Project Initialization and Planning Phase

Date	12 July 2024
Team ID	SWTID1720174920
Project Title	Human Resource Management: Predicting Employee Promotions Using Machine Learning
Maximum Marks	3 Marks

Project Proposal (Proposed Solution) template

This project proposal outlines a solution to address a specific problem. With a clear objective, defined scope, and a concise problem statement, the proposed solution details the approach, key features, and resource requirements, including hardware, software, and personnel.

Project Overview	
Objective	Develop a machine learning-based solution to predict employee promotions within an organization.
Scope	The project will involve data collection, preprocessing, model training, evaluation, and deployment. The focus will be on creating a user-friendly application for HR managers to input data and generate promotion predictions and reports. The project will also include the creation of necessary documentation and training materials.
Problem Statement	
Description	Organizations often struggle to identify which employees are most likely to be eligible for promotions, leading to potential biases and inefficiencies in the promotion process. The existing methods of evaluating employees for promotion are often time-consuming and subjective.
Impact	Solving this problem will lead to a more objective and efficient promotion process, ensuring that deserving employees are recognized and promoted in a timely manner. This can lead to increased employee satisfaction, reduced turnover, and overall improvement in organizational performance.
Proposed Solution	

Approach	The solution will leverage machine learning techniques to analyze historical employee data and predict promotion outcomes. The methodology will include data collection, cleaning, feature engineering, model training, and evaluation. The application will provide a user-friendly interface for HR managers to upload data and view predictions.
Key Features	- User registration and login functionality - Data upload in CSV format - Data preprocessing and cleaning - Machine learning model training and evaluation - Prediction of employee promotions - Generation of detailed reports - Interactive and intuitive user interface for HR managers

Resource Requirements

Resource Type	**Description**	**Specification/Allocation**
Hardware		
Computing Resources	CPU/GPU specifications, number of cores	2 x NVIDIA V100 GPUs
Memory	RAM specifications	16 GB
Storage	Disk space for data, models, and logs	1 TB SSD
Software		
Frameworks	Python frameworks	Flask,Django
Libraries	Additional libraries	scikit-learn, pandas, numpy, TensorFlow
Development Environment	IDE, version control	Jupyter Notebook,Pycharm, Git
Data		
Data	Source, size, format	Internal HR database, 100,000 records, CSV format