# HR Analytics: Workforce Productivity Analysis in the Garment Industry

### Main Project Report

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Course: Data Analytics - Entri Elevate

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#### Introduction

The garment industry is a labor-intensive sector where workforce productivity is central to profitability and operational efficiency. This project analyzes patterns and drivers of productivity using HR Analytics to derive actionable insights.

#### **Dataset Description**

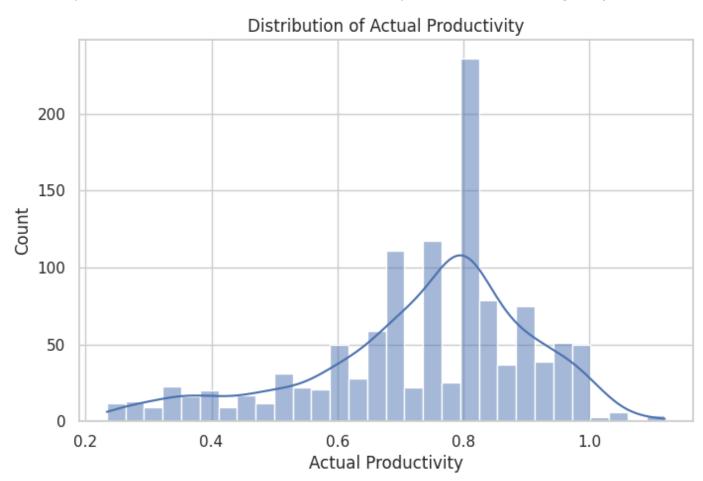
Dataset: Garment Worker Productivity - 1,197 rows x 15 columns (Date, Department, Quarter, Team, Targeted Productivity, Actual Productivity, Overtime, Incentives, Idle Time, etc.).

#### Methodology

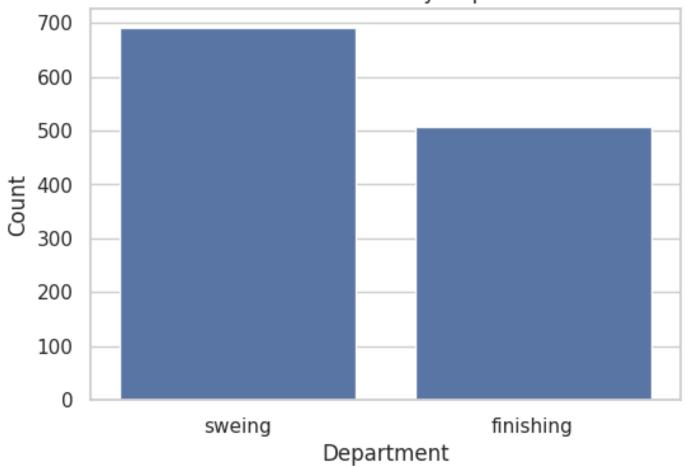
1) Data Cleaning (missing values, date parsing, categorical standardization). 2) Feature Engineering (Season, Quarter grouping). 3) EDA (distribution, time-series, department/team comparisons). 4) Relationship checks (overtime, incentives vs actual productivity).

