Experiment4

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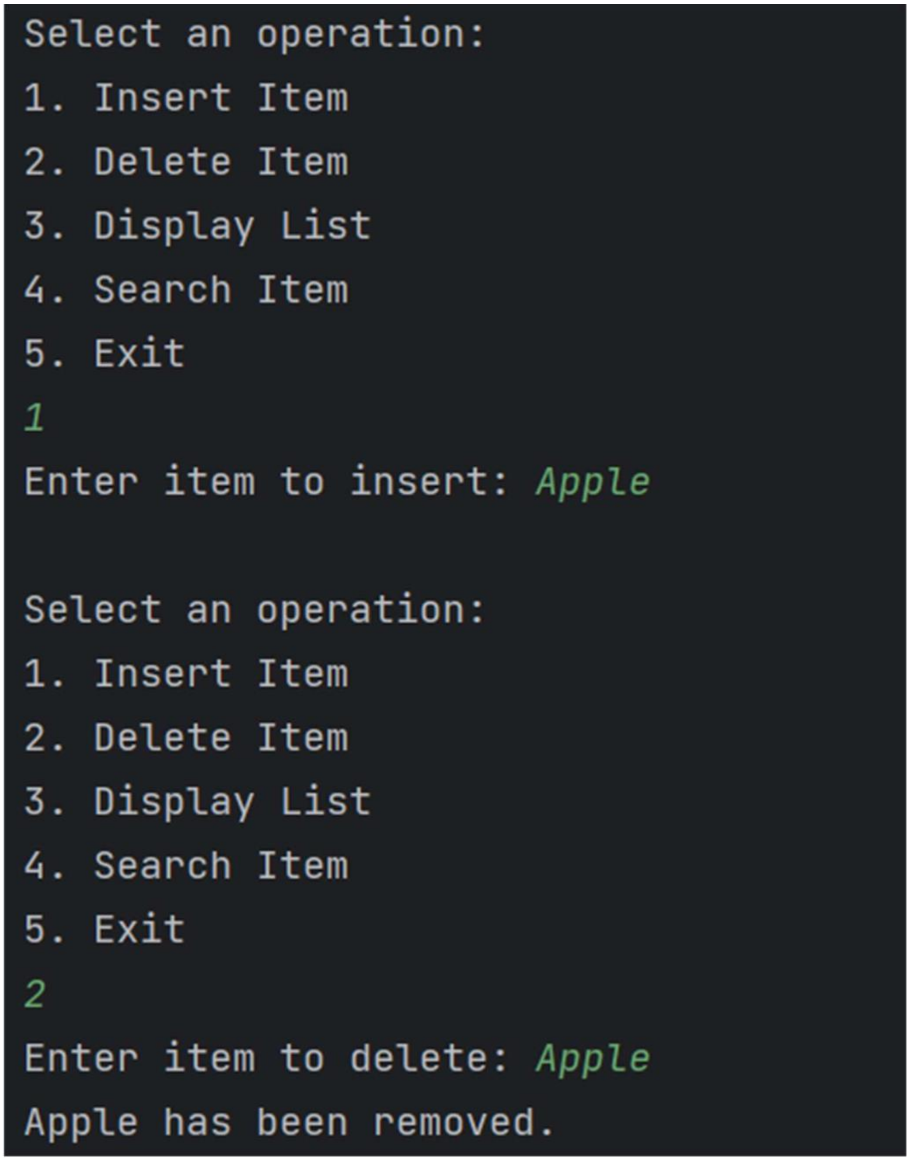
1. **Aim:WriteaProgramtoperformthebasicoperationslikeinsert,delete, display and search in list. List contains String object items where these operations are to be performed.**
2. **Objective:The objective of this program is to implement basic operations (insert, delete, display, and search) on a List containing String objects. The program will demonstrate how to manipulate a list using common list operationsinJava,providingfunctionalitytomanageandinteractwithdata stored in the list.**

