



CP Lab-06 Tasks

Name:	Syed Muhammad Raza Ali
Enrolment:	02-134231-028
Course:	CP Lab
Faculty:	Miss Fatima

Lab 06 Multiple Arrays

Tasks: 01

Write a program to create a 2D array of size 3x3. The program takes input for each cell in the array and then calculates and displays the sum of each row.

Code:

```
#include <iostream>
using namespace std;

int main() {

    int arr[3][3];
    int sum = 0;

    for (int i = 0; i < 3; i++) {
        for (int j = 0; j < 3; j++) {
            cout << "Enter the value of index no : " << i << j<<endl;
            cin >> arr[i][j];
        }
    }

    cout << "-----" << endl;
    cout << "Your array is " << endl;
    for (int i = 0; i < 3; i++) {
        for (int j = 0; j < 3; j++) {
            cout << arr[i][j] << " ";
        }
        cout << endl;
    }
    cout << "-----"<<endl;

    for (int i = 0; i < 3; i++)
    {
        for (int j = 0; j < 3; j++)
        {
            sum = sum + arr[i][j];
        }
        cout << "The sum of row " << i << " = " << sum << endl;
        sum = 0;
    }
}
```

Output:

```
Microsoft Visual Studio Debug Console
Enter the value of index no : 00
2
Enter the value of index no : 01
23
Enter the value of index no : 02
7
Enter the value of index no : 10
8
Enter the value of index no : 11
0
Enter the value of index no : 12
62
Enter the value of index no : 20
95
Enter the value of index no : 21
3
Enter the value of index no : 22
0
-----
Your array is
2 23 7
8 0 62
95 3 0
-----
The sum of row 0 = 32
The sum of row 1 = 70
The sum of row 2 = 98
```

Tasks: 02

Write a program that takes a 3x3 matrix as input and asks for a number entered and prints out its position in the matrix. It displays not found if the number is not in the matrix.

Code:

```
#include <iostream>
using namespace std;

int main() {
    int arr[3][3];

    for (int i = 0; i < 3; i++) {
        for (int j = 0; j < 3; j++) {
            cout << "Enter the value of position " << i << j << endl;
            cin >> arr[i][j];
        }
    }
}
```

```

cout << "Your array " << endl;
for (int i = 0; i < 3; i++) {
for (int j = 0; j < 3; j++) {
cout << arr[i][j] << " ";
}
cout << endl;
}
cout << "-----" << endl;
int searchElement;
cout << "Enter the Element you want to search" << endl;
cin >> searchElement;

bool flag = false;
for (int i = 0; i < 3; i++) {
for (int j = 0; j < 3; j++) {
if (arr[i][j] == searchElement) {
cout << "Element found at Position : " << i << j<<endl;
flag = true;
}
}
}

if (flag == false) {
cout << "Element doesnt exist" << endl;
}
return 0;
}

```

Output (if the value exists):

```
Microsoft Visual Studio Debug Console
Enter the value of position 00
1
Enter the value of position 01
0
Enter the value of position 02
45
Enter the value of position 10
6
Enter the value of position 11
8
Enter the value of position 12
2
Enter the value of position 20
0
Enter the value of position 21
1
Enter the value of position 22
1
Your array
1 0 45
6 8 2
0 1 1
-----
Enter the Element you want to search
1
Element found at Position : 00
Element found at Position : 21
Element found at Position : 22
```

Output (if the value doesn't exist):

```
Microsoft Visual Studio Debug Console
1
Enter the value of position 01
83
Enter the value of position 02
64
Enter the value of position 10
2
Enter the value of position 11
2
Enter the value of position 12
0
Enter the value of position 20
91
Enter the value of position 21
9
Enter the value of position 22
4
Your array
1 83 64
2 2 0
91 9 4
-----
Enter the Element you want to search
5
Element doesnt exist
```

Tasks: 03

Write a program which calculates the transpose of a 3x3 matrix.

Code:

```
#include <iostream>
using namespace std;

int main() {

    int arr[3][3];

    for (int i = 0; i < 3; i++) {
        for (int j = 0; j < 3; j++) {
            cout << "Enter the value of position " << i << j << endl;
            cin >> arr[i][j];
        }
    }

    cout << endl << "Your array " << endl;
    for (int i = 0; i < 3; i++) {
        for (int j = 0; j < 3; j++) {
            cout << arr[i][j] << " ";
        }
        cout << endl;
    }

    cout << endl << "Transpose of the entered array is " << endl;
    for (int i = 0; i < 3; i++) {
        for (int j = 0; j < 3; j++) {
            cout << arr[j][i] << " ";
        }
        cout << endl;
    }
    return 0;
}
```

Output:

```
Microsoft Visual Studio Debug Console
Enter the value of position 02
3
Enter the value of position 10
4
Enter the value of position 11
5
Enter the value of position 12
6
Enter the value of position 20
7
Enter the value of position 21
8
Enter the value of position 22
9

Your array
1 2 3
4 5 6
7 8 9

Transpose of the entered array is
1 4 7
2 5 8
3 6 9
```