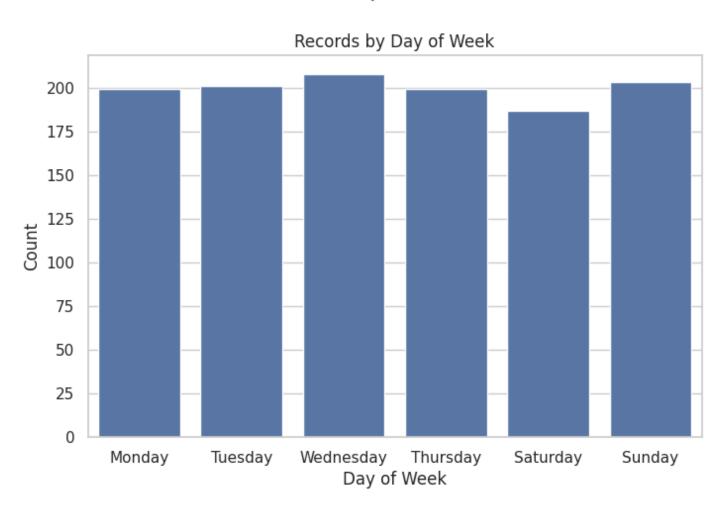
#### Key Findings & Insights

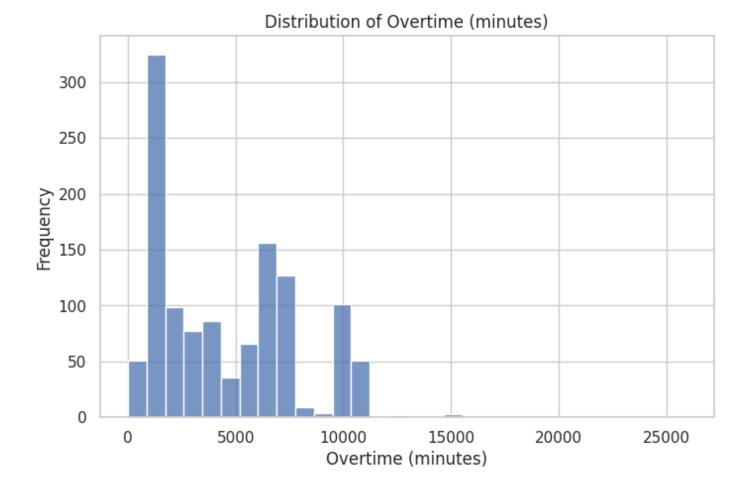
Selected plots below illustrate the most decision-relevant patterns observed during analysis.

