

Discrete Event Simulation and Implementation

Assignment #01 (2021)

Simple Arrival and Leave Monitoring

- (1) Make sure your Visual Studio tool have MS Chart component available (available from .NET Framework 4). This project is getting familiar with charting programming in using the MS .NET UI component MS Chart.
- (2) Develop a Windows application that can graphically display job count in a job service system. A job enters the system at a known time spot and the system immediately provides service for it. The job leaves the system immediately after the service is done. The arrival time and the service time required of all jobs are specified in a text file, in which the job data are sorted in increasing orders of arrival times. The file format is:

NumberOfJobs

ArrivalTimeOfJob[1] ServiceTimeOfJob[1]

ArrivalTimeOfJob[2] ServiceTimeOfJob[2]

... ..

ArrivalTimeOfJob[NumberOfJobs] ServiceTimeOfJob[NumberOfJobs]

Sample File:

```
10
15 43
47 36
71 34
111 30
123 38
152 40
166 31
226 29
310 36
320 30
```

- (3) The application should be able to read in such text file and then display the count of jobs as a stepped line in a 2D chart with horizontal axis representing the time. In addition, prepare a UI to let users specify basic information about the times and use a random number generator to create

a random sample file. The basic information might be the average inter-arrival time and average service time coupled with deviations.

(4) Snapshot of a sample app:



