CS 475/575 -- Spring Quarter 2022
Project #3
Functional Decomposition
100 Points
Due: May 4

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This is my second time using bonus time.

1. What your own-choice quantity was and how it fits into the simulation.
Answer:
The quantity I chose, was hunter and prohibition order, and I simulated a 55 percent chance that the hunter was prohibited from killing the deer to see the relationship between them. Species disappearing due to mass hunting, so I wanted to understand what would happen if hunters were banned from killing deer.

2. A table showing values for temperature, precipitation, number of deer, height of the grain, and your own-choice quantity as a function of month number.
Answer:

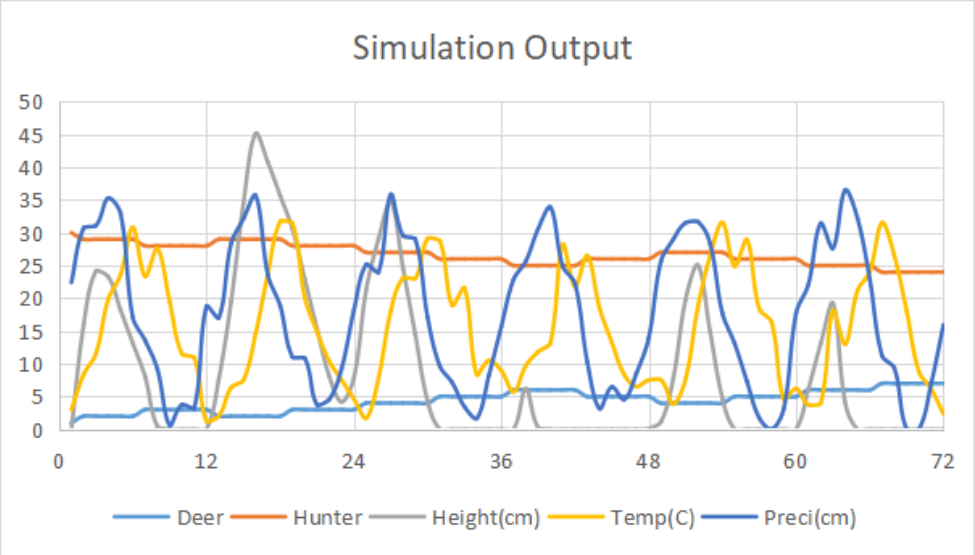
	A	B	C	D	E	F
1	Month	Deer	Hunter	Height(cm)	Temp(C)	Preci(cm)
2	1	1	30	0.000001	2.989862	22.42386
3	2	2	29	15.97436	8.374599	30.74578
4	3	2	29	24.15286	11.56178	31.0947
5	4	2	29	23.28451	19.84824	35.29537
6	5	2	29	18.21352	23.55538	32.9731
7	6	2	29	13.13367	30.78655	17.05803
8	7	3	28	8.053667	23.34483	13.54868
9	8	3	28	0.43384	27.58729	9.186637
10	9	3	28	0	19.49024	0.617609
11	10	3	28	0	11.48853	3.758281
12	11	3	28	0	10.94193	3.222285
13	12	3	28	0	1.228305	18.7749
14	13	2	29	7.655112	2.005791	17.00008
15	14	2	29	19.47554	6.358088	28.31543
16	15	2	29	34.43221	7.490789	32.13175
17	16	2	29	45.12789	14.60905	35.68287
18	17	2	29	40.73035	23.75111	23.52708
19	18	2	29	35.65048	31.72873	18.83573
20	19	3	28	30.57048	31.46364	11.01115
21	20	3	28	22.95048	20.12556	10.84395
22	21	3	28	15.33619	14.87002	3.741655
23	22	3	28	8.042684	10.36075	4.577205
24	23	3	28	4.178252	7.502617	9.278451
25	24	3	28	7.843741	4.628304	18.1601
26	25	4	27	21.27685	1.702877	25.15138
27	26	4	27	29.03418	7.79768	23.9599
28	27	4	27	34.70347	18.04682	35.82517
29	28	4	27	24.5916	23.10511	29.54705
30	29	4	27	14.43188	23.02228	29.04128
31	30	4	27	4.272194	29.13645	17.07888
32	31	5	26	0	28.74113	9.606806
33	32	5	26	0	18.94525	7.136857
34	33	5	26	0	21.57025	3.441708
35	34	5	26	0	8.325691	1.656377
36	35	5	26	0	10.52841	8.29394

	A	B	C	D	E	F
37	36	5	26	0	8.946448	15.67759
38	37	6	25	0	5.740066	22.86462
39	38	6	25	6.195259	9.706387	25.66368
40	39	6	25	0.2755	11.82949	30.59682
41	40	6	25	0	13.15121	33.90888
42	41	6	25	0	28.20834	24.88548
43	42	6	25	0	21.81113	22.24429
44	43	5	26	0	26.51724	10.3062
45	44	5	26	0	18.48817	3.143615
46	45	5	26	0	13.24852	6.459423
47	46	5	26	0	8.351663	4.544508
48	47	5	26	0	6.518851	8.544128
49	48	5	26	0.101708	7.512408	13.94033
50	49	4	27	1.149443	7.53778	25.65835
51	50	4	27	7.753857	3.86975	28.98282
52	51	4	27	19.76499	7.650074	31.51537
53	52	4	27	25.06841	18.64216	31.68056
54	53	4	27	14.93976	26.48045	28.34562
55	54	4	27	4.77976	31.56603	17.71945
56	55	5	26	0	24.88648	13.0857
57	56	5	26	0	28.93449	7.325894
58	57	5	26	0	18.3638	1.728965
59	58	5	26	0	16.40026	0.0003
60	59	5	26	0	4.584122	3.159687
61	60	5	26	0	6.215577	17.7171
62	61	6	25	6.14525	3.749445	22.10867
63	62	6	25	13.03555	3.928085	31.425
64	63	6	25	19.21895	18.09388	27.63048
65	64	6	25	4.033172	12.99999	36.51212
66	65	6	25	0	21.19124	32.21408
67	66	6	25	0	24.05759	22.90409
68	67	7	24	0	31.52976	11.20796
69	68	7	24	0	26.48789	9.337686
70	69	7	24	0	18.05618	0
71	70	7	24	0	8.780329	0
72	71	7	24	0	6.143907	6.971517

3. A graph showing temperature, precipitation, number of deer, height of the grain, and your own-choice quantity as a function of month number. Note: if you change the units to °C and centimeters, the quantities might fit better on the same set of axes.
cm = inches * 2.54
°C = (5./9.)*(°F-32)

This will make your heights have larger numbers and your temperatures have smaller numbers.

Answer:



4. A commentary about the patterns in the graph and why they turned out that way. What evidence in the curves proves that your own quantity is actually affecting the simulation correctly?

From the graph, I find that as hunters increase, deer populations decrease. In addition, when the amount of deer decreased, the height of the grain increased instead. On the other hand, precipitation seems to be related to height of grain, because when precipitation decreases, the height of grain also decreases. Moreover, temperature affects precipitation, and when the temperature decreases, the amount of water decreases.