Project Initialization and Planning Phase

Date	05 August 2025
Skillwallet ID	SWUID20250186419
Project Title	Employee Performance Prediction
Maximum Marks	3 Marks

Project Proposal (Proposed Solution) template

This project proposal outlines a solution to a specific problem. The project uses machine learning to predict employee productivity. The proposal includes a clear objective, a defined scope, and a concise problem statement.

Project Overview	
Objective	To create a Flask-based web application that predicts employee productivity based on various input parameters using a machine learning model.
Scope	Define The project is a self-contained web application that provides a user-friendly interface for inputting employee data. It will use a pre-trained machine learning model to predict productivity and display the prediction result along with the model's performance metrics.
Problem Statement	
Description	The challenge is to accurately predict an employee's productivity level (Averagely Productive, Medium Productive, or Highly Productive) based on a set of predefined features, such as department, team, and other relevant metrics.
Impact	A successful solution will provide a valuable tool for stakeholders to quickly assess and forecast employee productivity, aiding in resource management, performance analysis, and strategic planning.
Proposed Solution	
Approach	The solution will be a web application built with the Python Flask framework. The backend will handle the entire process, from loading the trained XGBoost Regressor model to preprocessing user input and generating a prediction. The front end will be a responsive UI built

	with pure HTML and CSS to ensure a clean user experience.
Key Features	**Employee Productivity Prediction:** Predicts productivity levels based on user inputs. **Model Performance Metrics:** Displays key metrics (MSE, MAE, R2 Score) to evaluate the model's effectiveness. **Clean and Responsive UI:** A modern, light-themed web interface that adapts to various screen sizes. **XGBoost Regressor:** Utilizes a robust XGBoost model for accurate predictions.

Resource Requirements

Resource Type	Description	Specification/Allocation
Hardware		
Computing Resources	CPU/GPU specifications, number of cores	A standard laptop or desktop with a multi-core processor.
Memory	RAM specifications	8 GB
Storage	Disk space for data, models, and logs	1 TB SSD
Software		
Frameworks	Python frameworks	Flask
Libraries	Additional libraries	scikit-learn, pandas, numpy
Development Environment	IDE, version control	Jupyter Notebook, Git
Data		
Data	garments_worker_productivity.csv	Kaggle dataset.