Ex.No: 5	**Java Application for String Operations using ArrayList**
Date:	

Aim:

To create a Java console application for string list operations [Append, Insert at particular Index, Search a string in a list, Display all the strings that begins with a character] using ArrayList in java.

Algorithm:

Step 1 Start the Process

Step 2 Prompt user with List Operation Choices
1. Append 2. Insert at particular Index 3. Search a string in a list
4. Display all the strings in a list 5. Display all the strings that begins with a character
6. Exit

Step 3 If user selects option 1 then get the string from user and add at last position of the list.

Step 4 If user selects option 2

- **Step 4.1** Get the string and position from the user
- **Step 4.2** Check the position exceeds from list size
- **Step 4.3** If exceeds then prompt an error “Sorry Position is not in the list limit” and goto step 2.
- **Step 4.4** Else create temporary list
- **Step 4.5** Add all the elements of the list upto current position one by one.
- **Step 4.6** Add current element to the list
- **Step 4.7** Add remaining elements one by one.
- **Step 4.8** Assign temporary list as source list and goto step 2

Step 5 If user selects option 3 then get the string to be searched from the user.

- **Step 5.1** Check every string one by one for string match
- **Step 5.2** If match found and display the string and position and goto step 2
- **Step 5.3** Else prompt an error message “String not found in the list” and goto step 2

Step 6 If user selects option 4 the display all the strings one by one. After that goto step 2.

Step 7 If user selects option 5 then proceed following

- **Step 7.1** Get the character from user
- **Step 7.2** Get all the string one by one and match first letter with character entered by the user
- **Step 7.3** If character matches display the string
- **Step 7.4** Else move to next string.
- **Step 7.5** At the end goto step 2

Step 8 If user selects option 6 exit from process and stop processing

Coding:

StringList.java

```
package com.raja.oopslab.stringlist;

import java.util.ArrayList;

public class StringList {
	ArrayList<String> listOfStrings;

	public StringList() {
		listOfStrings = new ArrayList<String>();
	}

	public boolean addString(String aString) {
		boolean result = listOfStrings.add(aString);
		return result;
	}

	public void insertStringAt(int position, String aString) {
		int list_size = listOfStrings.size();
		int cur_pos = 0;
		ArrayList<String> templist = new ArrayList<String>();
		if (position > list_size)
			System.out.println("Sorry Position is not in the list limit");
		else {
			for (String elememt : listOfStrings) {

				if (cur_pos == position)
					templist.add(aString);

				templist.add(elememt);
				cur_pos++;
			}
		}
		listOfStrings = templist;
	}

	public void displayList() {
		int i = 0;
		for (String element : listOfStrings){
			System.out.println(i+"."+element);
			i++;
		}
	}

	public void searchString(String aString) {

		int cur_pos = 0;
		int foundAt = -1;
```

```
		for (String element : listOfStrings) {
			if (element.equalsIgnoreCase(aString)) {
				foundAt = cur_pos;
				break;
			} else
				cur_pos++;
		}
		if (foundAt >= 0)
			System.out.println("Your string " + aString + " found at position " +
cur_pos);
		else
			System.out.println("String not found in the list");
	}

	public void displayStringsBeginWith(String aLetter) {
		System.out.println("The String's Begins with Letter ["+aLetter+"]\n");
		for (String element : listOfStrings) {
			String firstLetter = String.valueOf(element.charAt(0));
			if (aLetter.equals(firstLetter))
				System.out.println(element);
		}
	}
}
```

