

## Model Development Phase Template

Date	7th July 2024
Team ID	739719
Project Title	Garment Workers Productivity Predictions
Maximum Marks	5 Marks

### Feature Selection Report Template

Document feature selection for data overview describes dataset and feature types, feature exploration are handle missing data, feature types, and engineering, analyse methods used, top features identified. techniques applied for final feature selection.

Feature	Description	Selected (Yes/No)	Reasoning
Feature 1 Worker Skill Level	A measure of the proficiency and experience of individual workers in performing their assigned tasks. Highly skilled workers contribute to higher productivity and efficiency, as they can complete tasks faster and with fewer errors.	Yes	<p>Including Worker Skill Level as a feature helps in accurately predicting productivity, as it directly influences the efficiency and effectiveness of the workforce.</p> <p><b>Experience:</b> Experienced workers perform tasks faster and with greater accuracy.</p> <p><b>Training:</b> Well-trained workers are adept at handling complex tasks and troubleshooting issues.</p> <p><b>Consistency:</b> Skilled workers maintain a high level of performance, contributing to consistent productivity.</p> <p><b>Error Reduction:</b> Higher skill levels reduce the rate of errors, leading to less rework and waste.</p>

Feature 2 Work Shift	The specific period during which workers perform their duties, typically categorized as day shift, evening shift, or night shift.	Yes	<p>Different shifts can lead to variations in productivity due to factors such as worker fatigue, circadian rhythms, and shift-specific management practices. For example, day shifts may benefit from higher natural alertness and better access to resources, while night shifts might face challenges such as reduced supervision and higher fatigue levels.</p> <p><b>Shift Timing:</b> Whether the shift is in the morning, afternoon, or night.  <b>Shift Length:</b> Duration of the shift, including start and end times.  <b>Shift Rotation:</b> Whether workers rotate between different shifts or maintain a consistent schedule.  <b>Break Schedules:</b> Timing and frequency of breaks within the shift.</p>
<b>Recursive Feature Elimination (RFE):</b>	A feature selection technique that recursively removes the least important features to identify the most relevant subset for model training.	No	<p>RFE helps in improving model performance by eliminating irrelevant or redundant features, thus reducing overfitting and enhancing generalization.</p> <p><b>Model Training:</b> An initial model (e.g., linear regression, decision tree) is trained on all features.  <b>Feature Ranking:</b> Features are ranked based on their importance or contribution to the model's performance.  <b>Feature Removal:</b> The least important feature(s) are removed from the dataset.  <b>Reiteration:</b> Steps 1-3 are repeated on the reduced dataset until the desired number of features is reached.</p>

