

CPSC 439 Project #3 Big O

For project 3 we must create a program that simulate Conway's Game of Life, I created cells to help visualize the algorithm. To create the cells I used a nested for loop with a time complexity of n^2 to generate the cells. The cells are then randomly filled with another nested for loop with a time complexity of n^2 . Both next generation function and gather info function uses a nested while loop. These two functions will have a time complexity of $O(n \log n)$. The main algorithm function that checks what state the cell is in consist of a switch statements. This will have a time complexity of $O(n)$. Since this program uses all these function, the program will have a time complexity of $O(n^2 + m^2)$. This is because to generate the cells we use two different nested for loops.