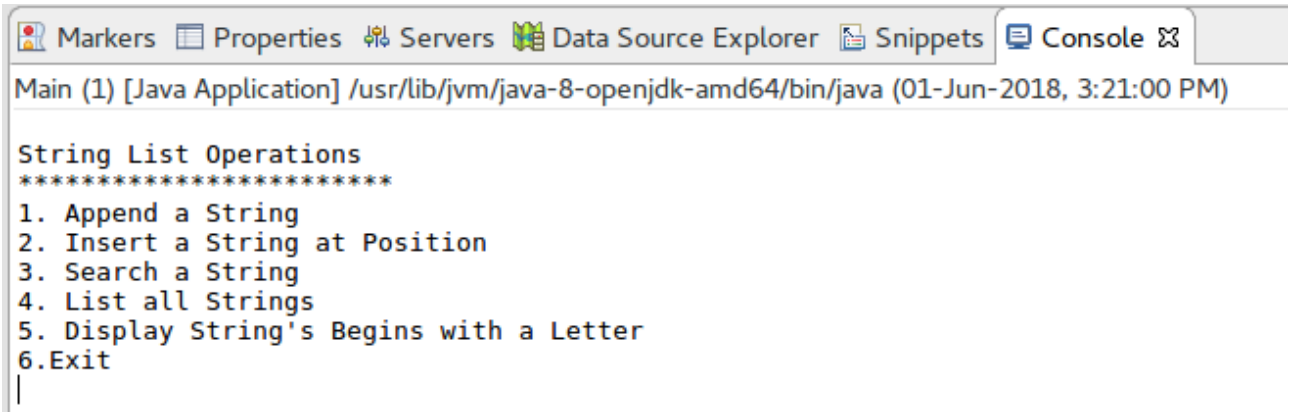
Main.java

```
import java.io.BufferedReader;
import java.io.IOException;
import java.io.InputStream;
import java.io.InputStreamReader;
import java.util.Scanner;

import com.raja.oopslab.stringlist.StringList;

public class Main {
	public static void main(String[] args) {
		StringList stringList = new StringList();
		Scanner userInput = new Scanner(System.in);
		String aString = null;
		int choice = 0;
		int position = 0;
		while (choice != 6) {
			System.out.println("\nString List Operations");
			System.out.println("************************");
			System.out.println(
					"1. Append a String\n"
					+ "2. Insert a String at Position\n"
					+ "3. Search a String\n"
					+ "4. List all Strings\n"
					+ "5. Display String's Begins with a Letter\n"
					+ "6.Exit");

			choice = userInput.nextInt();

			switch (choice) {
			case 1:
				System.out.println("Enter a String: ");
				stringList.addString(userInput.next());
				break;
			case 2:
				System.out.println("Enter a String: ");
				aString = userInput.next();
				System.out.println("Enter a Position to Insert: ");
				position = userInput.nextInt();
				stringList.insertStringAt(position, aString);
				break;
			case 3:
				System.out.println("Enter a String to Be Searched: ");
				aString = userInput.next();
				stringList.searchString(aString);
				break;
			case 4:
				System.out.println("\nList Contains");
				System.out.println("-------------");
				stringList.displayList();
				break;
```

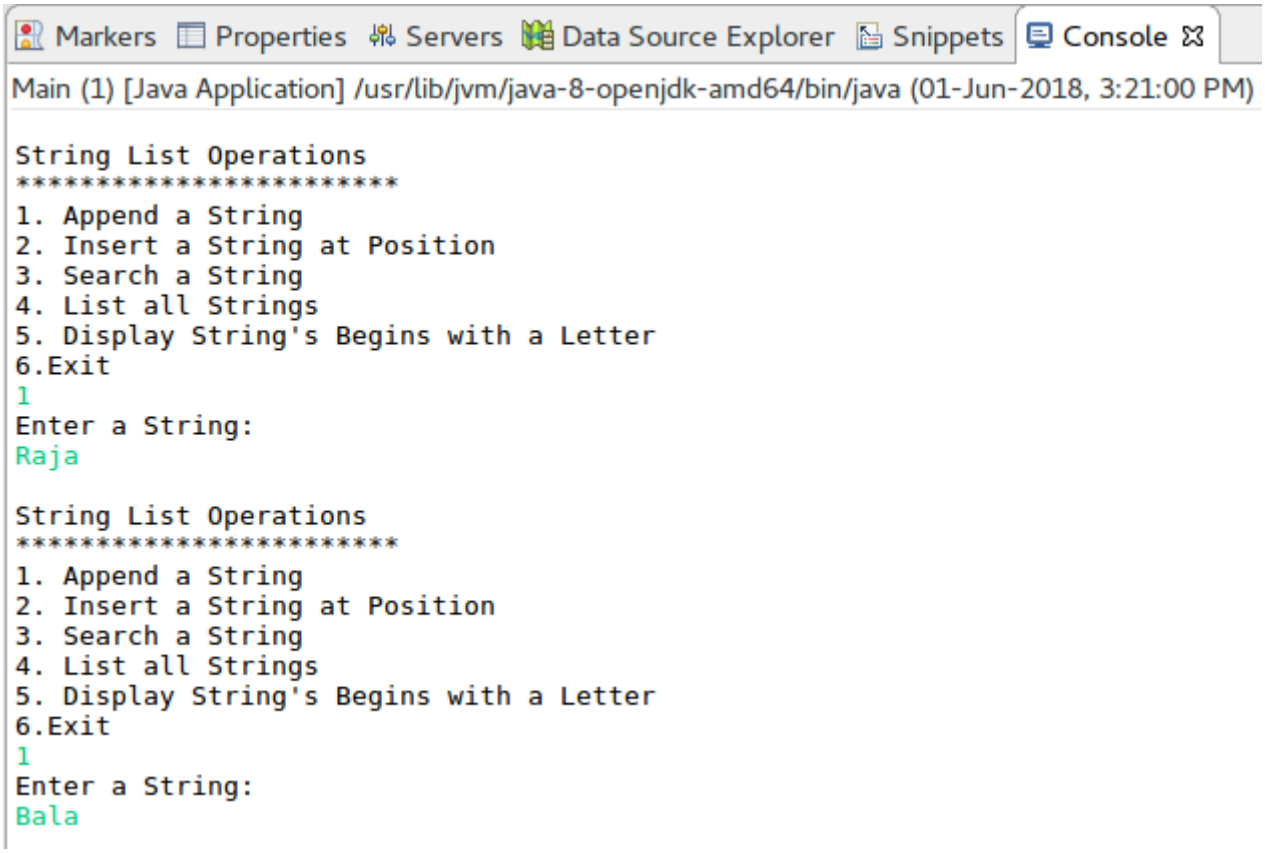
```
                    case 5:
                        System.out.println("Enter a letter");
                        stringList.displayStringsBeginWith(userInput.next());
                        break;
                    case 6:
                        System.out.println("\n\nThank You !!!");
                        userInput.close();
                        System.exit(0);
                        break;
                    default:
                        System.out.println("Please enter valid input");
                        break;
                    }
                }
            }
}
```

