Project Documentation

Name: Jayant Rajput

College: Rajkiya Engineering College, Kannauj

Year: 3rd Year

Branch: Computer Science and Engineering

Abstract

This project is a web-based machine learning application designed to predict the productivity of garment workers based on various input parameters. It uses a pre-trained machine learning model and provides predictions through a simple and user-friendly interface. The goal is to assist supervisors and managers in estimating worker productivity, which can help improve efficiency in the garment industry.

Objective

- To develop a web-based application for predicting garment worker productivity.
- To simplify productivity estimation using machine learning.
- To offer a user-friendly platform for non-technical users to make predictions easily.

System Overview / Workflow

1. Home Page: Introduction to the app.
2. About Page: Description of the project's purpose and technology.
3. Predict Page: Input form for user to enter data.
4. Submit Page: Displays the predicted productivity result.
5. Contact Form: Allows users to send queries (optional).

Workflow Diagram:

User Input -> Submit Data -> ML Model Predicts -> Display Result

Technology Stack

- Backend: Python (Flask Framework)

- Frontend: HTML, CSS (with animations and responsive design)

- Machine Learning: Scikit-learn, Numpy, Pandas

- Model File: Pickle (.pkl) file to load trained ML model

- Dataset Source: Garment worker productivity dataset (open-source)

