LAB TASK 02- POINTERS

Problem 1:

1. Declare two dynamic arrays of length 5. Initialize one of them from user input. Make the second one duplicate of the first one using pointers arithmetic and assignment operator.
2. Write a program that declares a 1D- dynamic array; and count the prime numbers.

Problem 2:

Write a program that declares a 2D matrix and check whether it is upper diagonal or lower diagonal.

Problem 3:

a) Write a program which contains a function **isPalindrome,** the function checks a string using pointers whether it is a palindrome or not and based on the decision return Ture or False. A string/word that reads the same backwards as forward is known as palindrome. E-g MADAM , POP , BOB etc

b) Write a program that takes a char array (char *) that take your name as input, a char pointer point it and convert lower to upper and vice versa.

Problem 4:

Write a function named "eliminate_duplicates" that takes values of integers in random order and create 1D- dynamic array; eliminates all the duplicate integers in the array. The size and the value will be passed (size will be passed by reference.
The function should not return a value, but if any duplicate integers are eliminated, then the function should change the value of the argument that was passed to it so that the new value tells the number of distinct integers in the array. Here is an example. Suppose the array passed to the function is as shown below, and the integer passed as an argument to the function is 11.

0	1	2	3	4	5	6	7	8	9	10
58	26	91	34	70	34	88	29	41	10	66

Then the function should alter the array so that it looks like this:

0	1	2	3	4	5	6	7	8	9	10
58	26	91	34	70	??	??	??	??	??	??

And it should change the value of the argument so that it is 5 instead of 11. The question marks in the cells after the 5th cell indicate that it does not matter what numbers are in those cells when the function returns.

Problem 5:

Create a 5x5 two 2D-Dynamic array and initialize it with the number passed to the function. Your task is to do the followings;

a) Write a method that will calculate the sum of all rows and return the array of mean.

b) Write a method "**sortColumns**" that will sort the each column of 2-D array into ascending order.

c) Write a method "**swap_Odd_Rows**" that will swap the values of odd rows.

Note: No subscript operator" [ ]" will be used during this task on pointer arithmetic allowed e.g. *(ptr+1).

Also if an array passed to function from test cases you must create dynamic arrays; in your function and copy these values so you have better understanding of Dynamic Arrays and Pointers.

Summary:

This lab session introduces the concepts of Pointers and DMA in C++. How to Declaring pointer arrays, pointer arithmetic, Multidimensional Pointers, Char* pointers, Alias to pointers

Submission Instructions:

1. Save single .cpp file with your roll no and lab number e.g. i20XXXX_Lab01.cpp
2. Take screen shot of running test cases of tasks.
3. Zip the .cpp file and screen shots (Do not create .rar file) with roll no and lab no. e.g. i20xxx_lab01.zip.
2. Submit the file on google class room.