CS 475 Project 3

1. **What your own-choice quantity was and how it fits into the simulation.**
    - I chose my quantity to be the **Hunters** and it fits into the simulation by the interaction with the deer. As number of hunters increases, the number of the deer will be decreased accordingly.
2. **A table showing values for temperature, precipitation, number of graindeer, height of the grain, and your own-choice quantity as a function of month number.**

Month(Num)	Precipitation(cm)	Temp(°C)	Height(cm)	Deer(Num)	Hunter(Num)
1	25.124031	8.151044	9.565469	1	0
2	29.92359	10.62595	13.446858	3	1
3	34.24958	18.232769	5.869633	4	1
4	33.100304	15.664626	0	2	4
5	29.001326	21.583574	0	0	5
6	20.199583	29.458618	0	1	4
7	17.483421	31.446737	0	0	0
8	4.512663	26.993238	0.000001	2	5
9	1.680678	23.412298	0	0	5
10	6.715376	17.44516	0.055691	1	5
11	7.465275	11.732318	0	0	5
12	9.554212	-0.073382	7.995601	1	5
13	22.732346	4.924547	27.89661	2	0
14	29.261822	12.180706	26.029404	4	3
15	33.821526	13.99924	16.932867	5	5
16	30.141722	19.780031	4.243698	6	10
17	33.289913	26.167505	0	1	11
18	22.343241	29.216724	0	0	7
19	13.285134	28.272348	0	0	5
20	4.218566	22.124825	0.000456	1	5
21	0.542056	18.213085	0	0	0
22	4.031839	10.784416	3.062814	2	1
23	5.325901	12.932188	0	0	2
24	13.965808	3.754487	18.380978	1	0
25	23.611713	6.781229	34.89941	3	3
26	28.233337	8.537091	40.400925	4	2
27	34.469692	12.244233	33.04417	5	1
28	36.868813	19.631725	20.354763	6	6

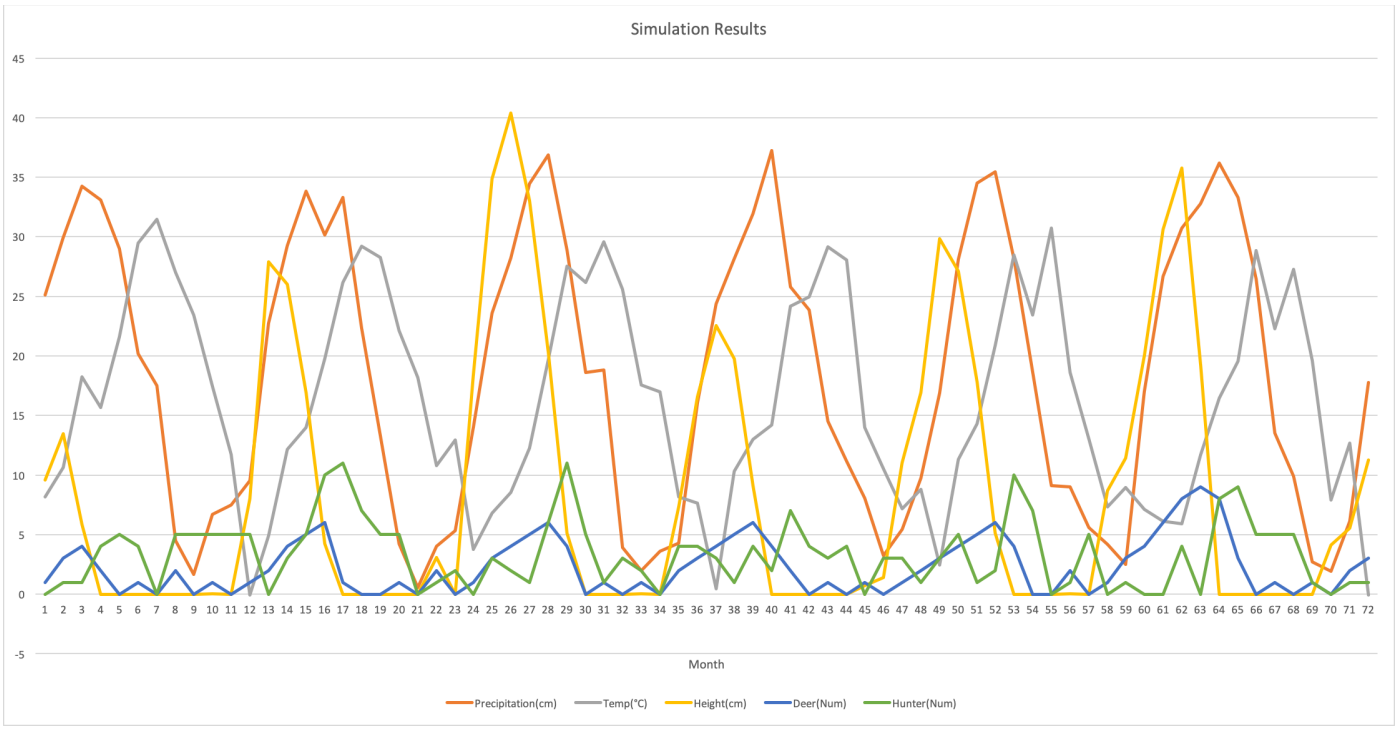
29	28.870226	27.53392	5.114763	4	11
30	18.616648	26.14683	0	0	5
31	18.795151	29.560959	0	1	1
32	3.909106	25.563133	0	0	3
33	1.992373	17.558949	0.037166	1	2
34	3.589134	16.994722	0	0	0
35	4.289152	8.160604	7.324048	2	4
36	16.059296	7.644352	16.574633	3	4
37	24.357973	0.445033	22.546318	4	3
38	28.169378	10.319057	19.770514	5	1
39	31.946383	12.981716	9.087268	6	4
40	37.214031	14.206387	0	4	2
41	25.794138	24.176857	0	2	7
42	23.862875	24.96846	0	0	4
43	14.50135	29.174084	0	1	3
44	11.160592	28.075035	0	0	4
45	8.072975	14.016444	0.737453	1	0
46	3.259311	10.535956	1.410791	0	3
47	5.414033	7.191649	11.048947	1	3
48	9.753336	8.809361	16.945883	2	1
49	16.870939	2.450358	29.819637	3	3
50	28.126694	11.303173	27.121559	4	5
51	34.485168	14.298645	17.82679	5	1
52	35.443233	20.839743	5.130016	6	2
53	28.144163	28.455166	0	4	10
54	18.638651	23.453547	0	0	7
55	9.098059	30.7297	0	0	0
56	8.992761	18.596594	0.02289	2	1
57	5.618644	13.039557	0	0	5
58	4.163312	7.32492	8.684282	1	0
59	2.524944	8.949987	11.40677	3	1
60	17.02944	7.135629	20.004898	4	0
61	26.707588	6.128383	30.643032	6	0
62	30.753706	5.914042	35.791866	8	4
63	32.752232	11.69739	19.295469	9	0
64	36.15934	16.456863	0	8	8
65	33.319561	19.556587	0	3	9
66	26.50219	28.823582	0	0	5
67	13.508116	22.293562	0.000604	1	5
68	9.886188	27.258623	0	0	5

69	2.706375	19.607798	0.005985	1	1
70	1.930205	7.88247	4.102784	0	0
71	6.118783	12.689427	5.522714	2	1
72	17.78359	-0.055728	11.283582	3	1

3. A graph showing temperature, precipitation, number of graindeer, 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.


Simulation Results
45
40
35
30
25
20
15
10
5
0
-5
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72
Month
Precipitation(cm)
Temp(°C)
Height(cm)
Deer(Num)
Hunter(Num)

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 patterns on this graph, we can see that number of deers increases along with the height of the grains. Temperature and precipitation play a huge role on the growth of grains. We can see that when both of the precipitation and temperature peak, the peak of the grains follows along. The hunter quantity has a strong impact on the growth of deer. Whenever the number of hunters peaks, we can clearly see the number of deers drops significantly and causing the growth of grains to peak again. An example of this would be from month 52 to month 56. The number of deers drops drastically (local minimum) as the number of hunters peaks (local maximum), and that also boosts the growth of grains (local maximum).