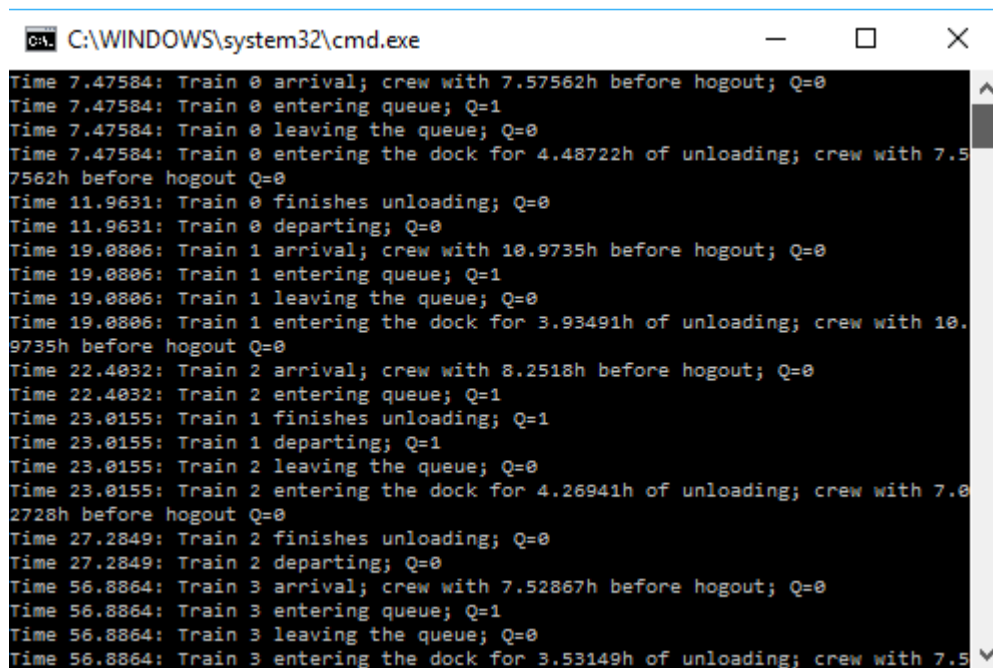Patrick Jose

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CS 115

Professor Hayes

<div align="center">Assignment #1 – Train Unloading Dock</div>

The amount of trains that get served within a 7200 hour period is around 720 trains, which

matches the estimated trains served, given that trains arrive at the station as a Poisson process on

average once every 10 hours. The average time that a train spends in the system is 6 hours. A

train spends about 1.8 hours in queue. Other statistics are printed out at the end of the simulation

(shown in the figure below). For this assignment, I was unable to gather the percentage of time

the loading dock is busy, idle, and hogged out accurately. I was also unable to create a histogram

of the number of times a train hogged out. However, my simulation is complete and accurate and

takes into account that trains hog out more than once.

```
C:\WINDOWS\system32\cmd.exe                                    —    □    ✕

Time 7176.45: Train 715 entering the dock for 3.56973h of unloading; crew with 2
.22946h before hogout Q=0
Time 7178.31: Train 716 arrival; crew with 10.5732h before hogout; Q=0
Time 7178.31: Train 716 entering queue; Q=1
Time 7180.02: Train 715 finishes unloading; Q=1
Time 7180.02: Train 715 departing; Q=1
Time 7180.02: Train 716 leaving the queue; Q=0
Time 7180.02: Train 716 entering the dock for 3.95134h of unloading; crew with 7
.14058h before hogout Q=0
Time 7183.98: Train 716 finishes unloading; Q=0
Time 7183.98: Train 716 departing; Q=0
Time 7186.89: Train 717 arrival; crew with 8.65862h before hogout; Q=0
Time 7186.89: Train 717 entering queue; Q=1
Time 7186.89: Train 717 leaving the queue; Q=0
Time 7186.89: Train 717 entering the dock for 3.80033h of unloading; crew with 8
.65862h before hogout Q=0
Time 7190.69: Train 717 finishes unloading; Q=0
Time 7190.69: Train 717 departing; Q=0

718 trains served
Average time in system: 6.20381
Maximum time in system: 25.407
Average time in queue: 1.83203
Max train queue size: 4
Loading dock spent hogged out: 0.0373386%
```