

Project Design Phase-II
Technology Stack (Architecture & Stack)

Date	27 October 2023
Team ID	Team-593214
Project Name	Machine Learning Approach For Employee Performance Prediction
Maximum Marks	4 Marks

Architectural Diagram:

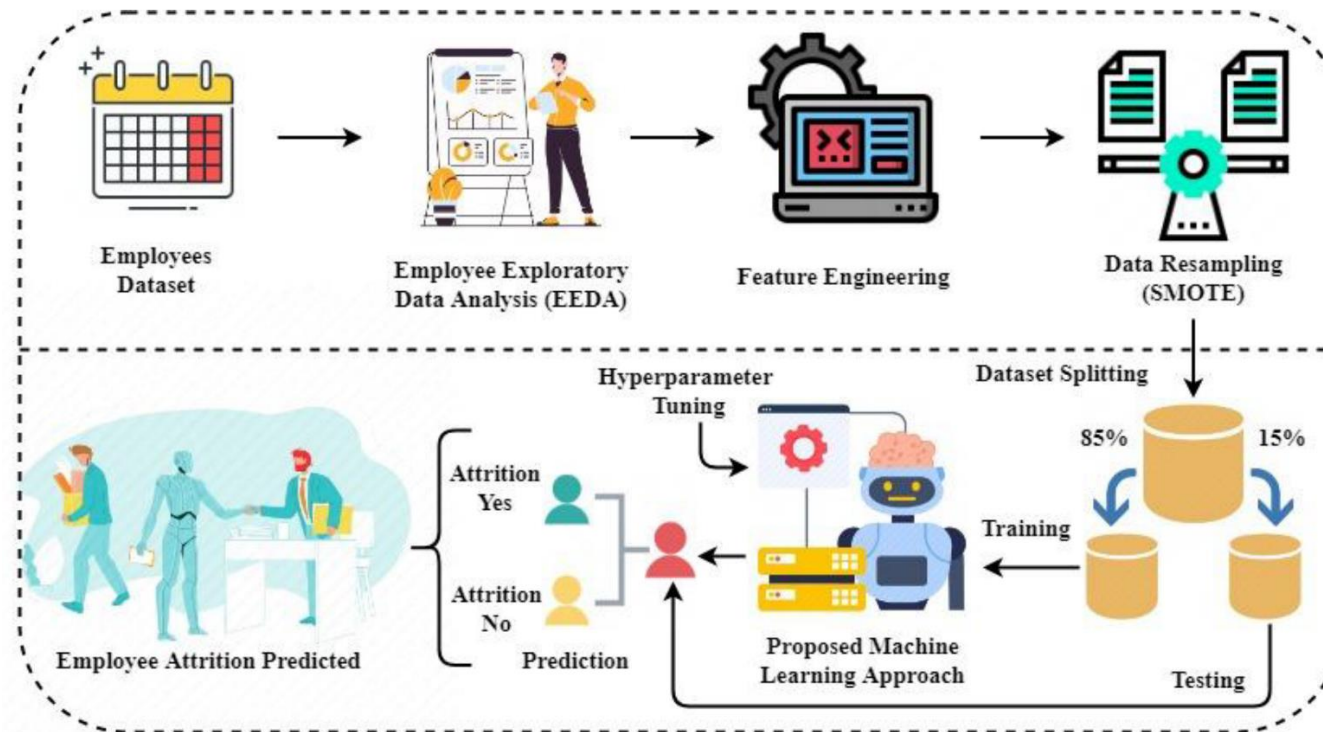


Table-1 : Components & Technologies:

S No	Component	Description	Technology
1	Data Collection	Gathering various data related to employees, such as individual and domain-specific characteristics, educational background, socioeconomic status, and psychological factors for analysis.	Data collection tools, databases, data integration tools
2	Data Preprocessing	Cleaning and preprocessing the collected data to ensure data quality, consistency, and readiness for analysis.	Pandas, Scikit-Learn
3	Machine Learning Models	Developing and training supervised learning models, including Support Vector Machines, Random Forest, Naive Bayes, Neural Networks, and Logistic Regression, to predict employee performance based on the collected data.	TensorFlow
4	Hyperparameter Tuning	Fine-tuning the hyperparameters of the machine learning models for optimal performance.	Hyperparameter optimization techniques
5	Cross-Validation	Implementing the 10-fold validation technique to assess the correctness and robustness of the machine learning models' predictions.	Cross-validation libraries and methods
6	Performance Evaluation	Evaluating the performance of the machine learning models and deriving insights into employee performance and commitment based on the model results.	Python libraries
7	Reporting and Communication	Creating reports and visualizations to effectively communicate the findings to project stakeholders and decision-makers.	Jupyter Notebook

Table-2: Application Characteristics:

S No	Characteristics	Description	Technology
1.	Open-Source Frameworks	TensorFlow(deep learning)	C++ (core library), Python (bindings) Python
2.	Scalable Architecture	A microservice architecture is more aligned for this project as the API can be used as a standalone microservice which can be integrated into web applications.	Corresponding Technologies used
3.	Performance	The accuracy score has been tested between the training data and testing data.	Scikit-Learn