

```

using System;
using System.Collections.Generic;
using System.Linq;

namespace MergedList
{
    class Program
    {
        /*
         * Given two lists of students, return a merged list of the two lists.
         * Order of the merged list is not important.
         * Example:
         * List A = [Allison, Brian, Peter]
         * List B = [Jason, Peter, Sara]
         * Return = [Allison, Brian, Peter, Jason, Sara]
         */
        static void Main(string[] args)
        {
            List<string> arr1 = new List<string>(){ "Allison", "Brian", "Peter" };
            List<string> arr2 = new List<string> { "Jason", "Peter", "Sara" };

            List<string> result = MergedListNoDuplicates(arr1, arr2);

            foreach(var item in result)
                Console.Write($"{item} ");
        }
        /*
         * Approach:
         * 1. Copy the first list to the result list
         * 2. Loop through two lists for each, then compare the component.
         * 3. If the two elements are duplicated, remove the element from the copied list.
         * 4. Print out the result.
         */
        public static List<string> MergedListNoDuplicates(List<string> a, List<string> b)
        {
            List<string> result = new List<string>(a); // copy the list

            for (int i = 0; i < b.Count; i++) // Time Complexity = O(n)
            {
                for (int j = 0; j < result.Count; j++) // Time Complexity = O(n^2)
                {
                    if (b[i] == result[j]) // Time Complexity = O(n^2 + m)
                        result.Remove(result[j]);
                }
                result.Add(b[i]);
            }

            return result;

            /*
             * Another Approach:
             * Use Hashset to display only unique components (no duplicates).
             * Can improve time complexity to O(1) from O(n^2 + m), constant time.
             */

            //HashSet<string> result = new HashSet<string>(a);
            //result.UnionWith(b);

            //return result.ToList();
        }
    }
}

```