**Quiz #1 (25 pts) – March 1st, 2016**

All answers must be of your own work. Type out your answers and submit your quiz through Blackboard for Quiz #1.

1. (5 points) In your own words, describe what a collection class does.

A collection class is one that can be implemented to, as the name states, create a collection of items and store them to be accessed at a later time. Collection classes can implement certain features that allow the contents to be sorted, accessed, add items, remove items, and even clear all the items.

1. (10 points) Describe the benefits and the pitfalls of using an array based implementation for the Bag class.

One of the biggest pitfalls of using an array based implementation for the Bag lass is the time required for increasing the size of the array. This becomes time consuming when the array grows to a large number and time is spent needing to copy the array to a larger array. This is also the case for memory. While creating a copy of the array, there is a moment in time when the array exists in two places, thus taking up twice the space. This can cause problems when there is no available swap space in the OS where the program is running, OR when all the memory AND storage is less than that required for copying the array.

1. (10 points) Write only pseudo-code for a method named **indexOf**, when passed a parameter named **item**; that returns the index of the item when found in the Bag (or returns -1 if the item is not in the Bag)

public int indexOf (receives **item**){

boolean found = False

index = 0

iterate through collection until index is equal to (number\_of\_entries-1)

if(this.bag\_items[index] == item) return index;

if (index == number\_of\_entries && found == False) return -1

}