

Project Initialization and Planning Phase

Date	24 June 2025
Team ID	SWUID20250176209
Project Title	Machine Learning Approach for Employee Performance Prediction
Maximum Marks	3 Marks

Project Proposal (Proposed Solution) report

The proposal aims to improve productivity prediction in garment manufacturing using machine learning, making planning and decision-making more efficient. It reduces reliance on manual estimates by providing accurate forecasts based on real production data. Key features include a trained predictive model and a simple web-based interface for easy access by HR and floor managers.

Project Overview	
Objective	The primary objective is to predict garment worker productivity by applying machine learning techniques, enabling faster, more accurate, and data-driven workforce planning and performance evaluation.
Scope	The project focuses on developing a predictive system that analyzes garment worker production data to forecast actual productivity, helping HR and management make data-driven decisions related to staffing, scheduling, and performance improvement.
Problem Statement	
Description	Manual methods of assessing worker productivity are often inconsistent and prone to bias making it difficult for managers to plan resources effectively. This project aims to address these inefficiencies through a machine learning-based approach that offers more accurate and objective productivity predictions.
Impact	Solving these challenges allows for smarter resource allocation, timely identification of low-performing teams, targeted skill development, and overall improvement in factory efficiency and output quality.
Proposed Solution	
Approach	Utilizing machine learning to analyze key production-related data and generate productivity predictions, which are delivered through an integrated and user-friendly web application for real-time managerial use.

Key Features	<ul style="list-style-type: none"> - Machine learning-based model to predict garment worker productivity - Real-time predictions via a simple and accessible web interface - Supports various team, department, and shift profiles for flexible application across different factory settings
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Resource Requirements

Resource Type	Description	Specification/Allocation
Hardware		
Computing Resources	CPU/GPU specifications, number of cores	Standard CPU (4 cores)
Memory	RAM specifications	8 GB
Storage	Disk space for data, models, and logs	512 GB SSD
Software		
Frameworks	Python frameworks	Flask
Libraries	Additional libraries	scikit-learn, pandas, numpy, matplotlib, seaborn, pickle
Development Environment	IDE	PyCharm
Data		
Data	Source, size, format	Kaggle dataset (Garments Worker Productivity), 93KB, CSV