

Design Description:

The design uses a while loop which presents you a menu of 4 different options to choose from. If you select one of the 4 options it will go into another while loop which is specified with the value while true and then it will print the original pattern and then the new pattern depending on what option you selected. I tried to keep it simple by using one header and one additional cpp file and I only include the iostream library for input and outputs. I thought about using cstdlib but it seemed like unnecessary work that would make the program run slower. The first option is the oscillator pattern and the order of these was determined just by the guideline so I just went down the list and wrote accordingly. The next one is the glider pattern and it does in fact disappear off the edge. Then there's the glider gun pattern and finally a user input. The user can specify where to start on any of the options, however.

Test plan:

My test plan was really simple. I use visual studio so it gives me updates instantly as I make a mistake so I just fix them before moving on. I would write one at a time and test it. The first thing I did was get the while loop to work. Once that worked I just went down the list of the options presented and made sure that each one worked as I wrote it. Because I did it this way, I only had problems on the back end when I would try to make it more efficient which I'll discuss below.

Test results:

All tests were successful. The glider disappeared off the screen. The user input works. The glider gun pattern works. And the array for the oscillator works.

Resolving problems:

My most common problem was this error: stack cookie instrumentation code detected a stack-based buffer overrun. This would occur basically when I tried to get the program to be a bit more efficient so whatever changes I made I had to go back and change them back to ensure I had running code. I googled this as I had no idea what it meant and I think it's because I was overwriting a previous loop. I just went back and tweaked a few things and then it worked fine.