



Programming Languages - Final Project

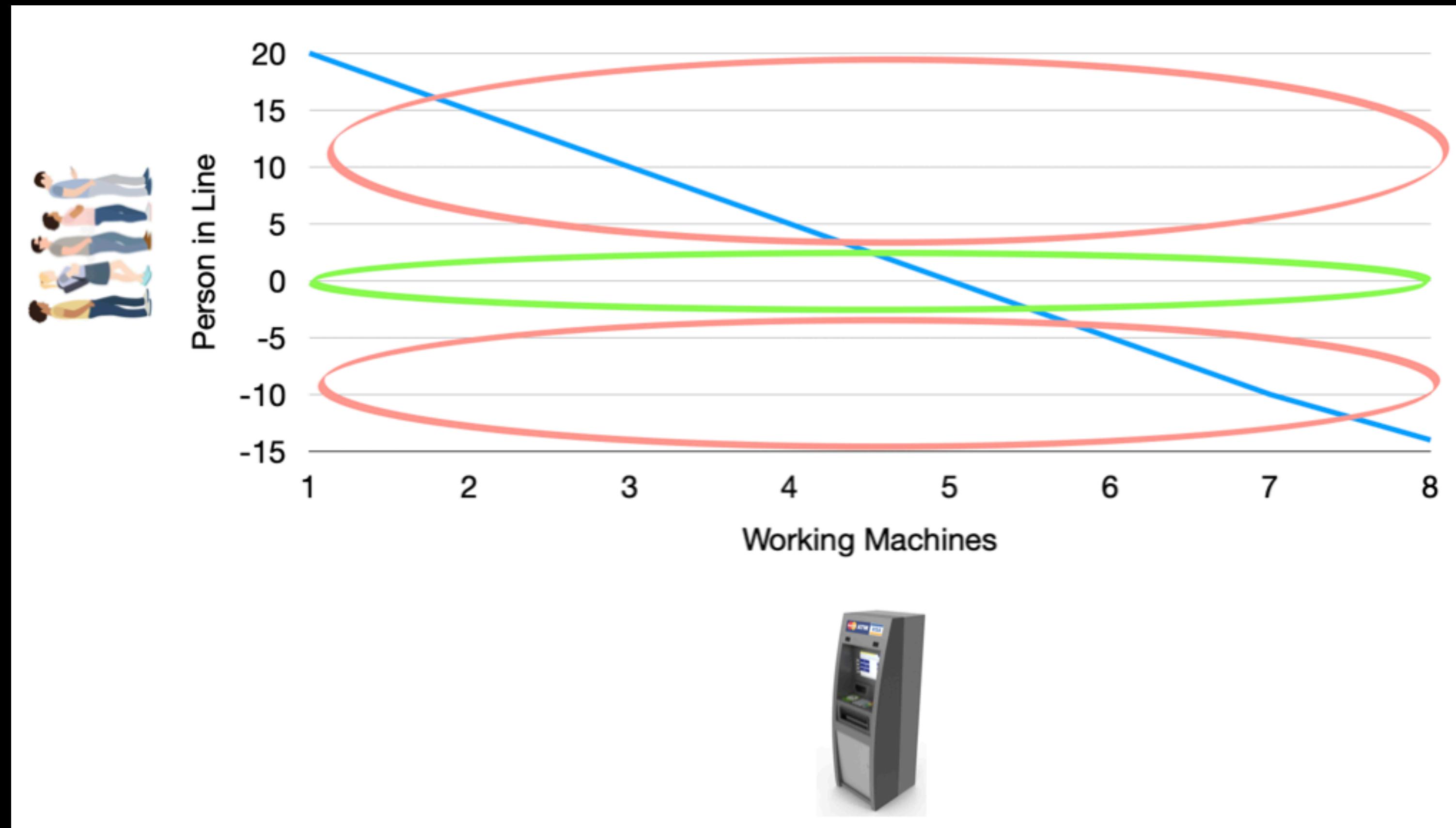
Miguel Angel Marines Olveras
A01705317

Project



Provide companies with a tool that helps calculate, at a specific day and hour, the ideal amount of machines or cash counters that need to be working in order to maintain short lines, but also keeping the operating costs low.

