Bahria University,

Karachi Campus

LAB EXPERIMENT NO. _02_
LIST OF TASKS

TASK NO	OBJECTIVE
Task 1	Create an array of length 10 of integers. Values ranging from 1 to 50. a) Find all pair of elements whose sum is 25. b) Find the number of elements of A which are even, and the number of elements of A which are odd. c) Write a procedure which finds the average of the value of A. d) Write a procedure which adds an element in an array at a given index. Take the value to add and the index from the user. e) Write a procedure which looks for 2 numbers 45 and 14 in an array and delete them if they are present in the array.
Task 2	Create a 2 dimensional Array. Translate the matrix multiplication algorithm into a program which finds the product C of an *nxm* matrix A and *pxn* matrix B.
Task 3	N/A
Task 4	N/A
Task 5	**N/A**
Task 6	**N/A**
Task 7	N/A
Task 8	N/A

Submitted On:

__20/02/2020__

(Date: DD/MM

Task No. 1: Create an array of length 10 of integers. Values ranging from 1 to 50.

a) Find all pair of elements whose sum is 25.

b) Find the number of elements of A which are even, and the number of elements of A which are odd.

c) Write a procedure which finds the average of the value of A.

d) Write a procedure which adds an element in an array at a given index. Take the value to add and the index from the user.

Write a procedure which looks for 2 numbers 45 and 14 in an array and delete them if they are present in the array.

Coding:

Task1.cpp

```cpp
#include <iostream>
using namespace std;
int main()
{
    int arr[50];
    int size, index, element,place;
    cout << "Enter 10 values oin Array of size(50) :" << endl;
    for (int i = 0;i < 10;i++)
    {
        cin >> arr[i];
        place = i;
        if (arr[i] > 50)
        {
            cout << " Enter values less than 50...!!!" << endl;
            for (int j = place;j = place ;j++)
            {
                cin >> arr[i];
                break;
            }
        }
    }
    //Checking values whose sum == 25
    for (int i = 0;i < 10;i++)
    {
        for (int j = 0; j < 10; j++)
        {
            if (arr[i] + arr[j] == 25)
            {
                cout << arr[i] << " + " << arr[j] << " = " << arr[1] + arr[j]<<endl;
            }
        }
    }
    //checking even and odd values and average also
    int e_counter = 0;
    int o_counter = 0;
    int sum = 0;
```

```
    for (int i = 0;i < 10;i++)
    {

        if (arr[i] % 2 == 0)
        {
            e_counter += 1;
        }
        else
        {
            o_counter += 1;
        }
        sum = sum + arr[i];
    }
    cout << "Total Even number are :" << e_counter<<endl;
    cout << "Total Odd number are : " << o_counter<<endl;
    cout << "Average of given array is :" << sum / 10<<endl;
    //part D insert is skipped
    //looking for 45 and 14 in array
    for (int i = 0;i < 10;i++)
    {

        if (arr[i]  == 45)
        {

            for (int j = i;i < 10;i++)
            {
                arr[i] = arr[i + 1];
            }
        }
    }
    for (int i = 0;i < 10-1;i++)
    {
        cout << arr[i] << " ";
    }
    cout << endl;
    cout << endl;

    return 0;
}
```

Output:

```
Enter 10 values in Array of size(50) :
20
10
15
5
51
 Enter values less than 50...!!!
18
7
16
9
76
 Enter values less than 50...!!!
12
13
```

```
20 + 5 = 25
10 + 15 = 25
15 + 10 = 25
5 + 20 = 25
18 + 7 = 25
7 + 18 = 25
16 + 9 = 25
9 + 16 = 25
12 + 13 = 25
13 + 12 = 25
```

```
Total Even number are :5
Total Odd number are : 5
Average of given array is :12
20 10 15 5 18 7 16 9 12
```

Task No. 2: Create a 2 dimensional Array. Translate the matrix multiplication algorithm into a program which finds the product C of an *nxm* matrix A and *pxn* matrix B.

Coding:

Task2.cpp

```cpp
#include <iostream>
using namespace std;
int main()
{
    int A[3][3];
    cout << "Enter Values of 3x3 Array :" << endl;
    for (int i = 0; i < 3; i++)
    {
        for (int j = 0; j < 3; j++)
        {
            cin >> A[i][j];
        }
    }
    cout << "Matrix A" << endl;
    for (int i = 0; i < 3; i++)
    {
        for (int j = 0; j < 3; j++)
        {
            cout << A[i][j] << " ";
        }
        cout << endl;
    }
    //Matrix B
    cout << "Enter Values of 3x4 Array :" << endl;
    int B[3][4];
    for (int i = 0; i < 3; i++)
    {
        for (int j = 0; j < 4; j++)
        {
            cin >> B[i][j];
        }
    }
    cout << "Matrix B" << endl;
    for (int i = 0; i < 3; i++)
    {
        for (int j = 0; j < 4; j++)
        {
            cout << B[i][j] << " ";
        }
        cout << endl;
    }
    //Multiplication
    cout << "Multiplication of Matrix A & B will be :" << endl;
    int mul[3][4];
    for (int i = 0; i < 3; i++)
    {
        for (int j = 0; j < 4; j++)
        {
            mul[i][j] = 0;
        }
    }
    for (int i = 0; i < 3; i++)
    {
        for (int j = 0; j < 4; j++)
        {
            for (int k = 0; k < 3; k++)
            {
                mul[i][j] += A[i][k] * B[k][j];
            }
        }
    }
```

```
60          }
61      }
62      for (int i = 0; i < 3; i++)
63      {
64          for (int j = 0; j < 4; j++)
65          {
66              cout << mul[i][j] << " ";
67          }
68          cout << endl;
69      }
70
71      return 0;
72  }
```

Output:

```
Enter Values of 3x3 Array :
4
2
3
3
1
3
3
6
2
Matrix A
4 2 3
3 1 3
3 6 2
```

```
Enter Values of 3x4 Array :
2
4
5
9
3
2
8
7
8
4
3
2
Matrix B
2 4 5 9
3 2 8 7
8 4 3 2
```

```
Multiplication of Matrix A & B will be :
38 32 45 56
41 30 35 42
40 32 69 73
```