IE381/3081 – Modeling and Discrete Simulation Course

Marmara University, Istanbul, Turkey
January 11, 2021

Project

The project consists of two phases. Three homework are assigned in the Phase 1 which includes initial actions for the final project. This document describes the final project defined for the Phase 2.

Phase 2: In the second phase, you are required to build the model, simulate and perform evaluation.

For the system you defined in Phase 1, build your model and simulate the system. Please answer the following items;

- Collect data on the system you built. Regarding the input parameters,
    - Estimate the mean values for the output (performance) parameters you defined above. You have to run (replicate) the simulation several times with different seed values. Estimates should be the mean of all runs (replications).
    - Compute the 95% confidence intervals for the output parameters.
    - Estimate the total number of replications needed to estimate mean output parameters with 10% enhancement (narrowing the CI for 10%).
    - Compute the 95% prediction intervals for the output parameters.

- Change your system design and collect data on the changed system. Answer the following questions:
    - Are these two systems (first one and the changed one) statistically different? Please answer your question for the 95% confidence interval.
    - Estimate the additional replications needed to reduce the half-width of the confidence interval by 10% for the differences of the estimated values of the performance parameters.

Deliveries:

The following deliveries will be submitted via personal ***Turnitin*** account.

1. The ***model*** designed in AnyLogic. Please use the link for “Project Code” in Turnitin.
2. A ***report*** including the following items. Please use the link for “Project Report” in Turnitin.

a. Description of the following items:
    - The system you built.
    - Components of the systems and their relationships.
    - Input and output parameters and the values of the input values.
b. Answers to the questions above.

This is an individual/group project for students. Collaboration and cooperation between groups are not allowed.

Due date is January 28, 2021, until 23:59.

Ask any unclear matter to the lecturer. Good luck…

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