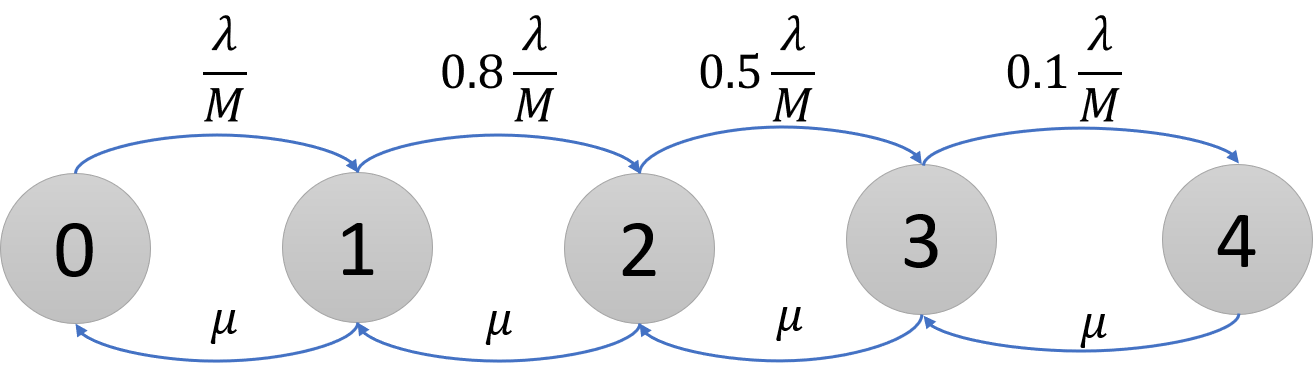
# Input 1

## Question 1.

The State diagram for a single test station looks in the following way. Provided that the arrival rate is distributed among all the test stations equally, the arrival rate for a single test station is then , where M is the number of test stations. The state diagram is finite, since it is given to us that the last probability of a visitor to stay is 0 ()



## Question 2.

The system is stable because it’s finite.

## Question 3.

Let us define in a bit different way to ease the calculations:

Then, the system of equations are:

The answers are:

## Question 4.

The mean arrival rate is calculated:

## Question 5.

Due to the Little law:

We have to calculate the in order to use it:

Thus:

## Question 6.

The mean for the wait time can be calculated using:

## Question 7.

The simulation results are the following: