Project Initialization and Planning Phase

Date	11 July 2024
Team ID	SWTID1720178802
Project Title	Garment worker productivity prediction
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	The objective of this project is to develop an accurate and reliable predictive model for workforce productivity in the garment industry. This model will help identify key factors influencing productivity, enabling the company to enhance efficiency and increase profitability.
Scope	The solution can be adapted to a larger database and more production sites or facilities. Creating a stable and productive environment enables connectivity and utilization across multiple locations and businesses.
Problem Statement	
Description	Low workforce productivity in garment manufacturing companies leads to reduced profitability, frequent delays, and high employee turnover. This raises the need for an accurate predictive model to understand and improve productivity, ensuring efficiency.
Impact	Solving this problem will enhance the company's profitability and competitive edge by improving operational efficiency and production planning.
Proposed Solution	
Approach	The methodology involves collecting and preprocessing historical production data, selecting relevant features, and training regression models (e.g., linear regression, random forest, gradient boost, XGBoost). The models are then evaluated using metrics like Mean Squared Error (MSE) and Mean Absolute Error (MAE), optimized, and deployed for production use.
Key Features	Key features include production speed, task complexity, employee skill level, and time of day. These factors significantly impact worker productivity and are critical for accurate predictions.

Resource Requirements

Resource Type	Description	Specification/Allocation
Hardware		
Computing Resources	CPU/GPU specifications, number of cores	Raizen 7 4800H, GPU-NVIDIA RTX 3050, 12 cores
Memory	RAM specifications	8GB RAM
Storage	Disk space for data, models and logs	512 GB

Software		
Frameworks	Python frameworks	Flask
Libraries	Additional libraries	Pandas NumPy Scikit-Learn Matplotlib XGBoost, Joblib, Seaborn
Development Environment	IDE, version control	Google Collab, Github
Data		
Data	Source, size, format	Kaggle dataset, 1000, csv