Project



1. When lines are too big, the persons decide to leave and go to other establishment or company, therefore the establishment loses clients or commissions for lost transactions.
2. When establishments have more machines or cash counters working than needed, the machines or cash counters generate unnecessary expenses for the companies.

The idea is to maintain the lowest number of machines or cash counters working, but always keeping a small line of persons waiting.

Data For the Simulation



1. Specific hour of the day.
 2. Number of working machines or cash counters, in a specific hour of the day.
 3. Number of persons that use the machines or cash counters, in a specific hour of the day.
 4. Average time of transaction.

Time



1 Hour - 1 Minute
1 Minute - 1 Second

Time of the simulation: 1 - 2 minutes

Concurrency



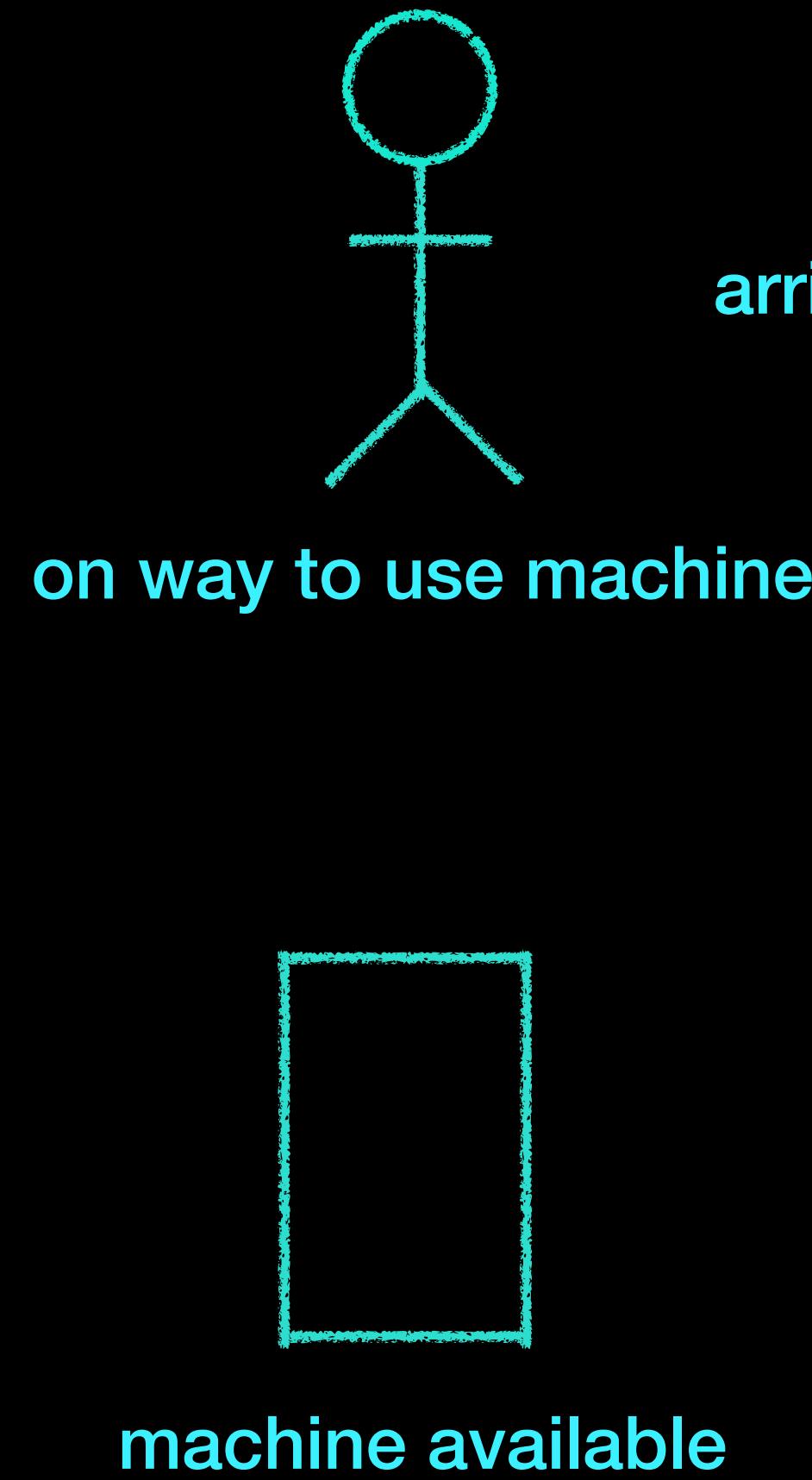
Allows and supports more than two actions in progress at the same time.

