

LAB MANUAL 9

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ME-15-B

Lab task 1:

```
#include <bits/stdc++.h>

using namespace std;

int main() {

    const int size = 3;

    int matrix[size][size];

    cout << "Enter the elements " << endl;

    for (int i = 0; i < size; ++i) {

        for (int j = 0; j < size; ++j) {

            cin >> matrix[i][j];

        }

    }

    cout << "Matrix is" << endl;

    for (int i = 0; i < size; ++i) {

        for (int j = 0; j < size; ++j) {

            cout << matrix[i][j] << " ";

        }

        cout << endl;

    }

    int leftDiagonalSum = 0;

    for (int i = 0; i < size; ++i) {

        leftDiagonalSum += matrix[i][i];

    }

    int rightDiagonalSum = 0;

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

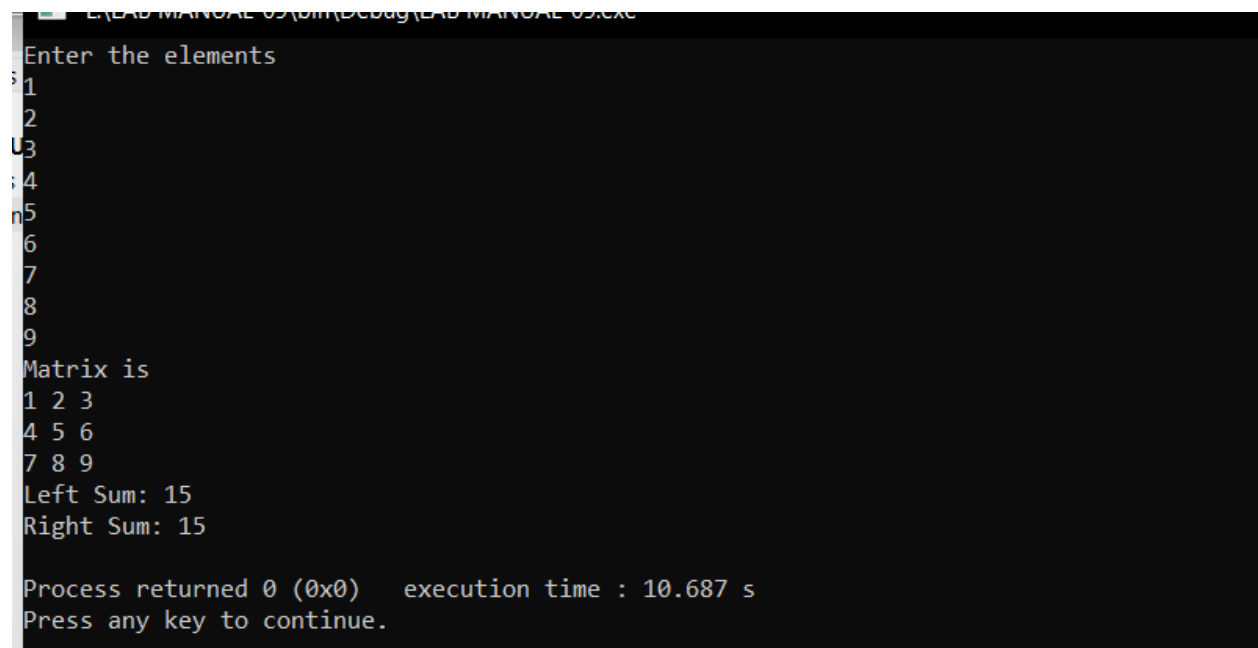
```

        rightDiagonalSum += matrix[i][size - 1 - i];
    }

    cout << "Left Sum: " << leftDiagonalSum << endl;
    cout << "Right Sum: " << rightDiagonalSum << endl;

    return 0;
}

```



```

C:\LAB\MAIN\01\03\bin\Debug\LAB MAIN\01\03.exe
Enter the elements
1
2
3
4
5
6
7
8
9
Matrix is
1 2 3
4 5 6
7 8 9
Left Sum: 15
Right Sum: 15

Process returned 0 (0x0)   execution time : 10.687 s
Press any key to continue.

```

LAB TASK 2:

```
#include <bits/stdc++.h>
```

```
using namespace std;
```

```

void sum(const int matrix1[3][3], const int matrix2[3][3], int result[3][3]) {
    for (int i = 0; i < 3; ++i) {
        for (int j = 0; j < 3; ++j) {
            result[i][j] = matrix1[i][j] + matrix2[i][j];
        }
    }
}

```

```
}  
}
```

```
int main() {  
    const int size = 3;  
    int matrix1[size][size];  
    int matrix2[size][size];  
    int result[size][size];  
  
    cout << "Enter the elements of the first matrix:" << endl;  
    for (int i = 0; i < size; ++i) {  
        for (int j = 0; j < size; ++j) {  
            cin >> matrix1[i][j];  
        }  
    }  
}
```

```
    cout << "Enter the elements of the second matrix:" << endl;  
    for (int i = 0; i < size; ++i) {  
        for (int j = 0; j < size; ++j) {  
            cin >> matrix2[i][j];  
        }  
    }
```

```
    sum(matrix1, matrix2, result);
```

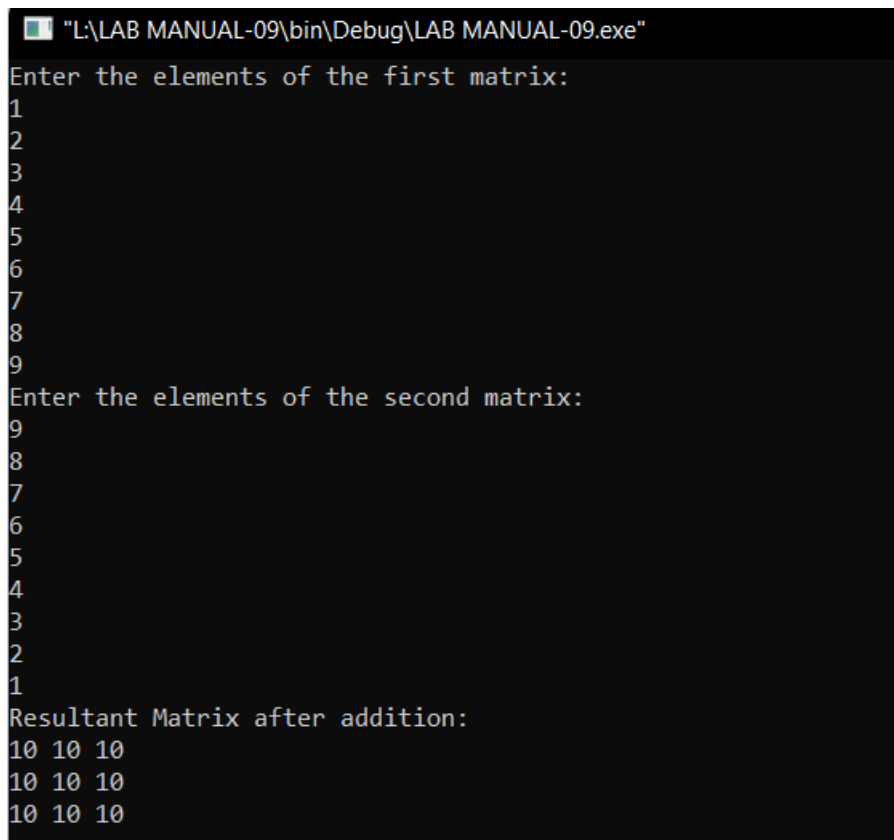
```
    cout << "answer Matrix:" << endl;  
    for (int i = 0; i < size; ++i) {  
        for (int j = 0; j < size; ++j) {
```

```

        cout << result[i][j] << " ";
    }
    cout << endl;
}

return 0;
}

```



```

"L:\LAB MANUAL-09\bin\Debug\LAB MANUAL-09.exe"
Enter the elements of the first matrix:
1
2
3
4
5
6
7
8
9
Enter the elements of the second matrix:
9
8
7
6
5
4
3
2
1
Resultant Matrix after addition:
10 10 10
10 10 10
10 10 10

```

LAB TASK 3:

```

#include <bits/stdc++.h>

using namespace std;

void transpose(const int matrix[3][3], int result[3][3]) {
    for (int i = 0; i < 3; ++i) {
        for (int j = 0; j < 3; ++j) {

```

```

        result[j][i] = matrix[i][j];
    }
}
}

```

```

int main() {
    const int size = 3;
    int matrix[size][size];
    int result[size][size];
    cout << "Enter the elements:" << endl;
    for (int i = 0; i < 3; ++i) {
        for (int j = 0; j < 3; ++j) {
            cin >> matrix[i][j];
        }
    }
    transpose(matrix, result);
    cout << "Original Matrix:" << endl;
    for (int i = 0; i < 3; ++i) {
        for (int j = 0; j < 3; ++j) {
            cout << matrix[i][j] << " ";
        }
        cout << endl;
    }
}

```

```

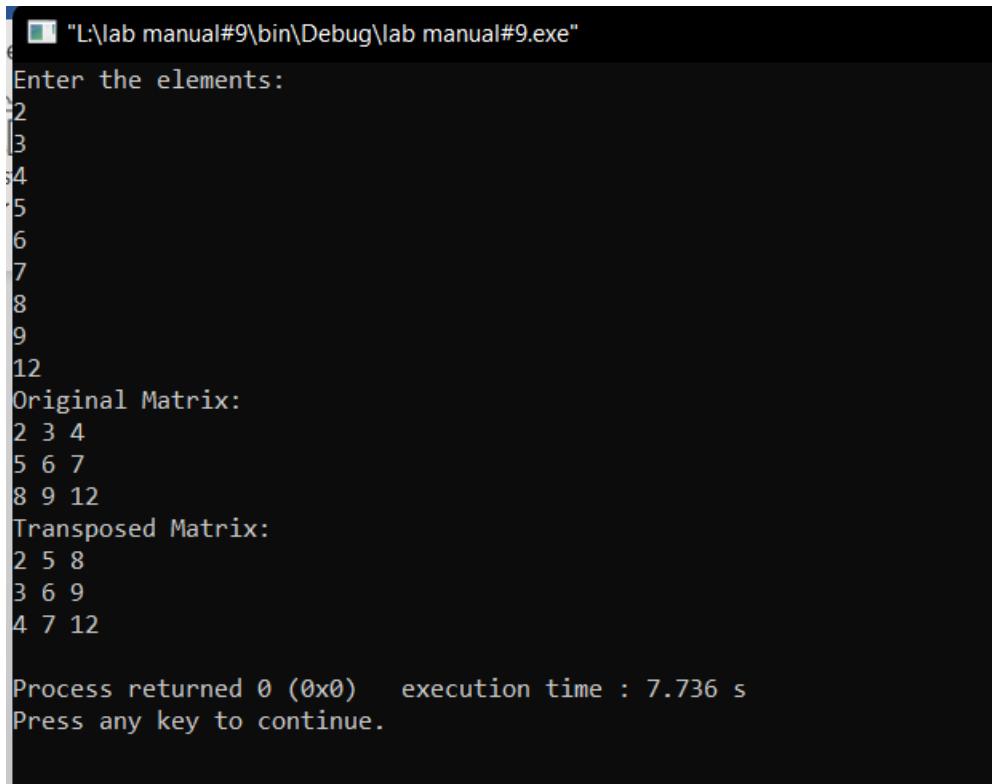
cout << "Transposed Matrix:" << endl;
for (int i = 0; i < 3; ++i) {
    for (int j = 0; j < 3; ++j) {
        cout << result[i][j] << " ";
    }
}

```

