

## IE381/3081 – Modeling and Discrete Simulation Course

Marmara University, Istanbul, Turkey

October 07, 2018

### Homework 2

Considering the Example 2.5 (named as “Grocery Checkout”) in the textbook, simulate a single-server queue system. Use the same terminology given in the example.

- 1.) Build the simulation model and define the scenario with the given input values (e.g. arrival and service distributions). Analyze the system simulating the arrival and service of the customers. Measure the performance of the system.
- 2.) Replicate the model or build a new scenario with new arrival and service distributions. Values will be your own. Measure the performance of the new system.
- 3.) Compare two systems based on performance metrics. Make your comments on the performance results and their comparison.

### **Deliveries:**

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

- a) The **model** designed in AnyLogic (latest version). Please use the link for “Homework-2 Code” in Turnitin.
- b) A **report** including the following items. Please use the link for “Homework-2 Report” in Turnitin.
  - Answers to the 7 questions given in the Example 2.5
  - Outputs for the following performance measures for both scenarios:
    - Customer’s average waiting time.
    - Proportion of time that the server is idle.
  - Comparisons and discussion on the results.

This is an individual homework for students. Group study, collaboration, and cooperation are not allowed.

Due date is October 22, 2018.

Ask any unclear matter to the lecturer. Good luck...

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