Essential to run the simulations because there are different actions in progress that need to be taken in to account.

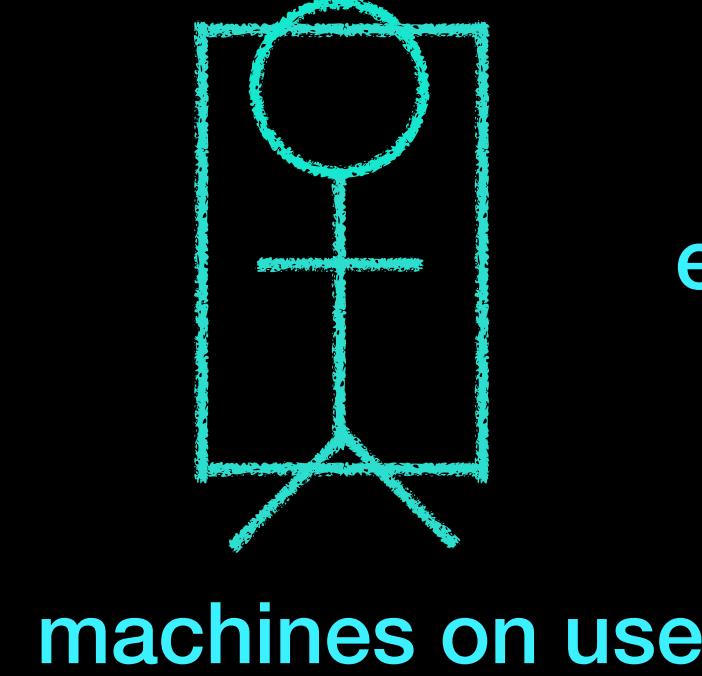
Actions that need to be taken into account:

1. The persons on their way to use a machine or cash counter.
2. The persons entering the waiting line to use the machine or cash counter.
3. The persons waiting in the line to use the machine or cash counter.
4. The persons exiting the waiting line to use the machine or cash counter.
5. The persons using the machine or cash counter.
6. The persons fishing using the machine or cash counter.