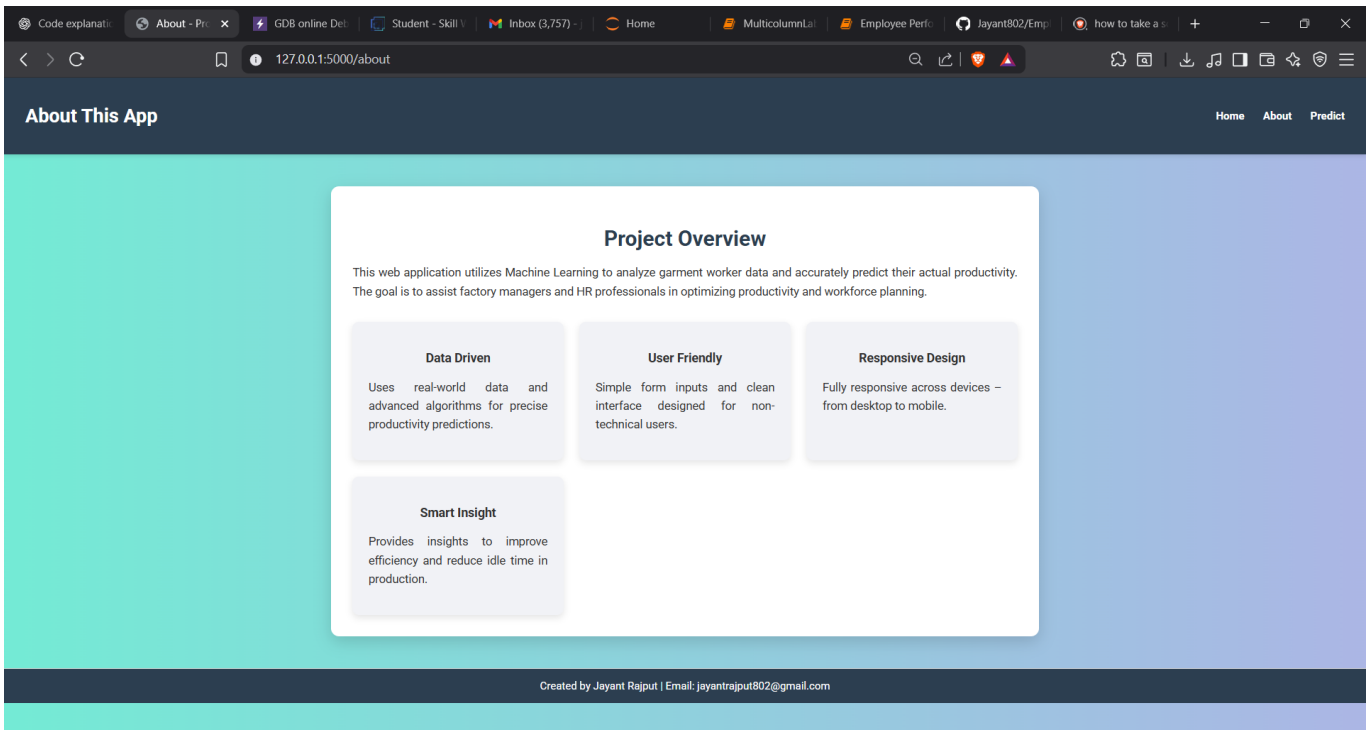
Machine Learning Model Overview

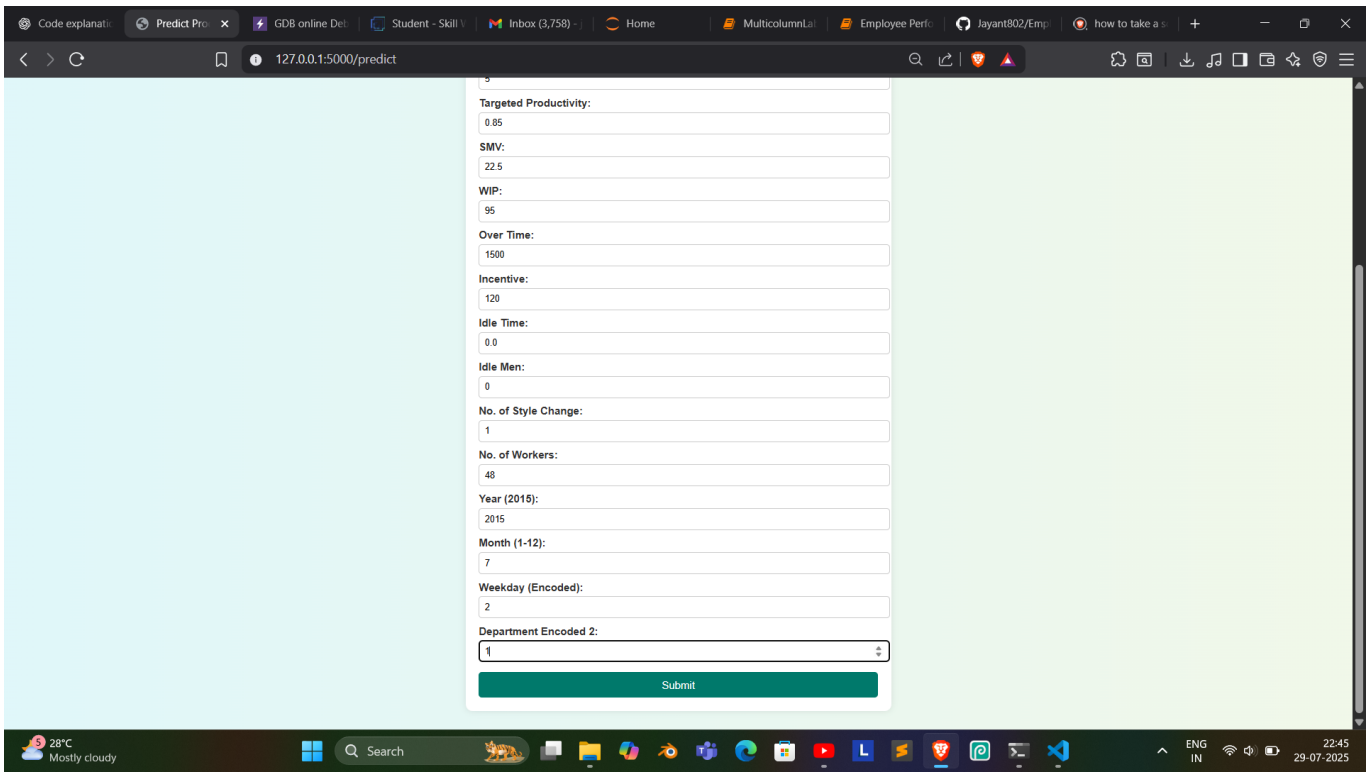
- Input Features: quarter, department, day, team, targeted_productivity, smv, wip, over_time, incentive, idle_time, idle_men, no_of_style_change, no_of_workers, year, month, weekday