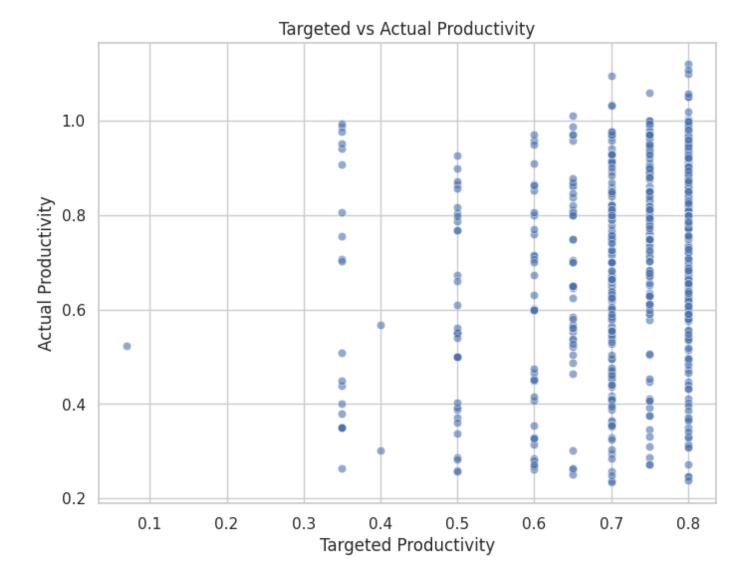


# Number of Records by Department



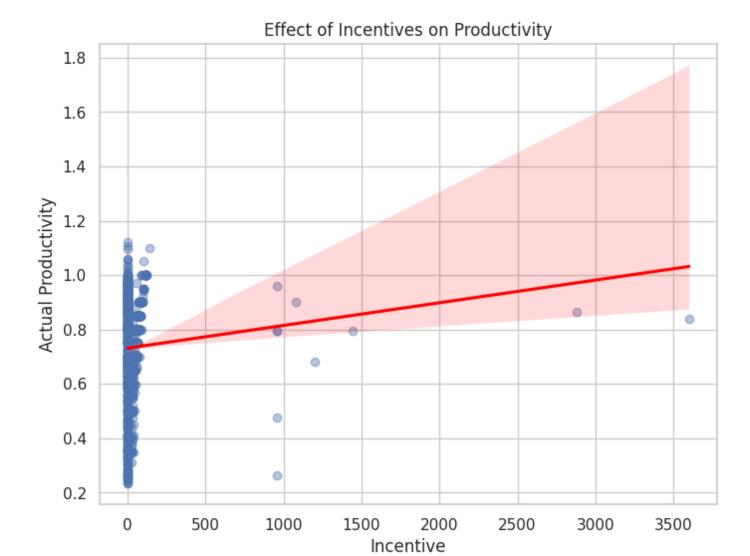




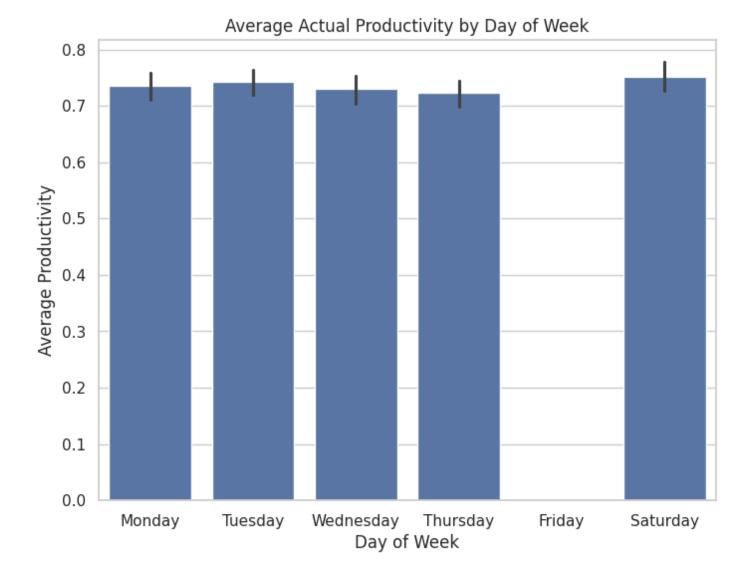


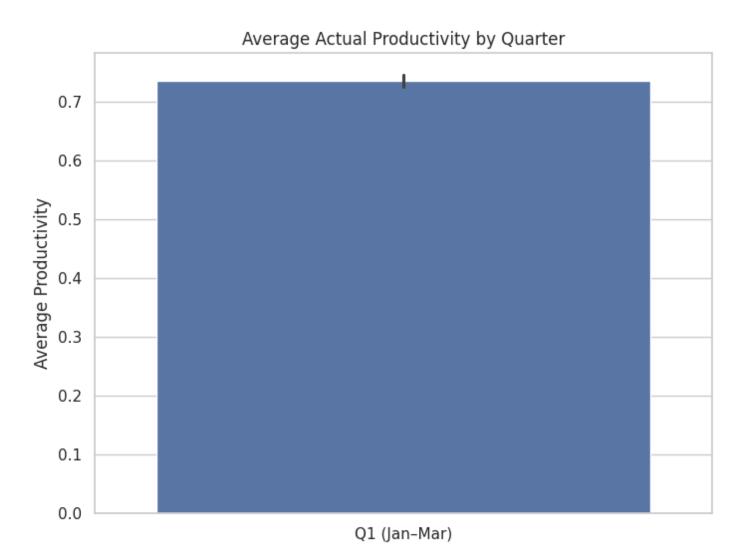
## Appendix: Additional Visualizations





Correlation Heatmap of Numerical Variables - 1.0 1.00 -0.11 -0.10 -0.08 -0.15 team targeted productivity 1.00 -0.07 -0.09 -0.06 -0.21 -0.08 0.42 - 0.8 -0.11 -0.07 1.00 0.67 0.11 0.32 0.91 -0.12 smv 1.00 wip 0.08 - 0.6 -0.10 -0.09 0.67 1.00 over\_time 1.00 0.08 - 0.4 incentive idle\_time -0.06 1.00 0.56 -0.08 - 0.2 idle men -0.05 0.11 -0.04 0.56 1.00 0.13 0.11 -0.18 -0.01 -0.21 0.32 0.13 1.00 no\_of\_style\_change 0.33 -0.21 - 0.0 -0.08 0.91 -0.08 0.11 0.33 1.00 -0.06 no of workers -0.12 0.08 0.08 -0.18 -0.21 actual\_productivity -0.15 0.42 -0.08 1.00 -0.2team smv wip over\_time idle\_time idle\_men actual\_productivity targeted\_productivity incentive no\_of\_style\_change no\_of\_workers





Quarter