Experiment 4

Student Name: Keshav **UID: 22BCS14552**
Branch: B.E. CSE **Section/Group: KRG - 2 B**
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1. **Aim:** Write a Program to perform the basic operations like insert, delete, display and search in list. List contains String object items where these operations are to be performed.

2. **Implementation/Code:**

```
import java.util.ArrayList;
import java.util.Scanner;

public class StringListOperations {

   private static ArrayList<String> list = new ArrayList<>();

   public static void insertItem(String item) {
      list.add(item);
   }
   public static void deleteItem(String item) {
      if (list.contains(item)) {
         list.remove(item);
         System.out.println(item + " has been removed.");
      } else {
         System.out.println(item + " not found in the list.");
      }
   }
   public static void displayList() {
      if (list.isEmpty()) {
         System.out.println("The list is empty.");
      } else {
         System.out.println("List items: " + list);
      }
   }

   public static void searchItem(String item) {
      if (list.contains(item)) {
         System.out.println(item + " is found in the list.");
      } else {
         System.out.println(item + " is not found in the list.");
```

```
        }
    }
    public static void main(String[] args) {
        Scanner sc = new Scanner(System.in);
        int choice;

        do {
            System.out.println("\nSelect an operation:");
            System.out.println("1. Insert Item");
            System.out.println("2. Delete Item");
            System.out.println("3. Display List");
            System.out.println("4. Search Item");
            System.out.println("5. Exit");
            choice = sc.nextInt();
            sc.nextLine();

            switch (choice) {
                case 1:
                    System.out.print("Enter item to insert: ");
                    String insertItem = sc.nextLine();
                    insertItem(insertItem);
                    break;
                case 2:
                    System.out.print("Enter item to delete: ");
                    String deleteItem = sc.nextLine();
                    deleteItem(deleteItem);
                    break;
                case 3:
                    displayList();
                    break;
                case 4:
                    System.out.print("Enter item to search: ");
                    String searchItem = sc.nextLine();
                    searchItem(searchItem);
                    break;
                case 5:
                    System.out.println("Exiting program.");
                    break;
                default:
                    System.out.println("Invalid choice! Please choose a valid option.");
            }
        } while (choice != 5);
```

```
            sc.close();
        }
    }
```

3. Output:

```
Select an operation:
1. Insert Item
2. Delete Item
3. Display List
4. Search Item
5. Exit
1
Enter item to insert: Apple

Select an operation:
1. Insert Item
2. Delete Item
3. Display List
4. Search Item
5. Exit
2
Enter item to delete: Apple
Apple has been removed.
```

```
Select an operation:
1. Insert Item
2. Delete Item
3. Display List
4. Search Item
5. Exit
3
The list is empty.
```

6. Learning Outcomes:

1. Learn how to perform basic CRUD (Create, Read, Update, Delete) operations on a List of String objects in Java.
2. Understand how to use the ArrayList class for dynamically storing and manipulating a collection of items.
3. Practice handling user input using the Scanner class for interaction with the program.
4. Implement methods for searching, deleting, and displaying items in a list efficiently.
5. Gain familiarity with control flow and loops to allow for continuous user interaction until the program is exited.