

CSCI-101 Programming 1

Lab 9, Part b - Week of October 31

INSTRUCTIONS

Inside your **labs** directory use **vi** to create a file named **Lab9b.java**.

Inside the **CharacterArrayList.java** file add the following methods:

1. Methods (all non-static)
 - a. A method named **contains** that takes a character as an argument and returns **true** if the character is in the array; otherwise returns **false**.
 - b. A method named **get** that has an integer parameter named **index**. If the value in **index** is a valid index in the array the method returns the element at the specified index; otherwise the method returns the null character '\0'.
 - c. A method named **indexOf** that takes a character as an argument and returns the *index* of the *first occurrence* of the specified character in the array, or -1 if the array does not contain the character.
 - d. A method named **set** that has two parameters. The first parameter is named **index** and holds an integer, and the second parameter is named **c** and holds a character. If the value in **index** is a valid index in the array, the method replaces the element at the position specified in **index** with the character in **c** and returns the element previously at the specified position. If the value in **index** is not a valid index in the array, the method returns the null character '\0'.

In the **main** method in **Lab9b.java** do the following.

- a. Create an instance of the **CharacterArrayList** class that can hold 10 elements.
- b. Use the **set** method to add the following character to the **CharacterArrayList**: 'm', 'e', ' ', 'h', 'a', 'p', 'p', 'y'.
- c. Print the contents of the **CharacterArrayList** using the **toString** method.
- d. Use the **add** method to add the character '!' to the **CharacterArrayList**.
- e. Print the contents of the **CharacterArrayList** using the **toString** method.
- f. Print the number of elements in the **CharacterArrayList** using the **size** method.
- g. Store in a variable named **idx** the index of the first instance of the character 'p' in the **CharacterArrayList** using **indexOf**. Print the value in **idx** to the screen.
- h. Store in a variable named **fourthChar** the character at index 3 in the **CharacterArrayList** using the **get** method. Print the value in **fourthChar** to the screen.
- i. Use the method **contains** to store in a variable named **hash** the value **true** if the **CharacterArrayList** contains the character 'h' or **false** if it does not. Print the value in **hash** to the screen.

- j. Use the method **contains** to store in a variable named **has** the value **true** if the **CharacterArrayList** contains the character 't' or **false** if it does not. Print the value in **has** to the screen.