National University of Computer and Emerging Sciences, Lahore Campus

Course:	Programming Fundamentals		**Course Code:**	CS 118
Program:	BS(Computer Science)		**Semester:**	Fall 2020
Due Date	05-Nov-2020 at 11:59 pm		**Total Marks:**	30
Section:	CS-1G		**Page(s):**	1
Type:	Assignment 2			

Important Instructions:

1. You have to submit the solution of both questions separately. There will be two submission folders on Google classroom, one for question 1 and the other for question 2.
   a. For question 1, name your solution file with your roll number, i.e., 20_1111.cpp, and submit it in question 1's submission folder on Google classroom. Do not zip your file.
   b. For question 2, name your solution file with your roll number, i.e., 20_1111.cpp, and submit it in question 2's submission folder on Google classroom. Do not zip your file.
2. You are not allowed to copy solutions from other students. We will check your code for plagiarism using plagiarism checkers. If any sort of cheating is found, negative marks will be given to all students involved.
3. Late submission of your solution is not allowed

Question 1:   (20 marks)

Write a C++ program which declares an array of size N, asks the user to fill the array with numbers. Your programs will then do two things:

1. First, your program will replace the duplicate elements from the array. For example, let's say the size of array is 10, and the numbers user entered are 6, 8, 3, 5, 5, 0, 3, 9, 8, 3. Now after removing the duplicate numbers, the array will become 6, 8, 3, 5, -1, 0, -1, 9, -1, -1. All duplicate elements are replaced with -1. (Assume that the user never gives -1 as input for the array)
2. In the second part, your program will shift all -1s toward the end of the array. 6, 8, 3, 5, 0, 9, -1, -1, -1, -1.

Question 2:   (10 marks)

Write a C++ program that has an integer array of size N. The array contains N integers. You can hardcode the elements of the array. Now the program will ask the user to enter an integer number. Your program will tell whether the number given by the user is the summation of any three numbers in the array. Also print the three numbers whose sum is equal to the given number.

For example, if the array is: 9, 4, 54, 23, 54, -23 0, 54, 5, 8 and the number entered by the user is 86, then your program will print 9, 54 and 23.

It is possible to have more than one triplet whose summation equals the given number. In this case, print all triplets. Such as, if the user enters 85, then the program will print:
   a. 54, 23, and 8
   b. 54, 54, and -23