Programing Assignment 1 - Report

Problem 1

Output

```
971        481.427              0.0700964
972        481.722              1.05703
973        482.782              0.967738
974        483.647              0.160445
975        484.41               0.708819
976        484.522              1.13116
977        484.655              0.0507389
978        484.795              1.88989
979        485.33               0.217331
980        485.504              0.0256819
981        485.956              0.0667677
982        486.292              5.07901
983        486.33               0.117014
984        487.916              0.29206
985        488.002              2.2379
986        488.572              1.38138
987        490.194              0.134693
988        490.45               1.83821
989        491.136              0.253814
990        493.397              0.752272
991        494.055              0.209181
992        494.17               3.37794
993        494.306              0.598049
994        495.15               2.25498
995        495.668              0.11517
996        496.934              0.275671
997        497.029              0.526299
998        497.163              0.284262
999        497.529              0.214101
1000       497.877              1.13213

<Actual Average Arrival Rate: 2.00853 processes per second, Actual Average Service Time: 1 seconds>
```

Problem 2 A

Make the system uptime to 0 then generate random failure times for each server with a rate parameter of 1 / MTBF. We then add 10 hours to the system downtime (restoration time) when a server fails. Repeat steps 2 and 3 until the total simulation time reaches 20 years (assuming 24 hours per day and 365 days per year).

Problem 2 B

Simulating the scenario where both servers fail within the 10-hour restoration time first and then running the simulation multiple times with different seeds allows us to compute the average downtime.