.