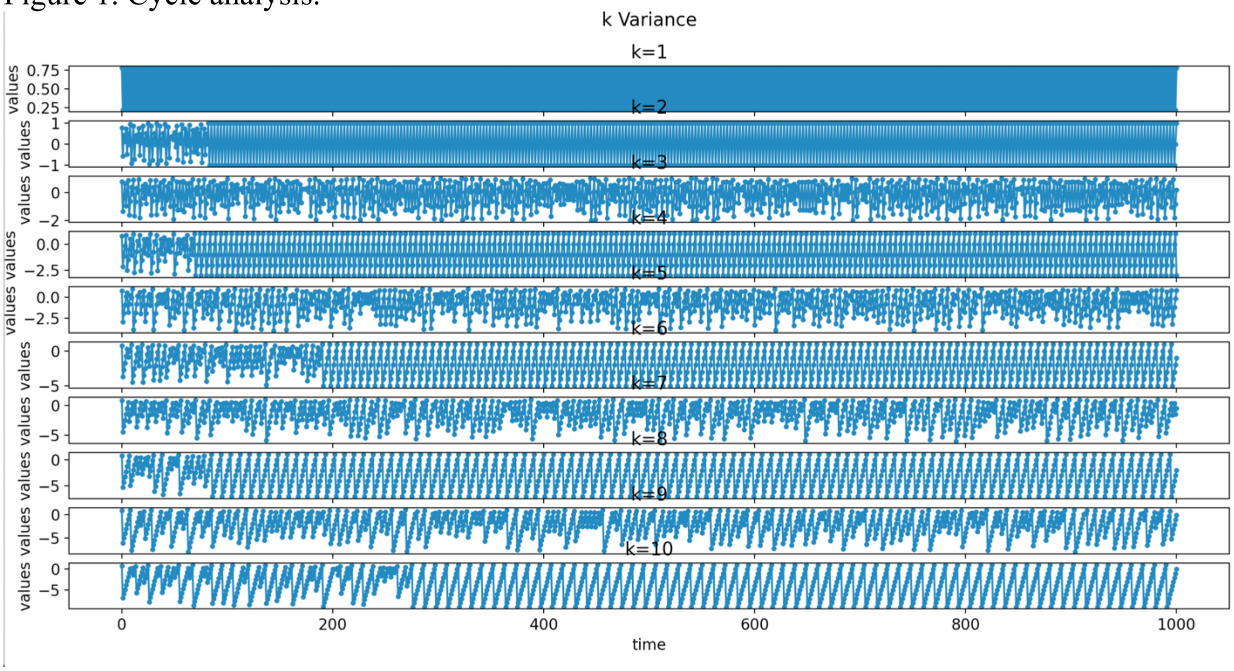
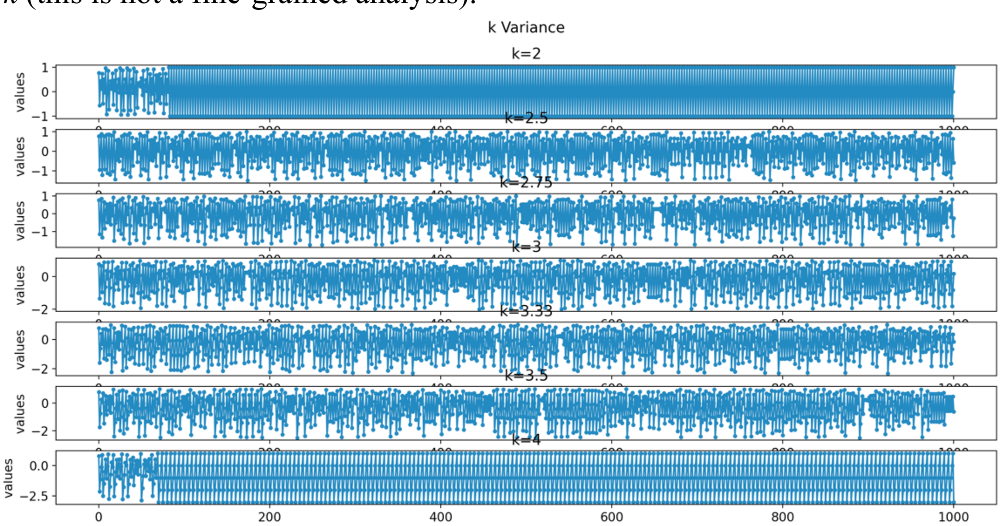
The following are computations related to the behavior of the flowering difference equation.

In my mathematical analysis, I suggested that there ought to be chaotic-seeming behavior for k>1. As none of the limit cycles seem stable. This is true on a local level, but that does not mean that they do not arise. In particular, the following Figure 1 (a summary of a deeper numerical analysis) demonstrates that the equation tends to reach odd-length cycles for even integer values of k.

Figure 1. Cycle analysis.



Close examination is not necessary, but it is clear from this chart that even integer values of k produce some regularity. However, this regularity arises out of chaos, not any sort of obvious local stability. Figure 2 shows how this does not seem to occur for any obvious decimal values of k (this is not a fine-grained analysis).



Close value analysis points to this being a rounding issue on the part of the computer. These cycles are reached by Y_t reaching 1 eventually. I believe the cause of this is that integer even multiplication eventually "multiplies" the floating point integer into an integer.
Ignoring these values, for example testing a series of odd *k* values, we see the following results in Output 1.

Table 1. Raw

k	Mast Year proportion
[3.	0.37762238]
[5.	0.26373626]
[7.	0.21378621]
[9.	0.18381618]
[11.	0.15384615]
[13.	0.13486513]

Thus, it is clear that as k increases, the number of mast years decreases.

Challenge 2:
Figure 3 below is a chart of period lengths between mast years. The regression line has slope 0.4866 and intercept 0.2471, giving it the form 0.4866k+0. 2471. This is not quite the expected result, but very close in order of magnitude and it does appear to have linear growth.