Output:

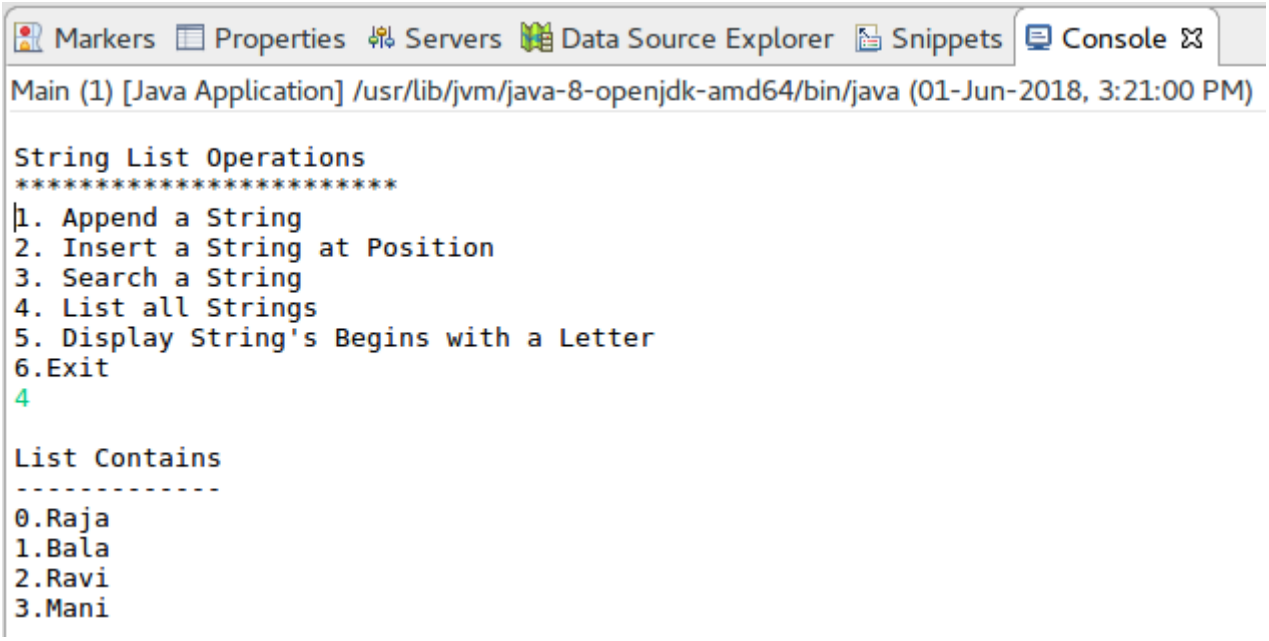
List Choices:



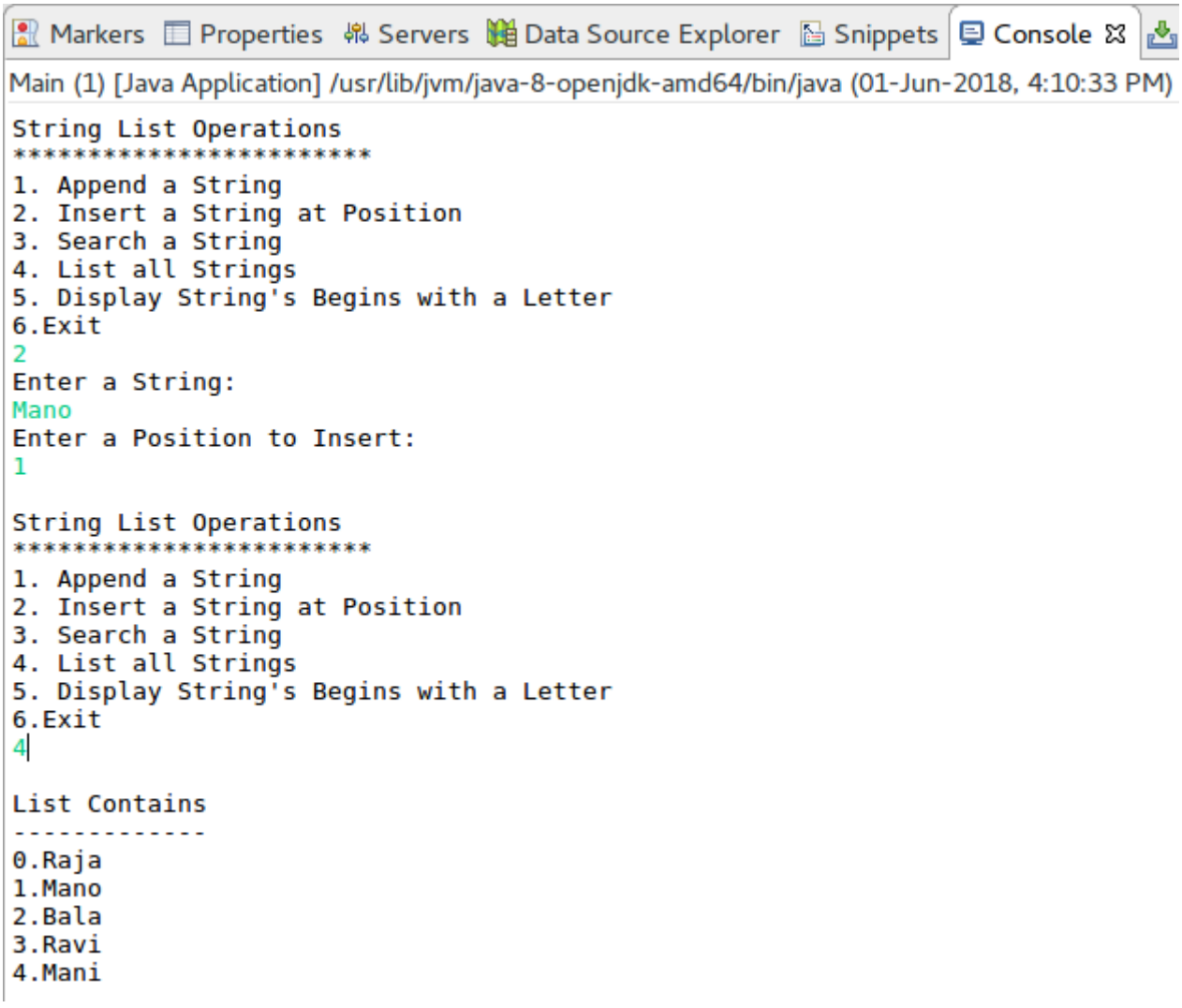
Append a string:



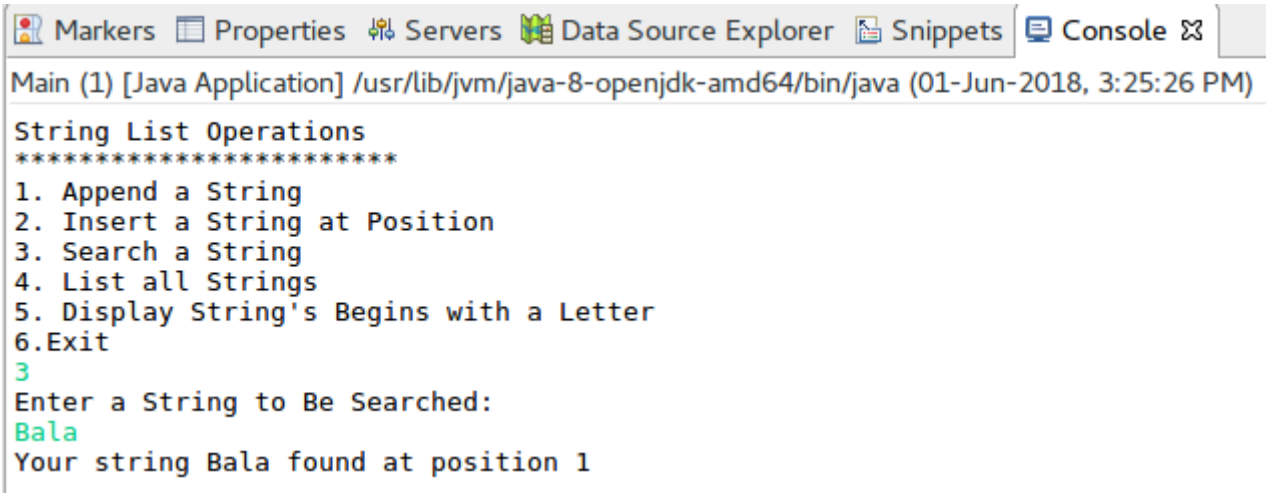
Display List:



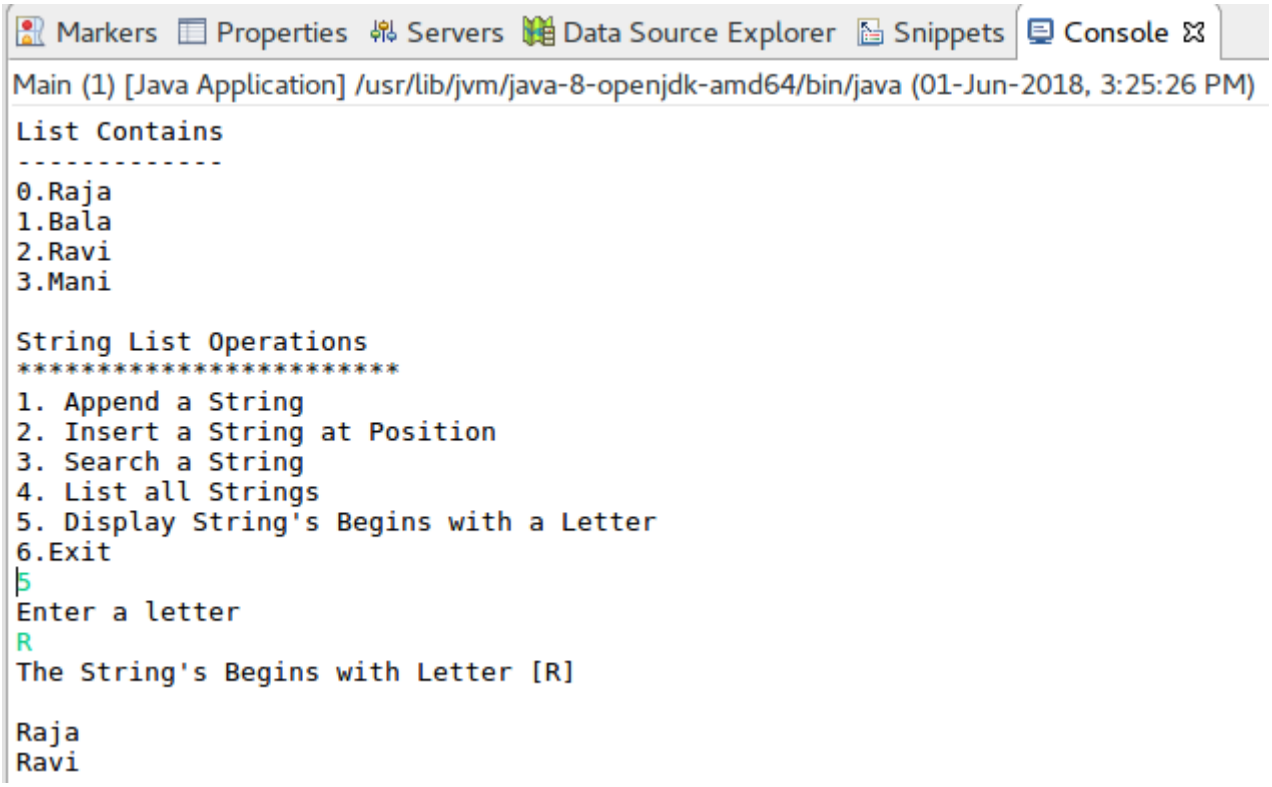
Insert At Position:



Search a String:



List the string's that begins with a letter "R":



Result:

The java console application for string list operations was developed and tested successfully.