**Simulation Lab – spring 2019**

Demonstration of Arena software – JAN 18

1. Home loan application process

Model and simulate simple home application process using Arena. The details of the process is given below.

The average interarrival time of the application is 2 hours. The review of the application follows triangular distribution whose parameters are minimum time in which work could be done, most likely value for the time delay, and the maximum duration of the process. The process delay parameters are 1, 1.75 and 3 respectively, and default time unit is in hours. The accept rate of application is found to be 80%. Replicate the model for 20 days and find the performance indicators.

1. Example Problem: Single Server Queuing Model (M/M/1)

Consider a single workstation consisting of a machine with an infinite buffer in front of it. Jobs arrive randomly and wait in the buffer while the machine is busy. Eventually they are processed by the machine and leave the system. Job interarrival times are exponentially distributed with a mean of 30 minutes, while job processing times are exponentially distributed with a mean of 24 minutes. Simulate the model in Arena software.

1. Manufacturing process problem

Using arena model and simulate a manufacturing process which contains 4 process, which are done on 4 separate machines. The maximum capacity of machine to process parts in hours is given as1, 2, 3, and 2.Simulate the system..

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| --- | --- | --- | --- |
| Machine | Processing time | Units | Capacity |
| 1 | EXPO (12) | Minutes | 1 |
| 2 | EXPO (6) | Minutes | 2 |
| 3 | EXPO (9) | Hours | 3 |
| 4 | EXPO(10) | Minutes | 2 |