

Continued Exploration of Discrete Event Simulation

1 Train System

Modify the Elevator code to simulate a small train network as shown in Figure 1.

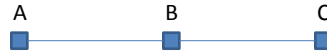


Figure 1. A simple train system.

The train is very similar to the elevator with a few small differences. The distance between A and B is given by D_{AB} and the distance between B and C is given by D_{BC} . One train serves the track between A and B and another train serves the track between B and C . Passengers have an arrival matrix identical to the elevator example from the previous lab. While the elevator did not, the train will model the amount of time spent boarding and exiting. It is assumed that this time is linear with a factor α in sum of the passengers exiting and passengers boarding at a particular stop. A passenger is defined to have exited when $\alpha * n$ seconds have elapsed since the train has stopped in the station where n is the number of exiting passengers. Similarly, a passenger is considered to have boarded a train when all passengers at the station have boarded and the train departs the station.

2 Problems

1. Estimate, using the simulation, the total average time a person needs to go to his destination. The total time consists of the waiting time in the train station and the time spent inside the train. This average should be provided per starting and destination floor.
2. Experiment with the parameters: $\lambda, C, K, D_{AB}, D_{BC}$ to see how the service times are affected.