```

        cout << endl;
    }
    return 0;
}

```



```

L:\lab manual#9\bin\Debug\lab manual#9.exe
Enter the elements:
2
3
4
5
6
7
8
9
12
Original Matrix:
2 3 4
5 6 7
8 9 12
Transposed Matrix:
2 5 8
3 6 9
4 7 12

Process returned 0 (0x0)   execution time : 7.736 s
Press any key to continue.

```

LAB TASK 4:

```
#include <iostream>
```

```
using namespace std;
```

```

void multiplyMatrices(const int matrix1[3][3], const int matrix2[3][3], int result[3][3]) {
    for (int i = 0; i < 3; ++i) {
        for (int j = 0; j < 3; ++j) {
            result[i][j] = 0;
            for (int k = 0; k < 3; ++k) {

```

```

        result[i][j] += matrix1[i][k] * matrix2[k][j];
    }
}
}

```

```

int main() {
    const int size = 3;
    int matrix1[size][size];
    int matrix2[size][size];
    int result[size][size];
    cout << "Enter the elements of first matrix:" << endl;
    for (int i = 0; i < size; ++i) {
        for (int j = 0; j < size; ++j) {
            cin >> matrix1[i][j];
        }
    }
    cout << "Enter the elements of the second matrix:" << endl;
    for (int i = 0; i < size; ++i) {
        for (int j = 0; j < size; ++j) {
            cin >> matrix2[i][j];
        }
    }
    multiplyMatrices(matrix1, matrix2, result);
    cout << "Resultant :" << endl;
    for (int i = 0; i < size; ++i) {
        for (int j = 0; j < size; ++j) {
            cout << result[i][j] << " ";
        }
    }
}