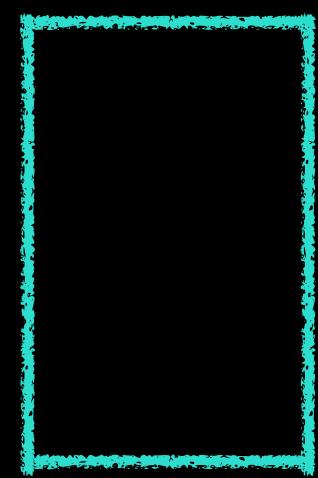
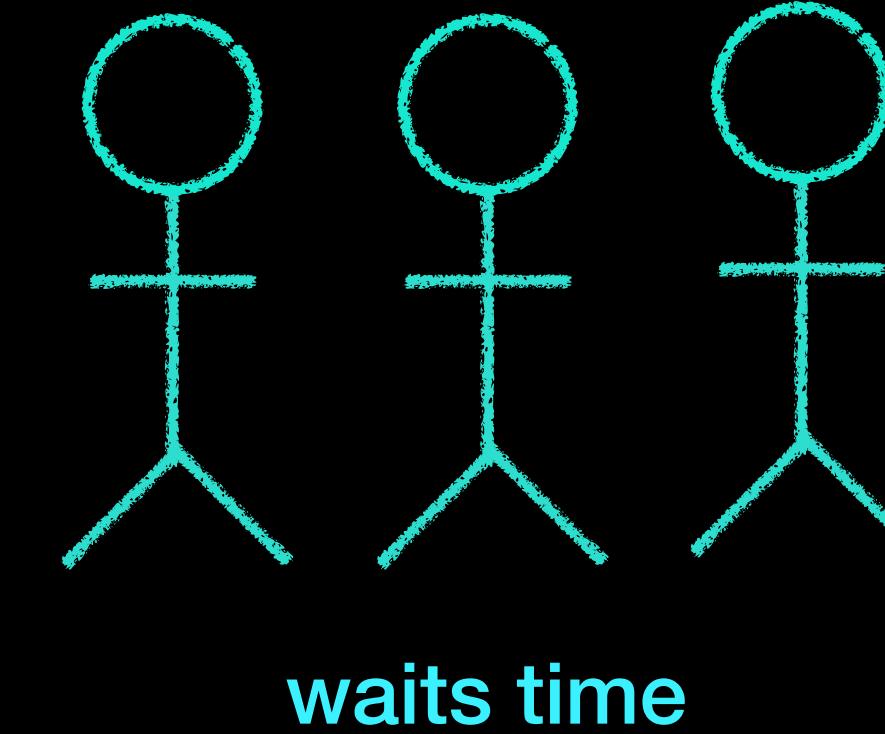
Simulation



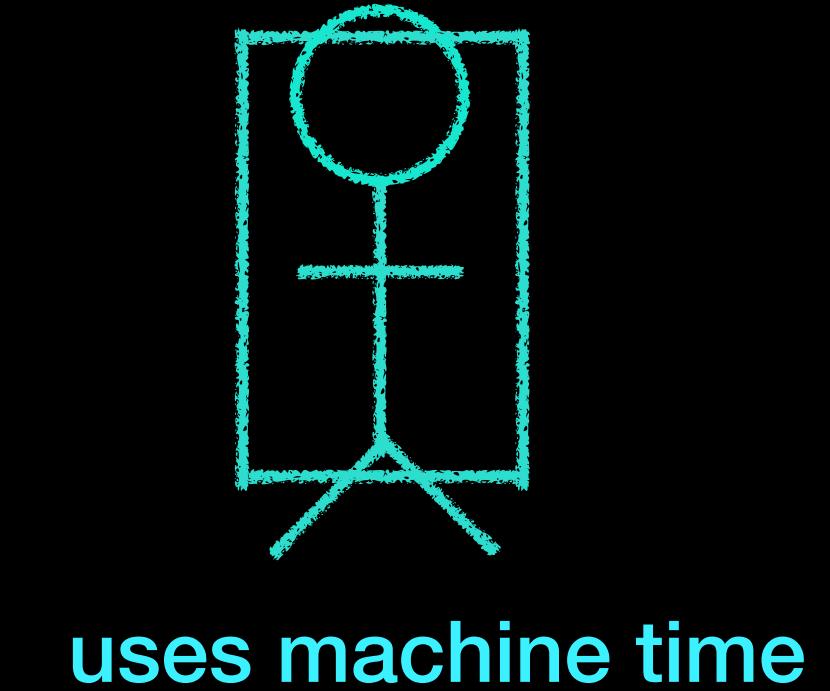
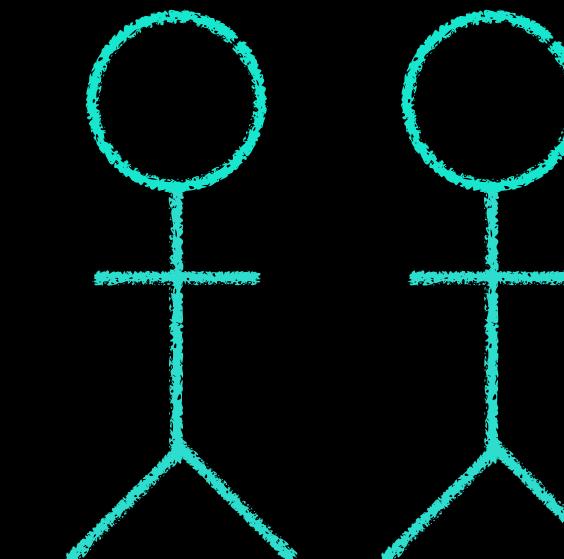
arriving time



