Instructions: Please read carefully

- Please rename this file as only your ID number **(23-55401-3).**
- Submit the file before **4:40 PM on 7/11/2024** in the **Teams** labeled Lab **Task 3.**

Do not Copy!!!

Question 1:

Write a program to perform Insert a value in the following scenario:

- Add 100 at the end of the array
- Add 200 in index number 4
- Add 300 at the beginning of the array

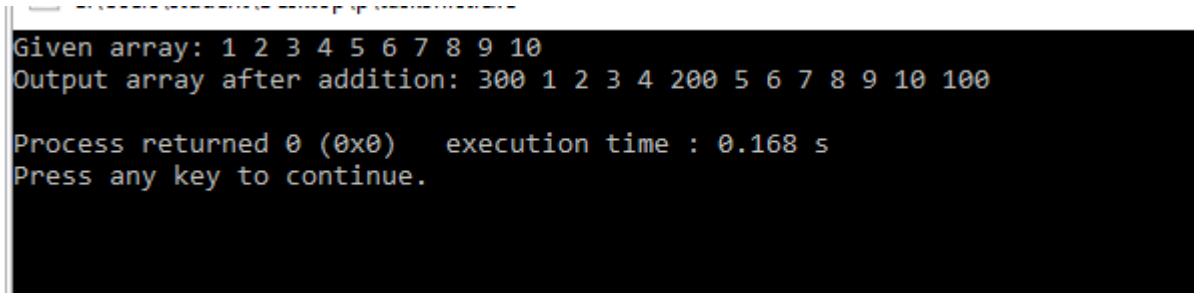
For example,
Output:
Given array: 1 2 3 4 5 6 7 8 9 10
Output array after addition: 300 1 2 3 4 200 5 6 7 8 9 10 100

Your code here:

```
#include<iostream>
using namespace std;

int main() {
  int arr[12] = {1, 2, 3, 4, 5, 6, 7, 8, 9, 10};
  int n = 10;

  cout << "Given array: ";
  for (int i = 0; i < n; i++) {
    cout << arr[i] << " ";
  }
  cout << endl;


  arr[n] = 100;
  n++;


  for (int i = n; i > 4; i--) {
    arr[i] = arr[i - 1];
  }
  arr[4] = 200;
  n++;


  for (int i = n; i > 0; i--) {
    arr[i] = arr[i - 1];
  }
  arr[0] = 300;
  n++;


  cout << "Output array after addition: ";
  for (int i = 0; i < n; i++) {
```

```
    cout << arr[i] << " ";
  }
  cout << endl;

  return 0;
}
```

Your whole Screenshot here: (Console Output):



Question 2:

Initialize TWO integer arrays A and B of different sizes. Make a new array with the common elements between A and B. Print the new array element(s). If there is no common element, output “No common element!”.
For example,

Scenario 1:
Array_1 = {1,4,6,3,6,9}
Array_2 = {5,3,7,1,2,6}
Output: 1 6 3

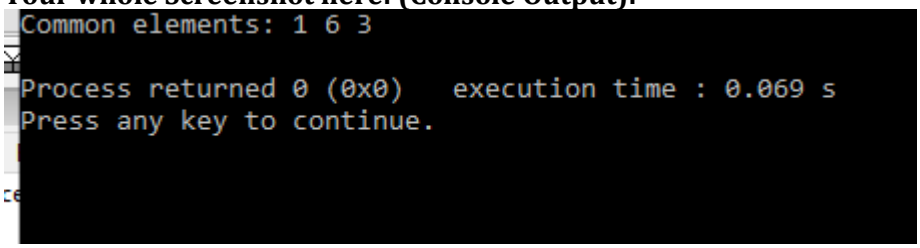
Scenario 2:
Array_1 = {1,4,6,3,6,9}
Array_2 = {5,8,7,12,21,63}
Output: No common element!

Your code here:

```
using namespace std;

int main() {

  int Array1[] = {1, 4, 6, 3, 4, 9};
  int Array2[] = {5, 3, 7, 1, 2, 6,6};


  int sizeA = sizeof(Array1) / sizeof(Array1[0]);
  int sizeB = sizeof(Array2) / sizeof(Array2[0]);

  int commonElements[10];

  int index = 0;
```

```
  for (int i = 0; i < sizeA; i++) {
    for (int j = 0; j < sizeB; j++) {
      if (Array1[i] == Array2[j]) {
        commonElements[index] = Array1[i];
        index++;
        break;
      }
    }
  }

  if (index == 0)


    {
    cout << "No common element!" << endl;
  } else {



    cout << "Common elements: ";


    for (int i = 0; i < index; i++) {
      cout << commonElements[i] << " ";
    }
    cout << endl;
  }

  return 0;
}
```

Your whole Screenshot here: (Console Output):



Question 3:

Initialize an array. Size should be more than FIVE. Write your program to change the array in such a way so that there cannot be any duplicate element in the array anymore. Print the changed array. If the initialized array already had no duplicate elements from the beginning, output a message saying “Array already unique!”;
For example,

Scenario 1:
Array_1 = **{1,4,6,3,6,9,1}**
Output: 1 4 6 3 9
Scenario 2:

Array_1 = {1,4,5,3,6,9}
Output: Array already unique!

Your code here:

```
#include <iostream>
using namespace std;

int main() {

  int arr[] = {1, 4, 6, 3, 6, 9, 1};
  int size = sizeof(arr) / sizeof(arr[0]);

  bool eDuplicates = false;


  for (int i = 0; i < size - 1; i++) {
    for (int j = i + 1; j < size; j++) {
      if (arr[i] == arr[j]) {
        eDuplicates = true;
        break;
      }
    }
    if (eDuplicates) break;
  }

  if (!eDuplicates) {
    cout << "Array already unique!" << endl;
  }


  int newSize = 0;
  int uniqueArr[10];

  for (int i = 0; i < size; i++) {
    bool isUnique = true;
    for (int j = 0; j < newSize; j++) {
      if (arr[i] == uniqueArr[j]) {
        isUnique = false;
        break;
      }
    }
    if (isUnique) {
      uniqueArr[newSize] = arr[i];
      newSize++;
```

```
    }
  }


  cout << "Changed array: ";
  for (int i = 0; i < newSize; i++) {
    cout << uniqueArr[i] << " ";
  }
  cout << endl;

  return 0;
}
```

Your whole Screenshot here: (Console Output):