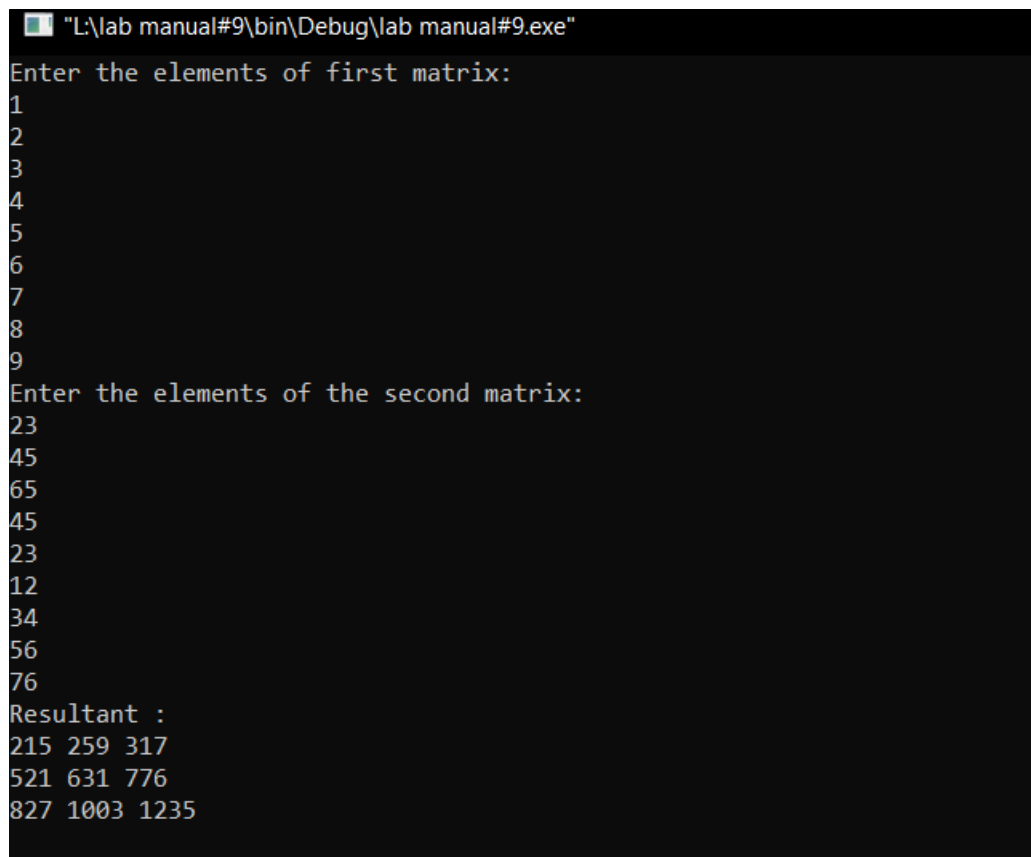
```

```

        cout << endl;
    }

    return 0;
}

```



```

L:\lab manual#9\bin\Debug\lab manual#9.exe
Enter the elements of first matrix:
1
2
3
4
5
6
7
8
9
Enter the elements of the second matrix:
23
45
65
45
23
12
34
56
76
Resultant :
215 259 317
521 631 776
827 1003 1235

```

LAB TASK 5:

```

#include <bits/stdc++.h>

using namespace std;

void Table(int number, int multiplier) {
    if (multiplier > 10) {
        return;
    }
}

```



```
    cout << number << " * " << multiplier << " = " << (number * multiplier) << endl;
    Table(number, multiplier + 1);
}
```

```
int main() {
    int number;

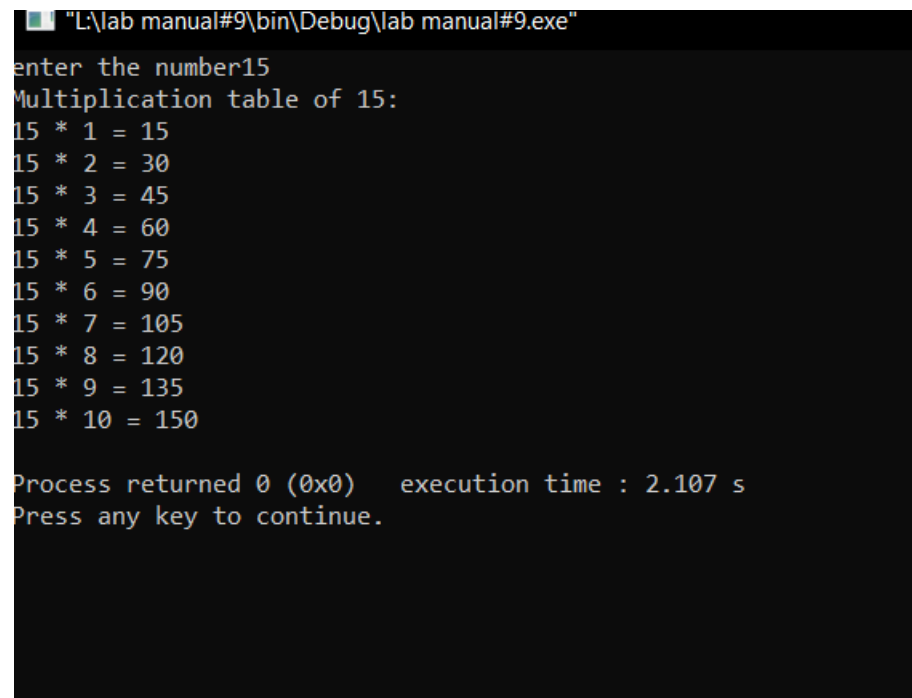
    cout<<"enter the number";

    cin>>number;

    cout << "Multiplication table of " << number << ":" << endl;

    Table(number, 1);

    return 0;
}
```



```
"L:\lab manual#9\bin\Debug\lab manual#9.exe"
enter the number15
Multiplication table of 15:
15 * 1 = 15
15 * 2 = 30
15 * 3 = 45
15 * 4 = 60
15 * 5 = 75
15 * 6 = 90
15 * 7 = 105
15 * 8 = 120
15 * 9 = 135
15 * 10 = 150

Process returned 0 (0x0)   execution time : 2.107 s
Press any key to continue.
```