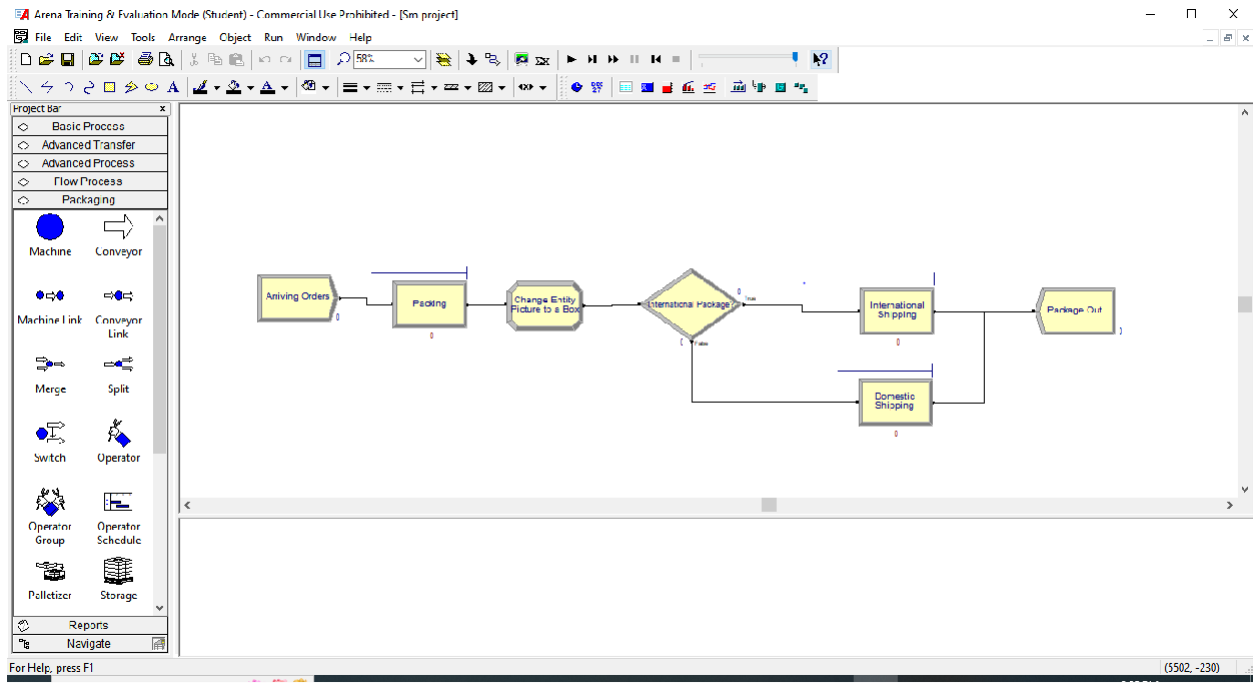


Simulation and Modeling Project Report:

Done By:

21k-3881 (Taha Jawaidd)



Deliverables Report:

Model Diagram:

The model diagram created within Arena Software provides a detailed graphical representation of the system under study. It illustrates the various entities, processes, and interactions defined within the model. Entities represent the different components or elements within the system, while processes simulate the activities and workflows that occur. Interactions among entities and processes depict the dynamic nature of the system and how different elements interact with each other. The model diagram serves as a visual tool to understand the structure and behavior of the system, aiding in the identification of potential bottlenecks and areas for improvement.

Simulation Results:

The simulation results present data and analysis obtained from running the model multiple times. Through the simulation runs, key performance indicators such as throughput, cycle time, resource utilization, and queue lengths were analyzed to evaluate the system's efficiency and effectiveness. The results highlight areas of strengths and weaknesses within the system, identifying potential bottlenecks, underutilized resources, and areas of congestion. Sensitivity analysis was conducted to assess the impact of key parameters on system performance, providing insights into the factors that significantly influence system behavior. The simulation results serve as a basis for further analysis and decision-making to optimize system performance.

Final Report:

The final report consolidates the modeling process, simulation results, analysis, and recommendations into a comprehensive document. It begins with an introduction to the problem statement, providing context for the simulation study. A description of the model and simulation methodology follows, outlining the steps taken to develop the model within Arena Software and conduct the simulation runs. The presentation of results and findings summarizes the key performance indicators and insights derived from the simulation analysis. A discussion of insights and implications delves deeper into the implications of the findings and their significance for decision-making. Finally, recommendations are provided based on the analysis of simulation results, offering actionable steps to improve system performance. The final report serves as a valuable resource for stakeholders involved in managing and optimizing the system, guiding them towards informed decision-making and continuous improvement efforts.

This deliverables report encapsulates the key components of the simulation study, providing a comprehensive overview of the model, results, and recommendations generated through the process.