Solution@28-11-23

599. Minimum Index Sum of Two Lists

```
import java.util.*;

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

      // Input for list1
      System.out.print("Enter the number of elements in list1: ");
      int n1 = scanner.nextInt();
      scanner.nextLine(); // Consume the newline character
      System.out.println("Enter the elements of list1:");
      String[] list1 = new String[n1];
      for (int i = 0; i < n1; i++) {
         list1[i] = scanner.nextLine();
      }

      // Input for list2
      System.out.print("Enter the number of elements in list2: ");
      int n2 = scanner.nextInt();
      scanner.nextLine(); // Consume the newline character
      System.out.println("Enter the elements of list2:");
      String[] list2 = new String[n2];
      for (int i = 0; i < n2; i++) {
         list2[i] = scanner.nextLine();
      }

      // Find common strings with the least index sum
      List<String> result = findLeastIndexSumCommonStrings(list1, list2);
```

```
    // Output the result
    System.out.println("Common strings with the least index sum:");
    if (result.isEmpty()) {
        System.out.println("No common strings found.");
    } else {
        for (String commonString : result) {
            System.out.println(commonString);
        }
    }
}

private static List<String> findLeastIndexSumCommonStrings(String[] list1, String[] list2) {
    Map<String, Integer> indexSumMap = new HashMap<>();
    int leastIndexSum = Integer.MAX_VALUE;

    for (int i = 0; i < list1.length; i++) {
        indexSumMap.put(list1[i], i);
    }

    List<String> result = new ArrayList<>();

    for (int j = 0; j < list2.length; j++) {
        if (indexSumMap.containsKey(list2[j])) {
            int indexSum = j + indexSumMap.get(list2[j]);
            if (indexSum < leastIndexSum) {
                result.clear();
                result.add(list2[j]);
                leastIndexSum = indexSum;
            } else if (indexSum == leastIndexSum) {
                result.add(list2[j]);
```

```
            }
          }
        }

        return result;
    }
}
```

Output

```
PS C:\Users\Ajeet\Desktop\java> javac MinimumIndexSum.java
PS C:\Users\Ajeet\Desktop\java> java MinimumIndexSum
Enter the number of elements in list1: 4
Enter the elements of list1:
ajeet
singh
ranaut
thakur
Enter the number of elements in list2: 4
Enter the elements of list2:
amit
kumar
singh
sharma
Common strings with the least index sum:
Singh
```

540. Single Element in a Sorted Array

```
import java.util.Scanner;

public class SingleElementInSortedArray {
  public static void main(String[] args) {
```

```
  Scanner scanner = new Scanner(System.in);

  // Input for the sorted array
  System.out.print("Enter the number of elements in the sorted array: ");
  int n = scanner.nextInt();
  scanner.nextLine(); // Consume the newline character
  System.out.println("Enter the elements of the sorted array:");
  int[] sortedArray = new int[n];
  for (int i = 0; i < n; i++) {
    sortedArray[i] = scanner.nextInt();
  }

  // Find the single element
  int result = singleNonDuplicate(sortedArray);

  // Output the result
  System.out.println("The single element in the sorted array is: " + result);
}

private static int singleNonDuplicate(int[] nums) {
  int left = 0, right = nums.length - 1;

  while (left < right) {
    int mid = left + (right - left) / 2;

    // If mid is even, move to the next odd index
    if (mid % 2 == 1) {
      mid--;
    }

    // Check if the single element is on the left or right
```

```
    if (nums[mid] != nums[mid + 1]) {
      right = mid;
    } else {
      left = mid + 2;
    }
  }

  return nums[left];
 }
}
```

Ouput

```
PS C:\Users\Ajeet\Desktop\java> javac SingleElementInSortedArray.java
PS C:\Users\Ajeet\Desktop\java> java SingleElementInSortedArray
Enter the number of elements in the sorted array: 9
Enter the elements of the sorted array:
1
1
2
3
3
4
10
10
9
The single element in the sorted array is: 2
```