COP3530 Project 1 redo

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**Describe your matrix implementation.**

My matrix implementation used a simple linked list, however I put them in list order, from left to right and top to bottom. So the first element would be (0,0), and then the next being (0,1), etc. Each node has data for row, column, value, and next.

**Why did you choose the implementation you did?**

My matrix was implemented so that it would be sparse, and therefore would not store nonzero values in memory so as to conserve space. I chose to order the nodes so as to access them sequentially, and be able to print and access them easily. I chose the type of node I did so that I could store them without a 2d implementation, so I didn’t have to store nonzero values, yet still keep track of where each node belongs in the 2d matrix.

**What is the computational complexity of the operations in your matrix implementation?**

clear() – O(1)

setSize() – O(1)

getNumRows() – O(1)

getNumCols() – O(1)

addElement() – O(n)

remove() – O(n)

getElement() – O(n)

toString() – O(n)

addMatrices() – O(n^2)

multiplyMatrices() – O(n^5)