Experiment 4

Student Name: Mayank Bhatt UID: 22BCS10511
Branch: BE-CSE **Section/Group: KRG 2B**
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Subject Name: Project Based Learning Subject Code: 22CSH-359 in Java with Lab

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. Objective: The objective of this program is to implement basic operations (insert, delete, display, and search) on a List containing String objects. The program will demonstrate how to manipulate a list using common list operations in Java, providing functionality to manage and interact with data stored in the list.

3. 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();
    }
    }
```

4. 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.
```

5. 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.