CSCI-101 Programming 2

Lab 3, Part a

INSTRUCTIONS

Log into cs.bridgewater.edu.
Change your working directory to your **labs** directory in your repository and create a directory named **lab3**.
Inside the **lab3** directory create a file named **Lab3a.java** and a file named **ArrayList.java**.

Inside the **ArrayList.java** file create a generic class that contains the following:

1. Fields
    a. A private field named **array** that holds an array of Objects and is initialized to **null**.

    b. A private field named **count** that holds an integer and is initialized to **0**. This field holds the number of elements that are in currently stored in the array *AND* indicates where to add the next element.

2. Constructors
    a. ArrayList(int initialCapacity)

    The constructor sets the field named **array** equal to an array of Objects that has a length equal to the value in the parameter.

3. Methods (all non-static)
    a. public String toString()

    Returns a string representation of this collection. The string representation consists of a list of the collection's elements, enclosed in square brackets ("[]"). Adjacent elements are separated by the characters ", " (comma and space). Elements are converted to strings as by String.valueOf(Object).

    b. public int size()

    Returns the number of elements in this list.

    c. public boolean add(E e)

    Appends the specified element to the end of this list. Returns true if this collection changed as a result of the call; otherwise returns false.

In the **main** method in **Lab3a.java** do the following.

a. Create an instance of the **ArrayList** class that can hold 10 Integers.
b. Print the contents of the **ArrayList** by calling **toString**.
c. Print the number of elements currently in the **ArrayList** using the **size** method.
d. Ask the user to enter 5 integers.
e. Read the integers from the keyboard and add them to the **ArrayList** using the **add** method.
f. Print the number of elements currently in the **ArrayList** using the **size** method.

g. Print the contents of the **ArrayList** by calling **toString**.