 CANTILEVER AIML PROTERNSHIP 2025

**ABSTRACT**

# Project Title:

Lung Cancer Prediction using Machine Learning

# Team Details:

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## Abstract:

Lung cancer is a leading cause of cancer-related deaths globally, highlighting the need for early detection methods. This project develops a machine learning-based system to predict lung cancer risk using patient data, including demographics, lifestyle factors (e.g., smoking), and clinical symptoms. After preprocessing the dataset (handling missing values, encoding categorical variables, and feature scaling), we evaluated multiple algorithms like Logistic Regression, Decision Trees, Random Forest, and XGBoost.

The models were assessed using accuracy, precision, recall, and cross-validation techniques. Results showed that ensemble methods, particularly Random Forest and XGBoost, achieved the highest predictive performance. These models could assist healthcare professionals in early diagnosis and risk assessment. Future work may involve larger datasets and clinical implementation.

**Keywords**: Lung cancer prediction, machine learning, healthcare analytics, early diagnosis, Random Forest, XGBoost, medical decision support.