Project Initialization and Planning Phase

Date: 09 July 2025

SkillWallet ID: SWUID20240141492

Project Title: Employee Performance Prediction using Machine Learning

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Maximum Marks: 3 Marks

Project Proposal (Proposed Solution) Report

The proposal report aims to leverage machine learning to predict employee performance accurately, improving productivity assessment, workforce planning, and HR decision-making. It addresses inefficiencies in traditional evaluation methods, enabling organizations to take proactive actions. Key features include a machine learning-based prediction model, performance scoring, and data-driven insights for HR.

Project Overview

Objective:

The primary objective is to automate employee performance prediction using advanced machine learning algorithms, enabling faster, more objective, and accurate evaluations.

Scope:

The project evaluates employee performance using various parameters such as skills, experience, training hours, and past performance records, creating a robust and efficient predictive system for HR and management teams.

Problem Statement

Description:

Traditional employee evaluation methods are time-consuming, subjective, and inefficient, often leading to inaccurate assessments and poor resource allocation.

Impact:

Solving this issue will improve decision-making in HR, reduce bias in evaluations, and enhance overall productivity and employee satisfaction within organizations.

Proposed Solution

Approach:
Applying machine learning techniques to analyze employee data, predict productivity scores, and provide actionable insights to HR managers and team leaders.

Key Features:

- Implementation of ML models (Linear Regression, Random Forest, XGBoost) for performance prediction.
- Real-time scoring and insights via a web interface.
- Integration of data visualization for better interpretability.

Resource Requirements

Resource Type	Description	Specification/Allocation
Hardware		
Computing Resources	CPU/GPU specifications, cores	T4 GPU
Memory	RAM specifications	8 GB
Storage	Disk space for data, models, logs	1 TB SSD
Software		
Frameworks	Python frameworks	Flask
Libraries	Additional libraries	scikit-learn, pandas, numpy, matplotlib, seaborn
Development Environment	IDE	Jupyter Notebook
Data	Source, size, format	Kaggle dataset (CSV)