



Experiment 2.3

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Subject Name: Project Based Learning in Java with Lab

Subject Code: 21CSP-319

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:

- To learn about concept of ArrayList.
- To learn about various methods of List.

3. Algo. /Approach :

1. Insert String in ArrayList/LinkedList:
2. Delete String from ArrayList/LinkedList:
3. Display String all elements of ArrayList/LinkedList:
4. Search String in ArrayList/LinkedList:
5. Exit

4. Program Code:

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

public class StringListOperations {
    private ArrayList<String> stringList;

    public StringListOperations() {
        stringList = new ArrayList<>();
    }

    // Insert operation
    public void insert(String item) {
        stringList.add(item);
        System.out.println("Item '" + item + "' inserted successfully.");
    }

    // Delete operation
    public void delete(String item) {
```



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```
        if (stringList.remove(item)) {
            System.out.println("Item " + item + " deleted successfully.");
        } else {
            System.out.println("Item " + item + " not found in the list.");
        }
    }

    // Display operation
    public void display() {
        if (stringList.isEmpty()) {
            System.out.println("List is empty.");
        } else {
            System.out.println("Items in the list:");
            for (String item : stringList) {
                System.out.println(item);
            }
        }
    }

    // Search operation
    public void search(String item) {
        if (stringList.contains(item)) {
            System.out.println("Item " + item + " found in the list.");
        } else {
            System.out.println("Item " + item + " not found in the list.");
        }
    }

    public static void main(String[] args) {
        StringListOperations listOperations = new StringListOperations();
        Scanner scanner = new Scanner(System.in);

        while (true) {
            System.out.println("\n1. Insert\n2. Delete\n3. Display\n4. Search\n5. Exit");
            System.out.print("Enter your choice: ");
            int choice = scanner.nextInt();
            scanner.nextLine(); // Consume newline

            switch (choice) {
                case 1:
                    System.out.print("Enter item to insert: ");
                    String insertItem = scanner.nextLine();
                    listOperations.insert(insertItem);
                    break;
                case 2:
                    System.out.print("Enter item to delete: ");
                    String deleteItem = scanner.nextLine();
                    listOperations.delete(deleteItem);
                    break;
```



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```
        case 3:
            listOperations.display();
            break;
        case 4:
            System.out.print("Enter item to search: ");
            String searchItem = scanner.nextLine();
            listOperations.search(searchItem);
            break;
        case 5:
            System.out.println("Exiting program...");
            System.exit(0);
        default:
            System.out.println("Invalid choice. Please enter a number between 1 and 5.");
    }
}
}
```

Output:

```
PS E:\All\STUDY\Sixth Semester\Java\Code> & 'C:\Program Files\Java\jdk-18.0.2\bin\java.exe' -Xms256m -Xmx512m -Djavalop.loader.dir=C:\Program Files\Java\jdk-18.0.2\bin\javaloop\lib\ -Djavalop.loader.jar=C:\Program Files\Java\jdk-18.0.2\bin\javaloop\lib\javalop.jar -jar C:\Program Files\Java\jdk-18.0.2\bin\javaloop\lib\javalop.jar %*
```

```
1. Insert
2. Delete
3. Display
4. Search
5. Exit
Enter your choice: 1
Enter item to insert: Kamal
Item 'Kamal' inserted successfully.
```

```
1. Insert
2. Delete
3. Display
4. Search
5. Exit
Enter your choice: 1
Enter item to insert: Ale
Item 'Ale' inserted successfully.
```

```
1. Insert
2. Delete
3. Display
4. Search
5. Exit
Enter your choice: 2
Enter item to delete: Ale
Item 'Ale' deleted successfully.
```

```
1. Insert
2. Delete
3. Display
4. Search
5. Exit
Enter your choice: 3
Items in the list:
Kamal
```

```
1. Insert
2. Delete
3. Display
4. Search
5. Exit
Enter your choice: 4
Enter item to search: Kamal
Item 'Kamal' found in the list.
```

```
1. Insert
2. Delete
3. Display
4. Search
5. Exit
Enter your choice: 5
Exiting program...
```

5. Learning Outcomes:

- **List data structure:** Gaining knowledge about the concept of lists, their functionalities like adding, removing, searching, and iterating through elements.
- **String manipulation:** Learning how to work with string objects in Java, including creating, storing, and manipulating them.
- **User input and output:** Understanding how to take user input using Scanner and how to display information using System.out.println.
- **Conditional statements:** Learning about if-else statements for making decisions based on conditions and switch statements for handling multiple choices.
- **Loops:** Understanding how to use do-while loops for repeated execution of code blocks.