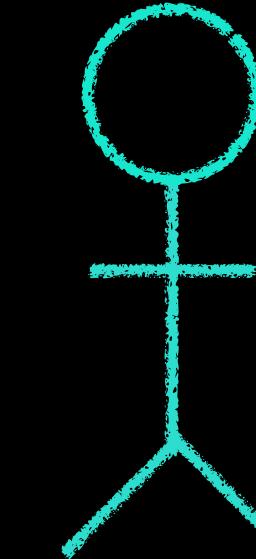
enters waiting line



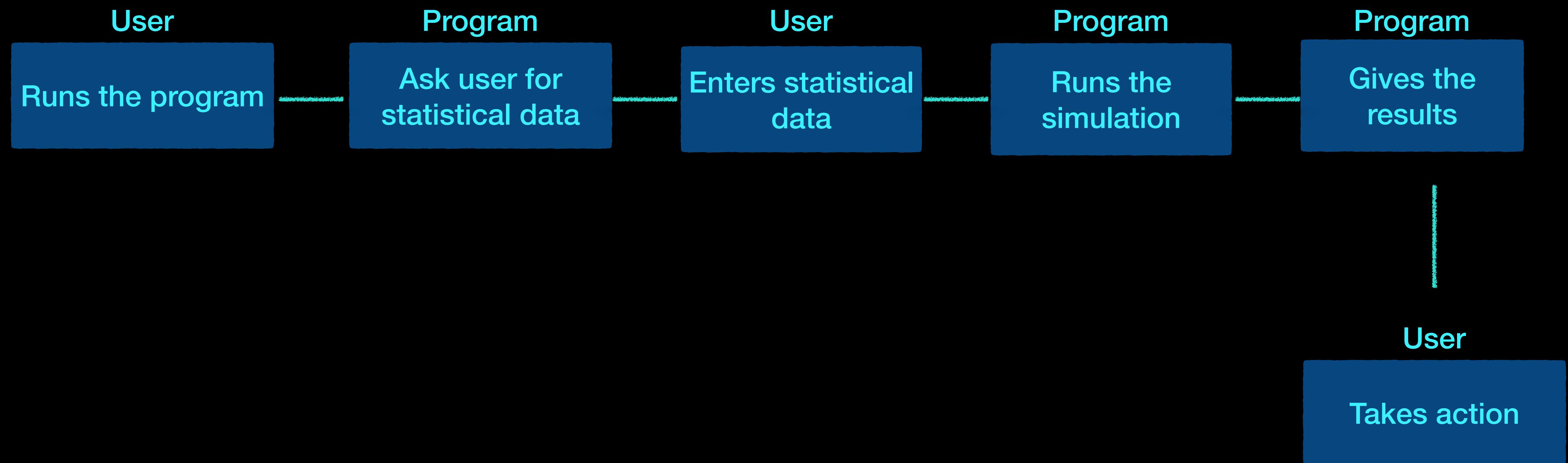
leaves line



leaves



Running the Program



Functioning

