



FAKULTÄT FÜR
INFORMATIK

Lehrstuhl für Simulation

Introduction to Simulation

Assignment 8: Queue Ordering

- A machine processes high-priority jobs and low-priority jobs.
 - Both types of job arrive at a queue where they wait to be processed.
 - The inter-arrival times are as follows:
 - High-priority jobs: $\sim \text{Exp}(20)$
 - Low-priority jobs: $\sim \text{Exp}(7)$
 - The service times are as follows:
 - High-priority jobs: $\sim N(10, 2)$
 - Low-priority jobs: $\sim N(4, 1)$
 - You make 50 €profit for completing a high-priority job and 10 €profit for completing a low-priority job.
 - Jobs that remain in the system for more than 50 time units are "late".
 - The jobs in the queue can be ordered in different ways. The ordering affects the behaviour of the system.
1. Implement a simulation model of this system in AnyLogic, which counts the number of high-priority and low-priority jobs processed by the machine.
 2. Devise and test a queuing strategy that will maximise your profits.
 3. Devise and test a queuing strategy that will minimise the number of late jobs.
 4. Devise and test a queuing strategy that will maximise your profits if each late job costs 7€
 5. Can you explain your results?