**Automation in Job Promotion Processes through Machine Learning**

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**Abstract –** This research aims to develop a machine learning classification model to automate job promotion and enhance the transparency and efficiency of talent management processes. The dataset used was retrieved from Analytics Vidhya where it consists of 54,808 rows and 14 columns, including the target variable "is\_promoted." A total of four classification models were built: Logistic Regression, Decision Tree, Random Forest, and K-Nearest Neighbors. Random Forest emerged as the best model as it shows the highest accuracy, precision, recall, and F1 score across all the models, making it suitable for classifying non-promoted and promoted employees based on their performance and abilities. Additionally, a dashboard was built to facilitate the visualization of the company's employee performance. The insights generated from this research offer valuable guidance for HR professionals seeking to adopt an automated merit-based advancement system for promotion practices within their organizations.

**Keywords –** Job promotion, automation, classification, visualization, machine learning