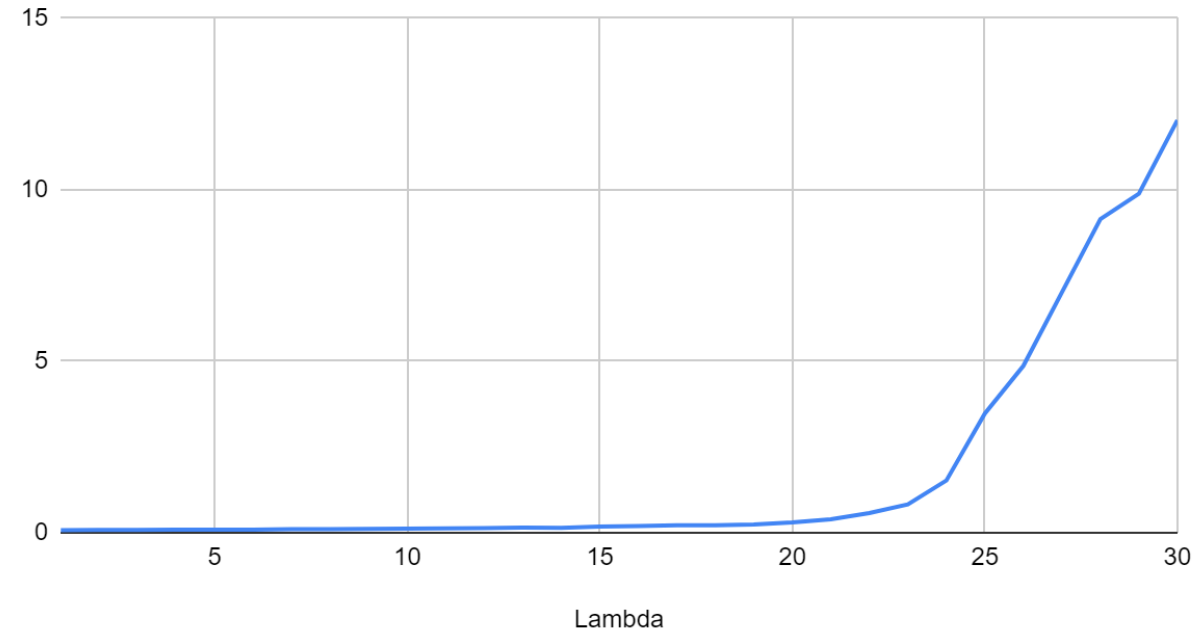
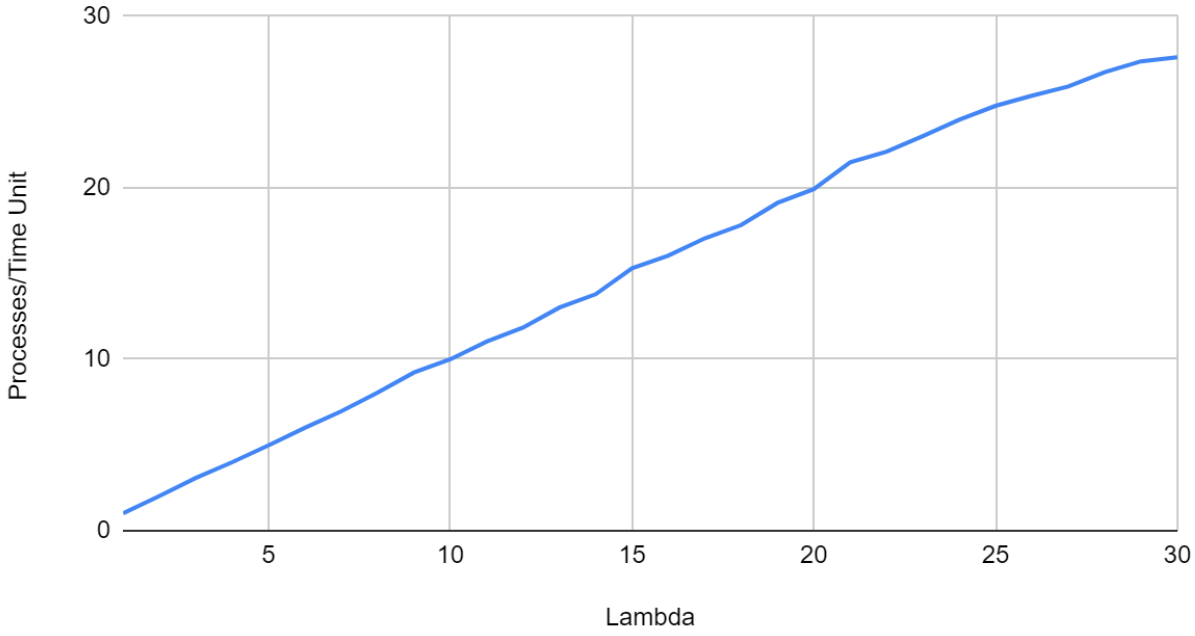
The graphs provided below provide sufficient evidence that this system is effectively bottle-necked by the Disk. As lambda increases, each of the statistics increase: This includes the utilizations, and at lambda = 25, Disk utilization draws very near to 100% utilization. Once it approaches this point, the turnaround time and # of processes in queues (especially the disk queue) starts to increase rapidly. Meanwhile, the increase of throughput begins to flatten out. Overall, this indicates that, after achieving over 25 processes per second, the system will not be able to keep up with its throughput.

