Predictive analysis using Machine Learning Algorithms.

Abstract

Machine Learning is a branch of artificial intelligence that leverages data to imitate the pattern by which a human brain learns, in the process improving accuracy. Statistical principles are used to process data and learn from it efficiently. Machine Learning algorithms are extensively used to predict future outcomes based on past experiences that were recorded in a meticulous manner. These past experiences or data can help us to deduce preliminary insights about the data and what it represents. The current paper discusses certain Machine Learning algorithms where the prime objective is to classify the inputs into one of the two categories. The dataset in focus is the employee attrition dataset that gives various insights regarding the presumable reasons behind an employee leaving the job. The factors such as accuracy, precision score, recall score and f1_score for Random Forrest, XGBoost, Adaboost, Gradient boosting and Decision Tree Classifier have been ascertained and compared. Furthermore, Hyperparameter tuning, using the 'RandomSearchCV' python library is also implemented on the better performing algorithms, with the goal of achieving better performance.

<u>Keywords</u>: Machine Learning, Random Forrest, XGBoost, Adaboost, Decision Tree, Gradient Boost, Hyperparameters, RandomSearchCV.

Work Plan

Work plan

	Literature Survey	Module 1	Module 2	Module 3	Module 4	Module 5
Description	Survey and research on different Machine Learning Algorithms	Exploring specific Machine Learning Algorithms	Exploratory analysis and Visualization of the employee attrition dataset	Implementation of the selected Algorithms	Evaluation, Results and Discussion	Writing research paper
Start - End Date	14-10-2022 to 21-10-2022	22-10-2022 to 10-11-2022	11-11-2022 to 20-11-2022	21-11-2022 to 31-12-2023	01-01-2023 to 07-1-2023	8-1-2023 to 13-1-2023