

CS520 Assignment2 report

I used java and python. java to implement simulation system, python for 2D paint.

IDE: java(eclipse), python(sublime + terminal)

references:

The java code to get poisson number.

<http://stackoverflow.com/questions/1241555/algorithm-to-generate-poisson-and-binomial-random-numbers>

other codes are all mine.

parameters:

station number: 15

bus number: 5

drive time between station: 5 mins

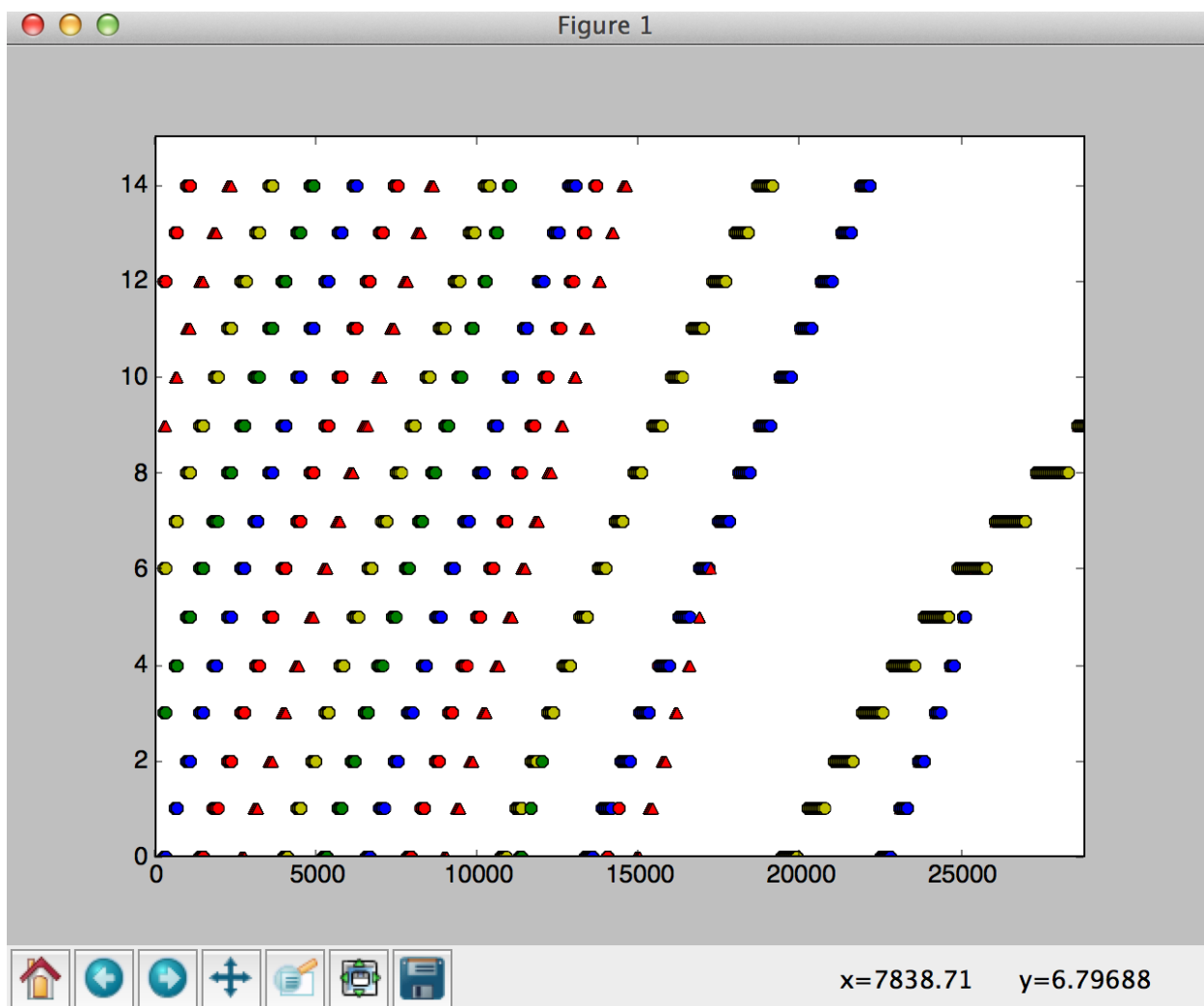
people average arrive time: 2 / min

boarding time: 3 seconds

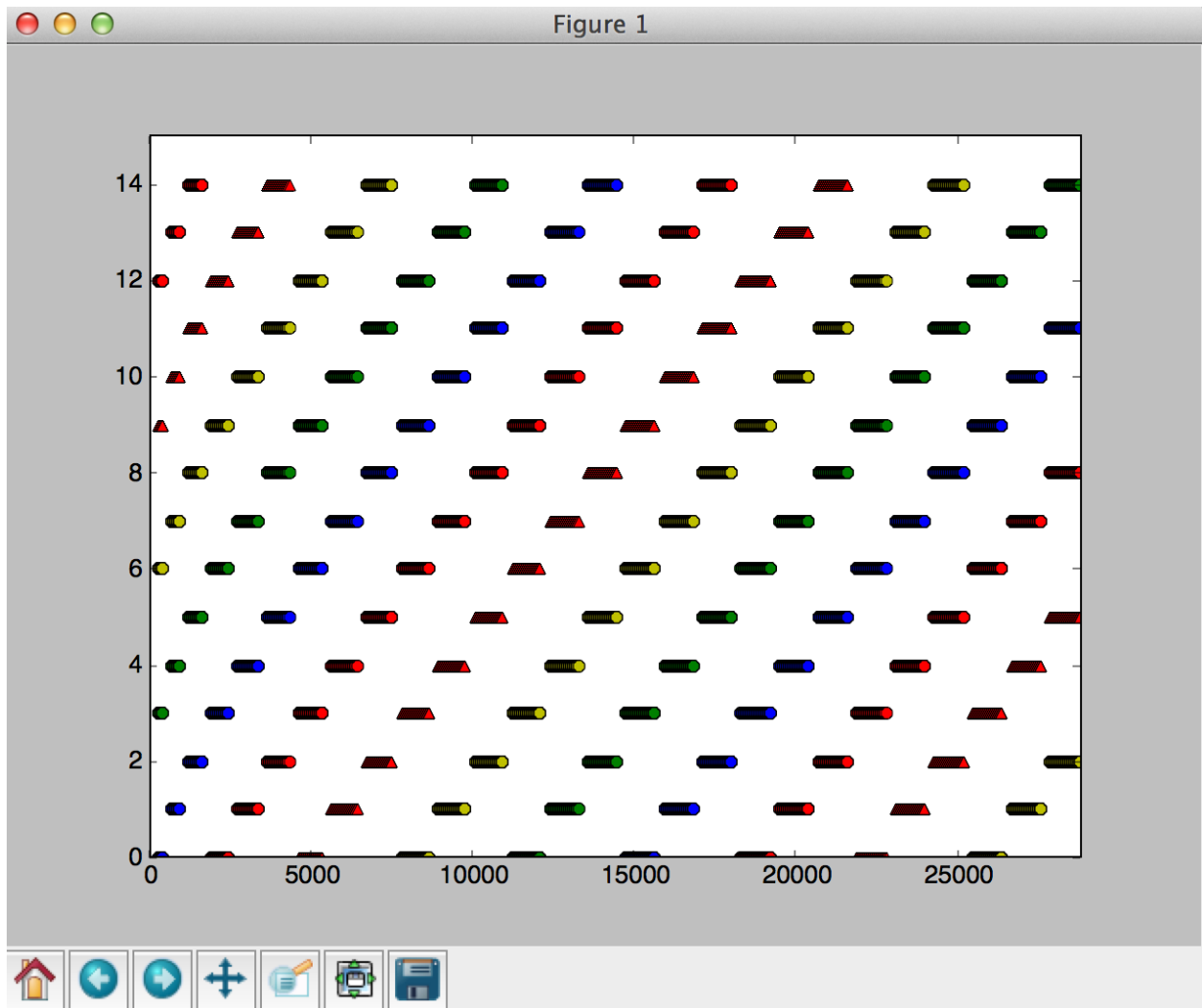
simulation time: 10 hours

two cases:

1. poisson distribution:
all buses will finally meet all together.



2. uniform distribution:
all buses will remain their distance forever.



so if will apply uniform distribution in person arrive schedule instead of poisson distribution, buses will keep uniform.

to test uniform distribution: in station.java class, replace all `getRandomPoisson()` function with `random()` function, and run under the same parameters.

min/max/average queue lengths of all stations: (1 hour based)



<terminated> Simulation [Java Application] /Library/Java/JavaVirtualMachines/jd

```
station: 0 min: 10 max: 38 avg: 28.  
station: 1 min: 20 max: 37 avg: 31.  
station: 2 min: 34 max: 40 avg: 37.  
station: 3 min: 10 max: 40 avg: 28.  
station: 4 min: 20 max: 39 avg: 32.  
station: 5 min: 33 max: 39 avg: 36.  
station: 6 min: 9 max: 38 avg: 28.  
station: 7 min: 22 max: 40 avg: 33.  
station: 8 min: 32 max: 39 avg: 35.  
station: 9 min: 10 max: 38 avg: 28.  
station: 10 min: 19 max: 38 avg: 31.  
station: 11 min: 33 max: 38 avg: 35.  
station: 12 min: 10 max: 41 avg: 28.  
station: 13 min: 20 max: 40 avg: 33.  
station: 14 min: 32 max: 38 avg: 35.
```