Practical # 03

Objective:

Discuss *multi dimensional Array. Write C++ to declare and print elements of multi dimensional Array.*

Theory:

In this Lab, we can define multidimensional arrays in simple words as array of arrays. Data in multidimensional arrays are stored in tabular form (in row major order).

Lab Objectives:

- To be able to declare a multi-dimensional array.
- To be able to perform fundamental operations on a multi-dimensional array.
- To learn some common ways to search for an item in a multi-dimensional array.

Introduction:

A **multi-dimensional array** is a structured collection of components (often called array elements) that can be accessed individually by specifying the position of a component with a double index value. General form of declaring N-dimensional arrays:

data_type array_name[size1][size2]....[sizeN];

Total number of elements that can be stored in a multidimensional array can be calculated by multiplying the size of all the dimensions.

Example program: *Declare and print elements of multi-dimensional Array.*

```
#include<iostream>
using namespace std;
int main()
{    // an array with 3 rows and 2 columns.
    int x[3][2] = {{0,1}, {2,3}, {4,5}};
    // output each array element's value
    for (int i = 0; i < 3; i++)
    {
        for (int j = 0; j < 2; j++)
        {
            cout << "Element at x[" << i
                 << "][" << j << "]: ";
            cout << x[i][j]<<endl;
        }
    }
   return 0; }
```

OUTPUT

Review Questions/ Exercise:

1. Write a C++ program to add two 2-dimensional arrays.
2. Write C++ program to display the diagonal elements of a given matrix.
3. Write a C++ program to Find Sum of Diagonal Elements of Matrix
4. Write a C++ program to multiply two integer 3-dimensional arrays and print the output array.
5. Write a C++ program to Transpose Matrix.

Name: _____

Roll #: _____

Date: _____

Subject Teacher

Remarks: