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Project #4: Functional Decomposition

1. What your own-choice quantity was and how it fits into the simulation.

- As there was already a graindeer function, I introduced a grain hunterguard. The current number of deers are taken into a temporary variable which is further taken into another variable used in the hunterguard function.
- During summer the hunters are on a vacation thus there are less hunters in the month of May, June, July, August or if the number of deers (before hunting) are less than equal to 4. In winter or other seasons the hunters are made equal to the number of deers(before hunting).
- The hunter hunts down the deer and the hunted deer are taken down into a temporary variable and later used to compute the number of Graindeers (NumDeer). Graindeers are computed by taking the difference of the temporary number of graindeers and the hunted deers. This indirectly affects the growth of the grain(Height).

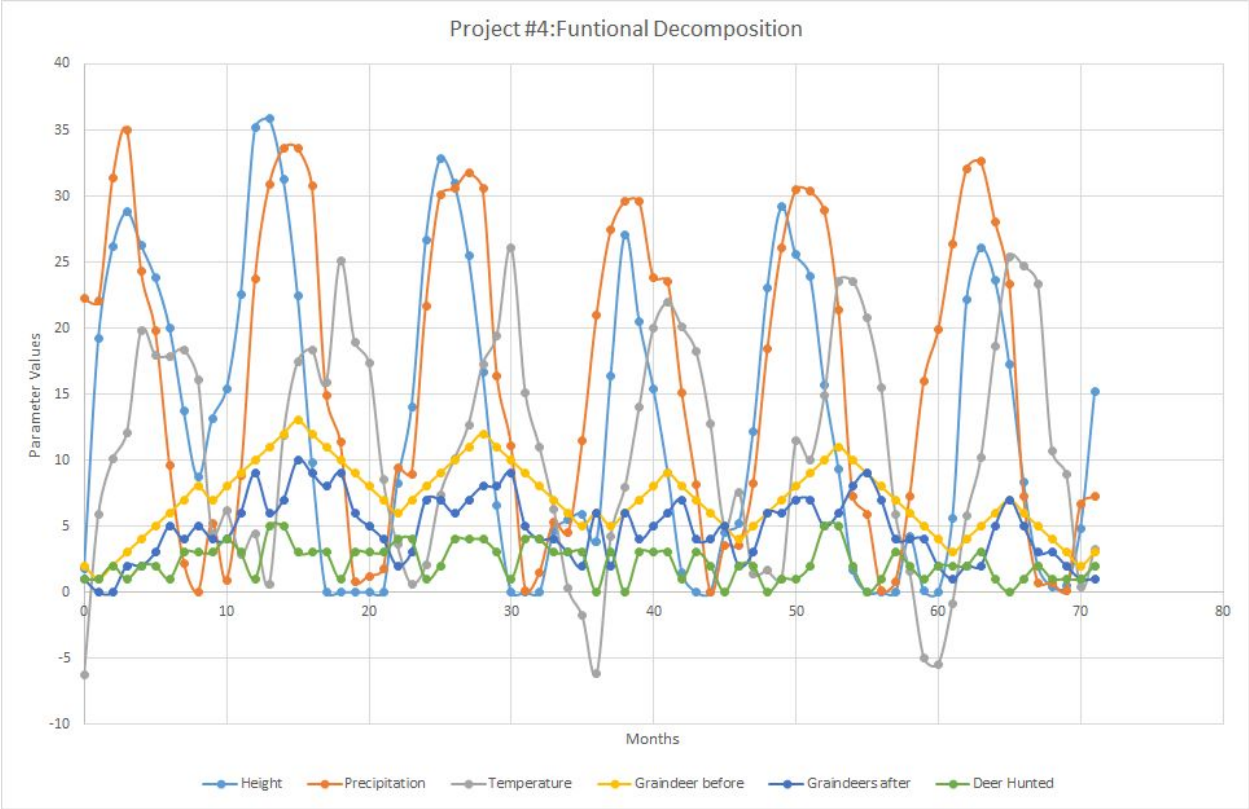
2. A table showing values for temperature, precipitation, number of graindeer, height of the grain, and your own-choice quantity as a function of month number.

Month	Height	Precipitation	Temperature	Graindeers before	Graindeers after	Deer Hunted
0	1.750753	22.227524	-6.282825	2	1	1
1	19.187758	22.022624	5.861134	1	0	1
2	26.136481	31.327993	10.051371	2	0	2
3	28.805013	35.038355	12.074157	3	2	1
4	26.27507	24.332943	19.769329	4	2	2
5	23.786843	19.783997	17.965813	5	3	2
6	20.016591	9.623411	17.882678	6	5	1
7	13.683477	2.206547	18.343421	7	4	3
8	8.698889	0	16.046321	8	5	3
9	13.169128	5.23638	4.44411	7	4	3
10	15.407788	0.92033	6.132569	8	4	4
11	22.537001	8.80457	2.848432	9	6	3
12	35.149356	23.739009	4.406664	10	9	1
13	35.841688	30.878246	0.63559	11	6	5
14	31.259119	33.616795	11.889602	12	7	5

15	22.444807	33.648944	17.458297	13	10	3
16	9.781346	30.824599	18.361532	12	9	3
17	0	14.90302	15.83608	11	8	3
18	0	11.388402	25.109261	10	9	1
19	0	0.762106	18.959037	9	6	3
20	0	1.224804	17.357657	8	5	3
21	0	1.725797	8.559606	7	4	3
22	8.246408	9.374289	3.587719	6	2	4
23	14.009689	8.936608	0.616199	7	3	4
24	26.657123	21.703762	2.025053	8	7	1
25	32.792868	30.078871	7.319991	9	7	2
26	30.937828	30.579546	10.052889	10	6	4
27	25.471364	31.775134	12.649943	11	7	4
28	16.677061	30.556289	17.254753	12	8	4
29	6.529283	16.399272	19.445038	11	8	3
30	0	11.09604	26.052178	10	9	1
31	0	0.145701	15.10387	9	5	4
32	0	1.49184	10.980396	8	4	4
33	4.62615	5.304688	6.311319	7	4	3
34	5.467633	4.473763	0.308406	6	3	3
35	5.899975	11.425814	-1.801069	5	2	3
36	3.871085	20.974955	-6.172956	6	6	0
37	16.403715	27.439594	4.207249	5	2	3
38	27.097379	29.637738	7.962502	6	6	0
39	20.489762	29.562437	14.022653	7	4	3
40	15.417649	23.820339	20.010041	8	5	3
41	9.068653	23.552506	21.932911	9	6	3
42	1.454859	15.064399	20.087454	8	7	1
43	0	8.137322	18.200048	7	4	3
44	0	0	12.734523	6	4	2
45	4.484222	3.51202	5.026987	5	5	0
46	5.194538	3.532586	7.56709	4	2	2
47	12.203259	8.201	1.41833	5	3	2
48	23.038916	18.386707	1.659881	6	6	0

49	29.171126	26.087814	0.976457	7	6	1
50	25.550877	30.490554	11.439167	8	7	1
51	23.953727	30.382966	9.961603	9	7	2
52	15.645796	28.893321	14.888085	10	5	5
53	9.295941	21.408088	23.553819	11	6	5
54	1.676029	7.292349	23.558278	10	8	2
55	0	5.916616	20.736847	9	9	0
56	0	0.132364	15.496021	8	7	1
57	0	0.795372	5.91099	7	4	3
58	4.184593	7.233585	1.537047	6	4	2
59	0.115543	16.008917	-4.957447	5	4	1
60	0	19.883527	-5.466239	4	2	2
61	5.56531	26.357849	-0.877488	3	1	2
62	22.147054	32.099179	5.804611	4	2	2
63	26.100146	32.599679	10.165647	5	2	3
64	23.591019	28.080398	18.584824	6	5	1
65	17.241033	23.34131	25.395245	7	7	0
66	8.351055	7.258661	24.670681	6	5	1
67	2.00113	0.732453	23.339767	5	3	2
68	0.387022	0.719311	10.731934	4	3	1
69	0.452894	0.055534	8.961911	3	2	1
70	4.854515	6.642885	0.404773	2	1	1
71	15.207727	7.213342	3.253805	3	1	2

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.



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?

- After using the hunterguard the hunter hunts down the deers and the number of deers before and after along with the number of deers hunted is shown in the graph.
- The deers after hunting are considered in the program which determines the grain growth. Less number of deers will contribute towards more grain growth and the height increases as seen in the graph. Also it is implied in the program that the TmpNowHeight is dependent on the number of deers.