Harsh Patel

Project 1

COP 3530

The way I chose to do my matrix was through a single LinkedList that held node objects, which I created. The node object holds row, col, and data. Every time I added an element, I just created a node and added it to the LinkedList; the complexity for this was O(1). When I deleted an element I had to traverse the linked list and figure out which node held the element that needed to be removed; this complexity is O(n). Set size was also O(1). The clear method is also O(n) because it traverses through linkedlist and deletes each node. GetElement is also O(n) because I had to traverse linked list to figure out where node was that held the element. Determinant complexity O(n!) because I looked it up. Tostring was $O(n^3)$ because I had to loop through row then col and linked list to figure out the sorting of it. I chose this implementation because it seemed the easiest to me and made sense.