C++ Arrays Assignments 18 -12-2022

1.	Code to find and print a contiguous subarray with the maximum sum in a given integer array. Input: {-3, 2, -3, 4, -1, 2, 1, -6, 5} Output: The contiguous subarray with the largest sum is {4, -1, 2, 1} Input: {8, -7, -3, 5, 6, -2, 3, -5, 3} Output: The contiguous subarray with the largest sum is {5, 6, -2, 3}
2.	Code to find smallest unsorted sub-array such that sorting this sub-array makes whole array sorted. Input Array : [1 **3** 4 6 5 2 11 7 **10** 14 15 16] Output: Unsorted sub-Array is from index 1 to 8 Input Array : [1 2 3 4 **7** 6 **5** 8 9 10] Output :Unsorted sub-Array is from index 4 to 6 Input Array : { 1, 2, 3, **7**, 5, 6, **4**, 8 } Output: Unsorted sub-Array is from index 3 to 6 Input Array : { 1, **3**, 2, 7, 5, 6, **4**, 8 } Output: Unsorted sub-Array is from index 1 to 6 Hint: Two pointers
3.	Code to find the minimum number of merge operations to make an array palindrome. A merge operation can only be performed on two adjacent elements and the result of a merge operation is that the two adjacent elements are replaced with their sum. Input: [8, 1, 4, 9] Output: 1 Explanation: [8, 1, 4, 9] —> Merge 8 and 1 —> [9, 4, 9] Input: [7, 2, 4, 3, 1, 9] Output: 2 Explanation: [7, 2, 4, 3, 1, 9] —> Merge 7 and 2 —> [9, 4, 3, 1, 9] —> Merge 3 and 1 —> [9, 4, 4, 9] Input: [2, 5, 5, 2] Output: 0 Explanation: The list is already a palindrome
4.	Code to group elements of a given array, based on their first occurrence in the array. Input: { 7, 2, 5, 7, 2, 7 } Output: { 7, 7, 7, 2, 2, 5 } Input: { 6, 5, 6, 6, 4, 2, 3, 3, 5 } Output: { 6, 6, 6, 5, 5, 4, 2, 3, 3 }

5.	Code to find the closest pair to a given sum in two sorted arrays, where the pair consists of elements from each array. Input: first_array[] = { 1, 8, 11, 13 } second_array[] = { 2, 6, 9, 18 } sum = 11 Output: The closest pair is [1, 9] Input: firstarray[] = { 10, 12, 15, 18, 24 } secondarray[] = { 1, 4, 7, 9 } sum = 23 Output: The closest pair is [18, 4] or [15 9] Hint: Use two pointers intelligently.
6.	Code to rearrange a given array such that it contains alternate positive and negative numbers If the array contains more positive or negative elements, **move** them to the end of the array. Assume that all values in the array are non-zero. Input: { 9, -4, 6, -3, -9, -7, 2, 4} Output: { 6, -3, 9, -7, 2, -9, 4, -4 } Input: { 9, -4, 5, -2, -8, -6 } Output: { 5, -2, 9, -6, -4, -8 } Input: { 9, -4, 5, -3, 8, 6, 1, 3 } Output: { 5, -3, 9, -4, 8, 6, 1, 3 } Hint: Two pointers can be used intelligently in first phase.
7.	Code to print the following pattern of output. Use this pattern code to print Calendar of a given Year (or Years) Input : days = 7 , startday =starting date of that year, maxdays = 30/31/27 0r 28 , patternnum = number of months Output: 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18