



DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

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Experiment 4

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Subject Name: Project Based Learning
in Java with Lab

Subject Code: 22CSH-359

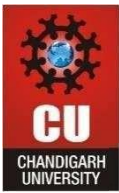
1. **Aim:** Write a Program to perform the basic operations like insert, delete, display and search in list. List contains String object items where these operations are to be performed.
2. **Objective:** The objective of this program is to implement basic operations (insert, delete, display, and search) 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.*;

public class StringListOperations {
    public static void main(String[] args) {
        Scanner scanner = new Scanner(System.in);
        List<String> stringList = new ArrayList<>();

        while (true) {
            System.out.println("\nChoose an operation:");
            System.out.println("1. Insert");
            System.out.println("2. Delete");
            System.out.println("3. Display");
            System.out.println("4. Search");
            System.out.println("5. Exit");
            System.out.print("Enter your choice: ");
            int choice = scanner.nextInt();
            scanner.nextLine(); // consume newline
        }
    }
}
```



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```
switch (choice) {
    case 1:
        System.out.print("Enter string to insert: ");
        String item = scanner.nextLine();
        stringList.add(item);
        System.out.println("Inserted successfully!");
        break;

    case 2:
        System.out.print("Enter string to delete: ");
        String toDelete = scanner.nextLine();
        if (stringList.remove(toDelete)) {
            System.out.println("Deleted successfully!");
        } else {
            System.out.println("Item not found!");
        }
        break;

    case 3:
        System.out.println("List contents: " + stringList);
        break;

    case 4:
        System.out.print("Enter string to search: ");
        String toSearch = scanner.nextLine();
        if (stringList.contains(toSearch)) {
            System.out.println("Item found!");
        } else {
            System.out.println("Item not found!");
        }
        break;

    case 5:
        System.out.println("Exiting program...");
        scanner.close();
        return;

    default:
        System.out.println("Invalid choice! Please try again.");
}
```

4. Output:

```
Choose an operation:
1. Insert
2. Delete
3. Display
4. Search
5. Exit
Enter your choice: 1
Enter string to insert: Amit Kumar
Inserted successfully!

Choose an operation:
1. Insert
2. Delete
3. Display
4. Search
5. Exit
Enter your choice: 3
List contents: [Amit Kumar]

Choose an operation:
1. Insert
2. Delete
3. Display
4. Search
5. Exit
Enter your choice: 4
Enter string to search: Ayesha
Item not found!
```

```
Choose an operation:
1. Insert
2. Delete
3. Display
4. Search
5. Exit
Enter your choice: 2
Enter string to delete: Amit Kumar
Deleted successfully!

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

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.