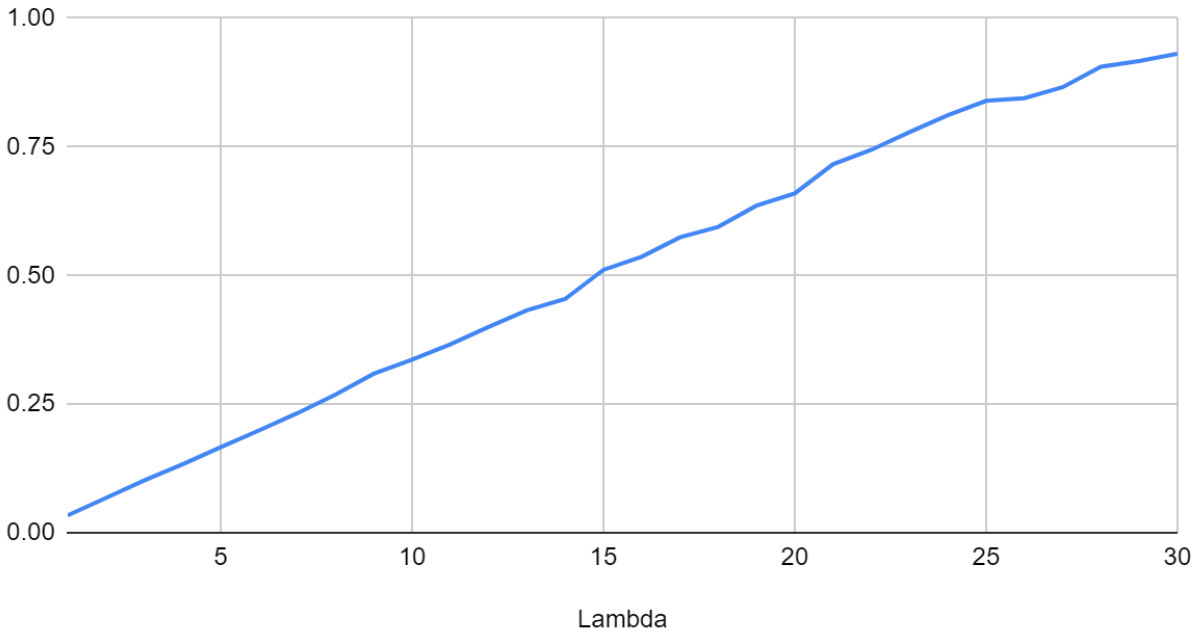
Avg Turnaround



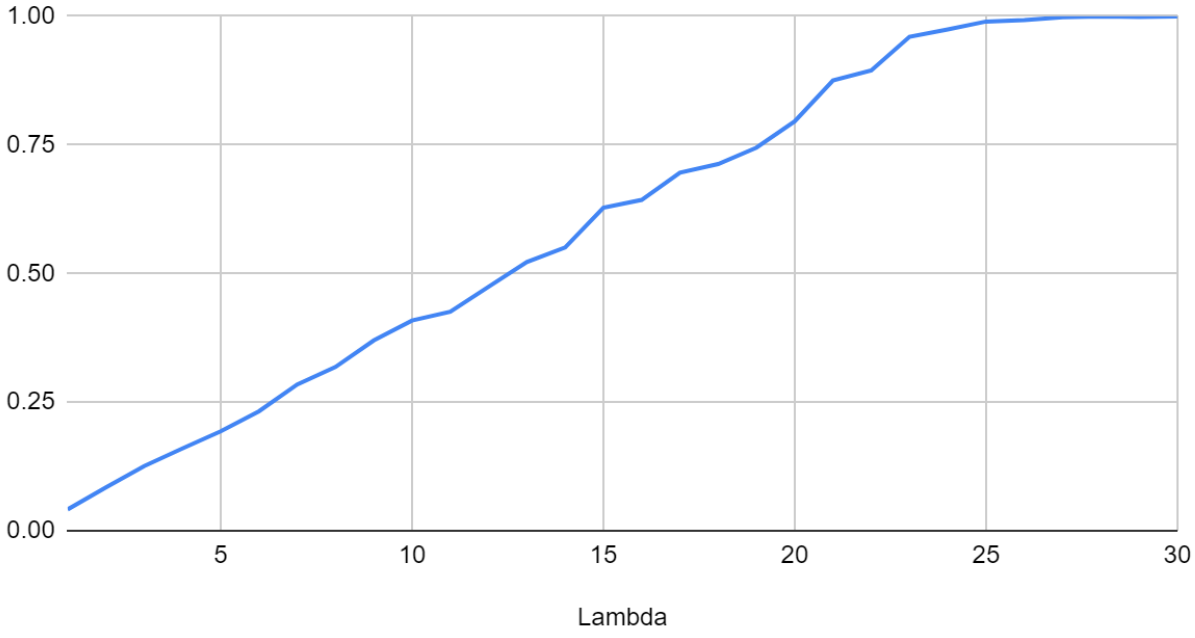
Avg Throughput



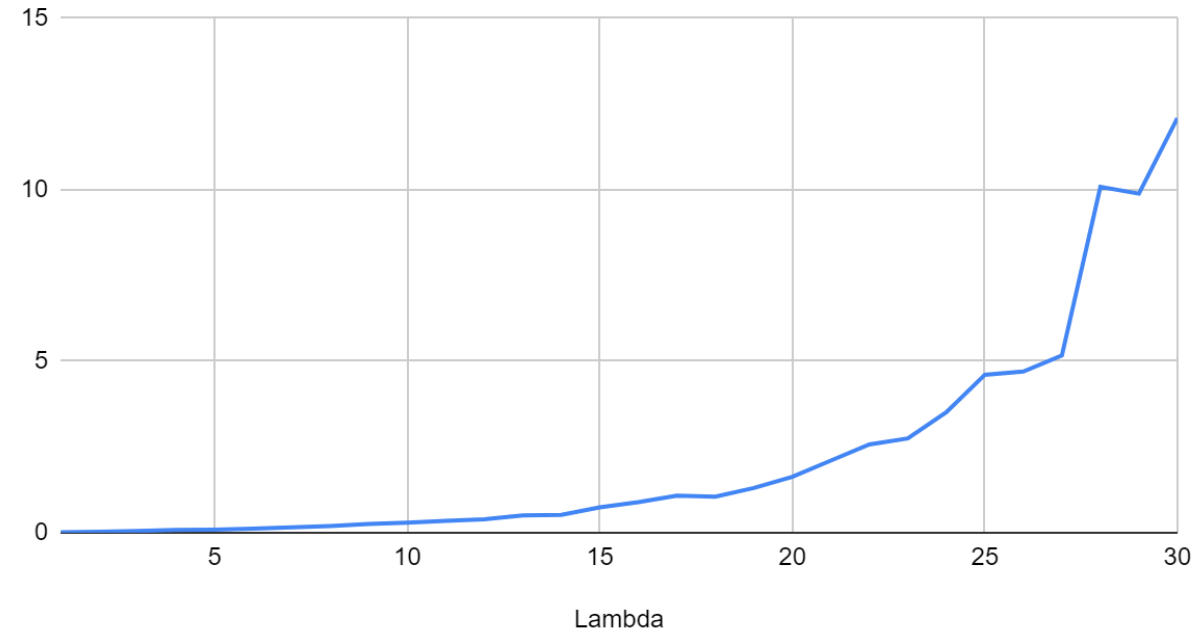
CPU Utility



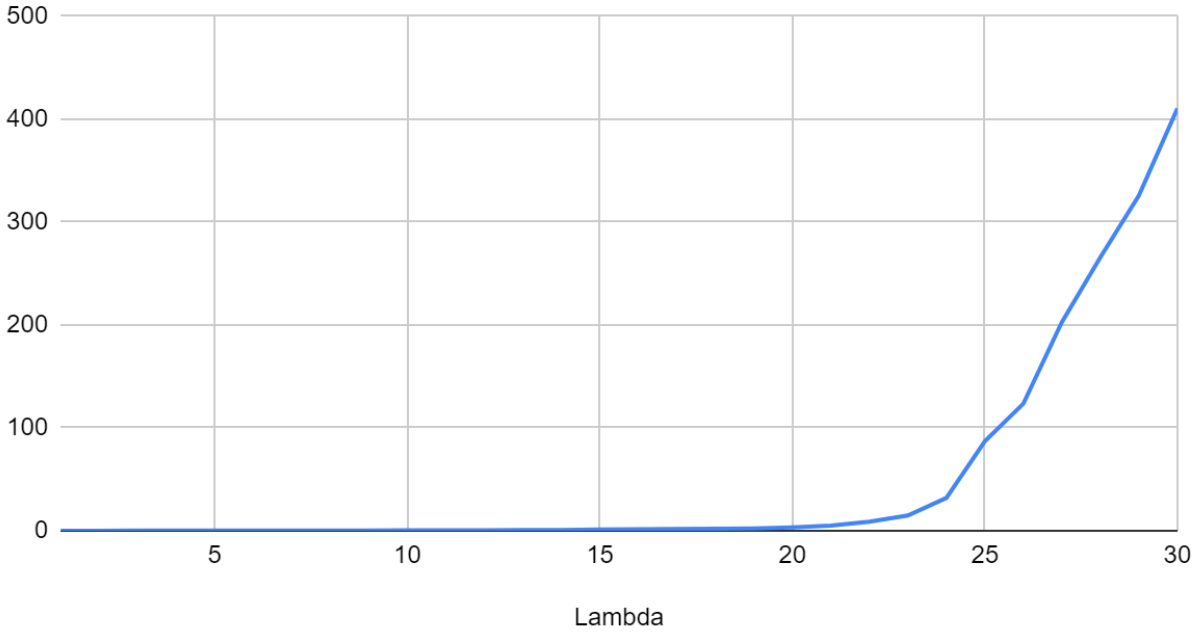
DISK Utility



Average # in CPU Queue



Average # in DISK Queue



Lambda	Avg Turnaround	Avg Throughput	CPU Util	Disk Util	Avg # in CPU Queue	Avg # in Disk Queue
1	0.0764059115	1.014836589	0.03353135921	0.04133106449	0.01247560044	0.005749809047
2	0.08192329268	2.021349548	0.06741713304	0.08405798149	0.02986080401	0.02272200813
3	0.08348176469	3.075022156	0.1015808702	0.1256467959	0.05010155721	0.03653943805
4	0.0868440123	3.994200449	0.1327322923	0.1598370318	0.07685519972	0.05264290634
5	0.08762591986	4.975934491	0.166275191	0.1930894633	0.08943391282	0.06982178737
6	0.09087120272	6.000427836	0.198722987	0.2321461391	0.1189035011	0.09669482669
7	0.1045418737	6.960229204	0.2322143812	0.2843621221	0.1533223761	0.2155435548
