Project 1

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CS2400 Section 2

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ArrayBag:

Generic class implementing the bag interface. Works as a bag with entries being stored in the array form.

ArrayBag():

Public method working as the default constructor. Calls the ArrayBag(int) with a specified default capacity to create the bag.

ArrayBag(int capacity):

Public method working as the constructor. Parameter: int, the capacity of the bag being initialized. Creates array and sets entries to 0.

getCurrentSize():

Public method, takes no parameters and returns the number of items in bag

isEmpty():

Public method, no parameters, returns a boolean whether the bag is empty by utilizing the getCurrentSize Method.

add():

Public method that allows an item to be added to the bag.

Section 1: Project Specification and Implementation

remove():

Public method that removes the final item in the array from the bag.

remove(T anEntry):

Public method that allows the user to remove a specified item from the bag by moving it to the end of the array and calling the regular remove() method.

clear():

Public method that clears the entire bag of all items.

getFrequencyOf(T anEntry):

Public method that sorts through the array and returns the number of times a specified entry is seen in the bag.

contains(T anEntry):

Public method that returns a boolean whether a specified entry is in the bag.

toArray():

Public method that returns the entire content of the bag as an array.

isArrayFull():

Private method that allows for program integrity. Used by other methods. Returns a boolean whether array is full or not to prevent crashes.

Section 2: Testing Methodology

Testing each method in ArrayBag using JavaKeywords.java:

- ArrayBag(int capacity): Line 38. Initializing the bag.

- getCurrentSize(): Line 49: printing the number of items in the bag.

- isEmpty(): Line 70: returns false, Line 95: returns true.

- add(): Line 46, used in loop to add to the bag.

- remove(T anEntry): also uses the remove() on line 84 to remove "void" from the bag.

- clear(): used on line 92 to clear the bag.

- getFrequencyOf(T anEntry): used before the clear on line 90 and after the clear on line 94. Proof the clear works also.

- contains(T anEntry): Used on line 55 to check if the bag contains the Strings in the arguments array.

- toArray(): used on line 74 to transfer all the items into an array to be used locally in the javakeywords file.

Section 3: Lessons Learned

Through this project I got a lot more comfortable with generic programing and coding in a situation where a type may not be known in an instance. I learned how to code a program to be versatile with different types of Objects to where it will still work regardless. I got a lot more comfortable with the interface concepts and what they represent overall. The methods I implemented in the ArrayBag class all served their own individual purpose to provide the functions of an everyday ordinary bag. I learned a lot more about the depth of arrays of objects as well. I learned how arrays can be versatile in storing object types due to the inheritance concept.