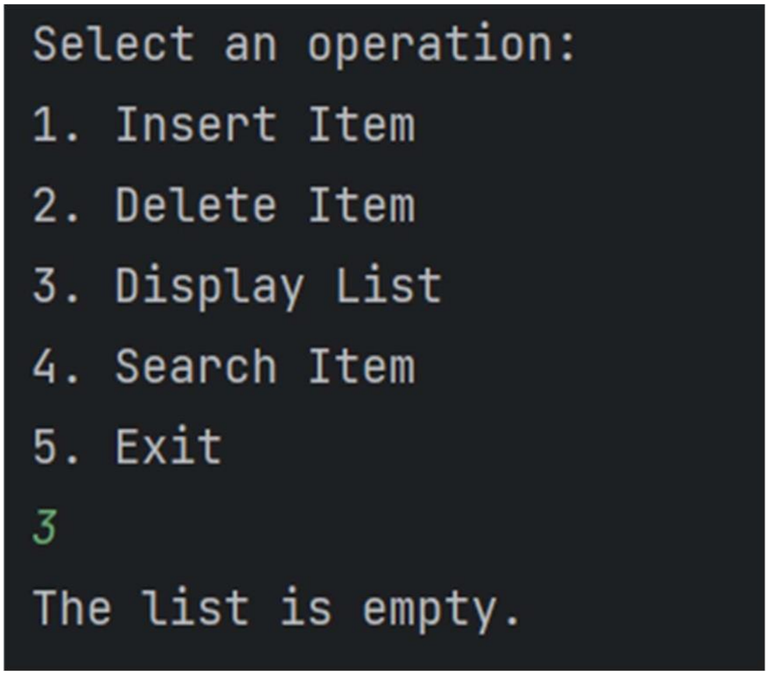
3. **Implementation/Code:**

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

publicclassStringListOperations{

    privatestaticArrayList<String>list=newArrayList<>(); public

    static void insertItem(String item) {
        list.add(item);
    }

    publicstaticvoiddeleteItem(Stringitem){ if
        (list.contains(item)) {
            list.remove(item);
            System.out.println(item+"hasbeenremoved.");
        }else{
            System.out.println(item+"notfoundinthelist.");
        }
    }

    publicstaticvoiddisplayList(){ if
        (list.isEmpty()) {
            System.out.println("Thelistisempty.");
        }else{
            System.out.println("Listitems:"+list);
        }
    }

    publicstaticvoidsearchItem(Stringitem){ if
        (list.contains(item)) {
            System.out.println(item+"isfoundinthelist.");
        }else{
            System.out.println(item+"isnotfoundinthelist.");
        }
    }

    public static void main(String[] args) {
        Scannersc=newScanner(System.in); int
        choice;

        do{
            System.out.println("\nSelectanoperation:");
            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("Enteritemtoinsert:"); String
                    insertItem = sc.nextLine();
                    insertItem(insertItem);
                    break;
                case 2:
                    System.out.print("Enteritemtodelete:"); String
                    deleteItem = sc.nextLine();
                    deleteItem(deleteItem);
                    break;
                case 3:
                    displayList();
                    break;
                case4:
                    System.out.print("Enteritemtosearch:"); String
                    searchItem = sc.nextLine();
                    searchItem(searchItem);
                    break;
                case 5:
                    System.out.println("Exitingprogram.");
                    break;
                default:
                    System.out.println("Invalidchoice!Pleasechooseavalidoption.");
            }
        }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. **LearningOutcomes:**
   1. Learnhowtoperformbasic **CRUD(Create,Read,Update,Delete)** operations on a **List** of **String** objects in Java.
   2. Understandhowtousethe**ArrayList**classfordynamicallystoringand manipulating a collection of items.
   3. Practicehandling**userinput** usingthe**Scanner**classforinteractionwiththe program.
   4. Implementmethodsfor **searching**,**deleting**,and**displaying**itemsinalist efficiently.
   5. Gainfamiliaritywith**controlflow**and**loops**toallowforcontinuoususer interaction until the program is exited.