8	0.1039293208	8.058410455	0.2684526007	0.3183184658	0.1975585075	0.1989364222
9	0.1093322787	9.227437741	0.3090522246	0.3699180662	0.2524100913	0.2227804616
10	0.1183990183	9.996989857	0.3361938849	0.4084790153	0.291879035	0.3154094461
11	0.1232426239	11.03275258	0.3662619032	0.4255988102	0.3475339714	0.4391756141
12	0.1300576388	11.84647644	0.3999506605	0.4742925358	0.3927211263	0.4808293038
13	0.1457131804	13.01056886	0.4324205514	0.5221322424	0.5076228363	0.6903773788
14	0.144522387	13.79250313	0.4542461836	0.550547048	0.5218358531	0.6981641469
15	0.1778669501	15.30771432	0.5109007761	0.6278804063	0.7384344281	1.115878644
16	0.195851489	16.04849061	0.5364627965	0.6430997076	0.8916623778	1.401376737
17	0.2201244114	17.04950597	0.5741383983	0.6960113932	1.080164199	1.766058363
18	0.2192848411	17.82334914	0.5945453288	0.7128627578	1.048097907	1.853374128
19	0.2415595336	19.11723823	0.6356987665	0.7446745929	1.303725609	2.240934208
20	0.2995170113	19.92078443	0.6594653892	0.7956920551	1.628911405	3.288326451
21	0.3932548465	21.48128029	0.7162304327	0.8751810536	2.102796368	5.008269747
22	0.573498838	22.10030823	0.7441661305	0.8945881795	2.573769794	8.788481185
23	0.8233381585	23.01511789	0.778770484	0.9602817519	2.750992063	14.69509878
24	1.522126344	23.97044748	0.8116810749	0.9743595952	3.516053732	31.88406935
25	3.47636812	24.77795821	0.8394065312	0.9897960506	4.60486529	86.86344015
26	4.865938681	25.36648738	0.8447143835	0.9923957802	4.701206283	123.561464
27	7.007196534	25.90265581	0.8659128985	0.9980830816	5.167890758	202.7560792
28	9.145572949	26.74263461	0.9056695957	0.9995275925	10.08220088	265.8120847
29	9.8847803	27.37321938	0.9169116296	0.9988954874	9.88619407	325.8590477
30	12.03080355	27.61382989	0.9309131011	0.9994198968	12.09044335	410.4970494