Project Initialization and Planning Phase

Date	15 July 2024
Team ID	-
Project Title	Human Resource Management: Predicting Employee Promotions Using Machine Learning
Maximum Marks	3 Marks

Project Proposal (Proposed Solution) Report

This project aims to develop a machine learning model to forecast employee promotions within an organization. By analyzing various factors such as performance metrics, tenure, skills, and feedback, the model will identify high-potential employees who deserve advancement opportunities. This solution enhances workforce management strategies, fosters employee engagement, boosts retention, and promotes organizational growth.

Project Overview	
Objective	To create a machine learning-based system that accurately predicts the likelihood of employee promotions, ensuring a fair and efficient promotion process.
Scope	Develop a machine learning model to predict employee promotions, integrating it into a web app for HR to input data and receive promotion predictions, ensuring a fair and efficient process.
Problem Statement	
Description	HR departments in large organizations and rapidly expanding startups struggle to identify high-potential employees for promotion due to the volume of employees and various performance factors. This inefficiency leads to overlooked talent, reduced employee morale, and potential attrition.
Impact	By implementing a machine learning model to predict employee promotions, organizations can streamline the promotion process, ensure fair and data-driven decisions, boost employee morale, enhance retention, and ultimately foster organizational growth and efficiency.

Proposed Solution	
Approach	Develop a machine learning model using Python and Flask to predict employee promotions based on performance metrics, tenure, skills, and feedback. The process includes data collection, preprocessing, analysis, and model training. The model will be integrated into a web application for easy HR access.
Key Features	-Data-driven decision-making for employee promotions. -Comprehensive analysis of various employee attributes to ensure fair and transparent promotion processes. -Scalable solution adaptable to different organizational sizes and structures.

Resource Requirements

Resource Type	Description	Specification/Allocation
Hardware		
Computing Resources	CPU/GPU specifications, number of cores	T4 GPU
Memory	RAM specifications	8 GB
Storage	Disk space for data, models, and logs	218 GB SSD
Software		
Frameworks	Python frameworks	Flask
Libraries	Additional libraries	scikit-learn, pandas, numpy,matplotlib,seaborn
Development Environment	IDE, version control	Jupyter Notebook, Colab,VS Code
Data		
Data	Source, size, format	Kaggle dataset,(54808,14), csv