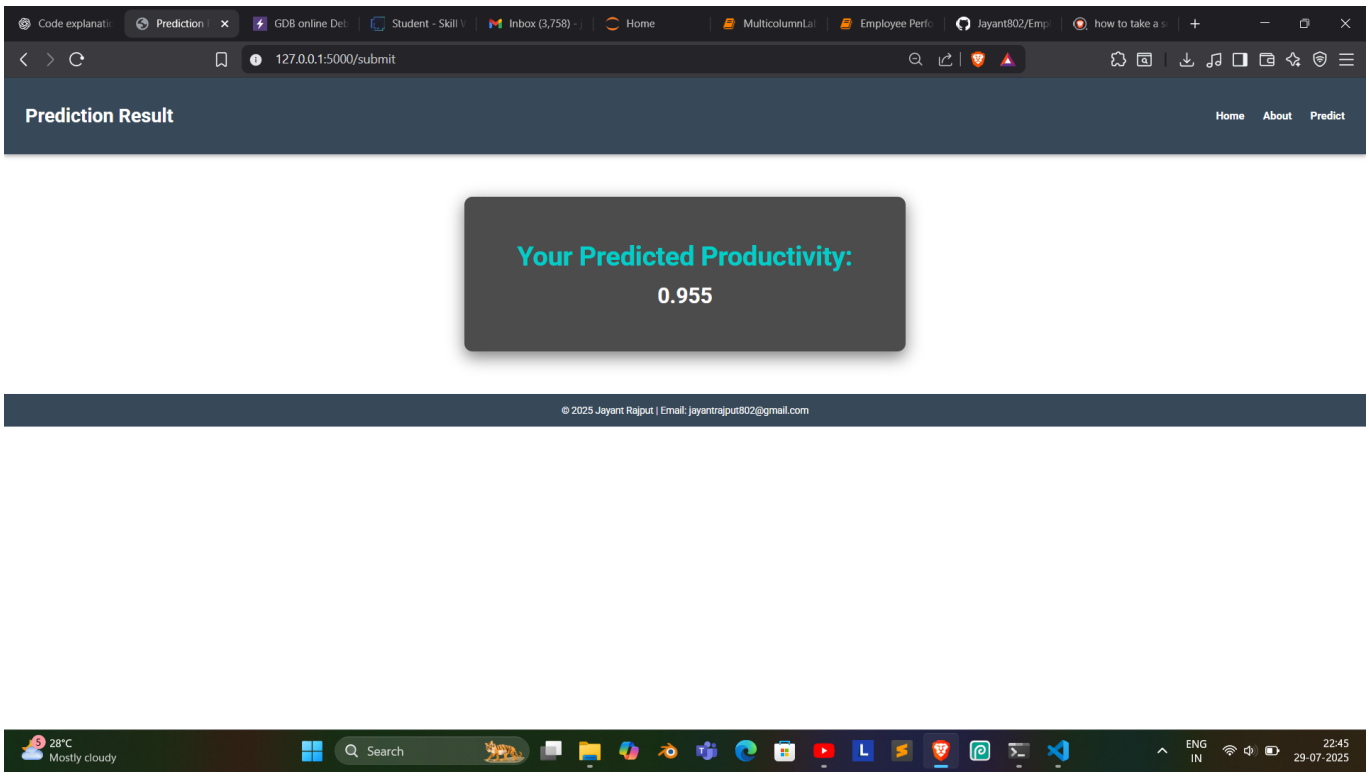
- Algorithm Used: Linear Regression

- Model Accuracy: Approx. 70%-80% (varies based on dataset split)

Screenshots


127.0.0.1:5000/about
About This App
Home
About
Predict
Project Overview
This web application utilizes Machine Learning to analyze garment worker data and accurately predict their actual productivity. The goal is to assist factory managers and HR professionals in optimizing productivity and workforce planning.
Data Driven
Uses real-world data and advanced algorithms for precise productivity predictions.
User Friendly
Simple form inputs and clean interface designed for non-technical users.
Responsive Design
Fully responsive across devices – from desktop to mobile.
Smart Insight
Provides insights to improve efficiency and reduce idle time in production.
Created by Jayant Rajput | Email: jayantrajput802@gmail.com


127.0.0.1:5000/predict
Targeted Productivity:
0.85
SMV:
22.5
WIP:
95
Over Time:
1500
Incentive:
120
Idle Time:
0.0
Idle Men:
0
No. of Style Change:
1
No. of Workers:
48
Year (2015):
2015
Month (1-12):
7
Weekday (Encoded):
2
Department Encoded 2:
1
Submit


127.0.0.1:5000/submit
Prediction Result
Home
About
Predict
Your Predicted Productivity:
0.955
© 2025 Jayant Rajput | Email: jayantrajput802@gmail.com

28°C
Mostly cloudy
Search
ENG
IN
22:45
29-07-2025

Conclusion

This project demonstrates how machine learning can be integrated into a simple web application for real-world use. It predicts garment worker productivity effectively and provides a user-friendly interface for non-technical users. Future improvements may include enhancing model accuracy, adding more advanced analytics, and deploying the application online.

Contact

Developer: Jayant Rajput

Email: jayantrajput802@gmail.com