

Assignment – VII: String Operations in ArrayList, Doubly Linked List ADT implementation using LinkedList

**Objective:**

1. To create an ArrayList and perform various string operations (without using Collections)
2. To implement doubly linked list (ADT) and perform various operations using Collections.

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1. Write a program to perform string operations using ArrayList. Write functions for the following:

*Hint: Do not use the methods in ArrayList Collection.*

- a. Add 10 elements to the list.
- b. Insert a string at a specific position.
- c. Check whether the list contains a particular element and display its occurrence.
- d. List all string that starts with given letter/character.
- e. List all string that contains the given substring.
- f. Replace one string with another string.
- g. Remove a specific element from the list.
- h. Remove the duplicate element in the list.
- i. Display the contents of list – this method can be used wherever required.

2. Using the LinkedList Collection framework, create a doubly linked list of Integers and perform the following:

- a. Insert element on both sides.
- b. Insert an element at a specific position.
- c. Remove the elements on both sides.
- d. To remove a specific element, check for the availability of the given element. If present, remove else display appropriate message.
- e. Copy the original list before sorting.
- e. Sort the elements and display the sorted elements. (use Algorithm)
- f. Search for a specific element and return its position.
- g. Display the elements in forward and reverse order (with and without Algorithms)
- h. Find the sum and average of all the elements in the list.
- i. Create a new linked list with elements starting from 3<sup>rd</sup> position in the original linked list.
- j. Add the original linked list (e) and new linked list created above in (i) to a new linked list.

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