CS1632 – Deliverable 5

Performance Testing Conway’s Game of Life

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Repository: https://github.com/phil-nye/CS1632/tree/master/Deliverable5-JavaLife

# Summary

The purpose of this project was to determine trouble spots in a version of Conway’s Game of Life, and then make it run more efficiently. To verify and validate my changes, I wrote pinning tests to ensure that functionality did not change; only performance should change. I changed the names of the original methods and kept the in the code so that I could test them concurrently with the more performant version I modified.

To begin, I ran the original program files with VirtualVM in the background to determine exactly what functions and classes were the most CPU-intensive. Running the program step-by-step allowed me to push all buttons (sans the “Run Continuous” one). Doing this, I immediately identified that the Cell.toString() method was taking an unusually long time to run, followed by MainPanel.convertToInt(). Next, running continuously, I was able to confirm that MainPanel.convertToInt() was the bigger issue when running through many steps of the game.

Looking into the convertToInt() method, I found that it was called by the getNumNeighbors() method. In fact, getNumNeighbors() already calculates the number of adjacent living cells as a primitive int. So, the entire convertToInt() method was redundant.