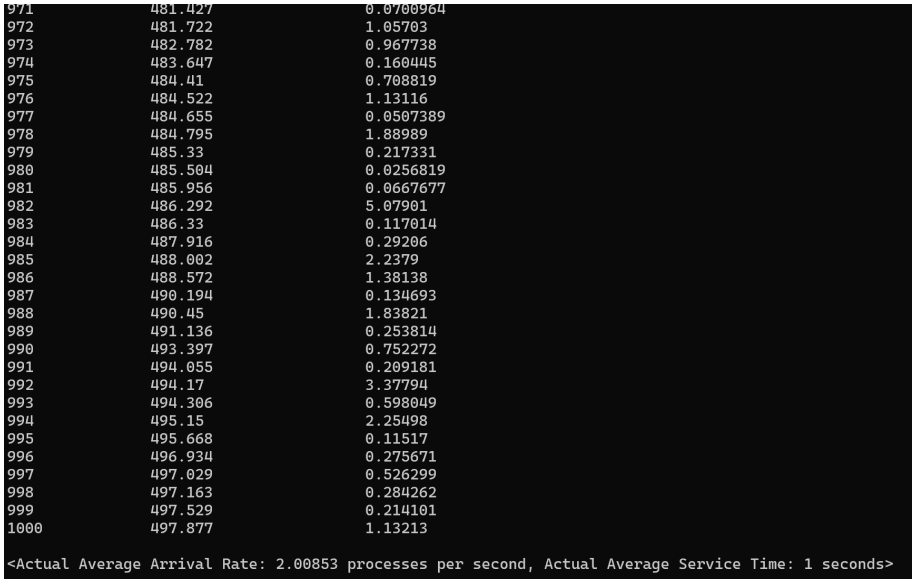
Programing Assignment 1 - Report

Problem 1

Output



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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>
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Problem 2 A

1. Make the system uptime to 0.
2. Generate random failure times for each server with a rate parameter of 1 / MTBF.
3. When a server fails, add 10 hours to the system downtime (restoration time).
4. 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

1. Simulate the failure scenario:Generate random failure times for both servers independently.If the difference between the failure times is less than or equal to 10 hours, consider it a system failure.
2. Repeat the simulation multiple times with different seeds for the random number generator.
3. Compute the average time until system failure.