LAB 04

**Program#01:** In this question, write a function, which take two parameters, a character array in a character pointer and a size of array. Create a dynamic array and copy all element of received array into dynamic array. Check if given string is palindrome or not. Delete the dynamic memory. This function should return 0 if string is palindrome else return 1.

**Program#02:**

Define and initialize five arrays of integer types each having n elements and an array of pointers p of size 5. Store the starting address of each array to array of pointers p. Next, initialize the values of these fives arrays randomly using for loop and p. Finally display the sum of the each individual array. You are not allowed to access the array using original variable name.

**Program#03:**

You have been given two dynamic matrices, matrixA and matrixB, along with their dimensions. Write a C++ function named matrixMultiplication that takes these matrices and their dimensions as parameters and returns the resulting matrix of their multiplication. The dimensions are provided by the user as integers rowsA, colsA, rowsB, and colsB.

**Program#04:** Here your goal is to define and allocate memory for 3D pointers.

**(a):**

write a function that receives four arguments:

(i) an alias to a 3D pointer;

(ii) number of pages (or number of matrices);

(iii) number of rows; and (iv) number of columns.

Now your goal is to first allocate the memory for pages, rows and then for columns dynamically using new operator. Randomly initialize values using 3D pointer.

**(b):**

In this function, your goal is to write code for deallocating a dynamically allocated 3D matrix. Your function will receives four arguments:

1. a 3D pointer;
2. number of pages;
3. number of rows
4. number of columns.

Complete the code to properly deallocate the 3D array.

**(c):**

In this question create and compute sum of two nrows X ncols matrices, where nrows and ncols will be passed as arguments to the function. First create a 3D pointer tdp and use the above defned function to create and allocate a 3D matrix with 3 pages (or 3 matrices) and nrows rows and ncols columns. Next randomly fill the first two matrices (at index 0 and index 1 of tdp) and then store the sum of these two matrices in third matrix (at index 2 of tdp). You will return the result of sum of matrices from the function.