

```
//task 1
```

```
// sum of diagonals
```

```
int num[20][20],i,j,n,sum1=0,sum2=0;
```

```
cout<<"enter row column number: "<<endl;
```

```
cin>>n;
```

```
    cout<<"enter matrix elements: "<<endl;
```

```
for(i=0;i<n;i++){
```

```
    for(j=0;j<n;j++){
```

```
        cout<<"enter numbers in pocket["<<i<<" ] ["<<j<<" ]";
```

```
cin>>num[i][j];
```

```
    }
```

```
    cout<<endl;
```

```
    }
```

```
    for(i=0;i<n;i++){
```

```
for(j=0;j<n;j++){
```

```
cout<<num[i][j]<<" ";
```

```
        }cout<<endl;
```

```
for(i=0;i<n;i++){
```

```
for
```

```
(j=0;j<n;j++){
```

```
if(i==j){
sum1=sum1+num[i][j];

        }

        if(i+j==n-1);

sum2=sum2+num[1][2];

        }

    }

    cout<<"both side diagonol sum of matrix
are..."<<sum1<<"and"<<sum2<<endl; return
0; }
```

C:\Users\lenovo\Desktop\ME\First semester\Programming Lab\Code\lab 9 pretext.exe

```
enter row column number:
3
enter matrix elements:
enter numbers in pocket[0] [0]1
enter numbers in pocket[0] [1]1
enter numbers in pocket[0] [2]1

enter numbers in pocket[1] [0]1
enter numbers in pocket[1] [1]1
enter numbers in pocket[1] [2]1

enter numbers in pocket[2] [0]1
enter numbers in pocket[2] [1]1
enter numbers in pocket[2] [2]1

1 1 1
both side diagonol sum of matrix are...3and9

-----
Process exited after 6.137 seconds with return value 0
Press any key to continue . . .
```

// task 2

// addition of matrix

```
int a[4][3];

int b[4][3];

int i = 0;

int j = 0;      int

m=0;      int n=0;

int addition=0;

cout<<"Enter size of matrix 1: "<<endl;

cin>>n;
```

```

for(i=1;i<=n;i++){
    for(j=1;j<=n;j++){

        cout<<"enter numbers in pocket["<<i<<" ] ["<<j<<"]: ";
cin>>a[i][j];

    }
    cout<<endl;
}

cout << "Matrix 1: "<<endl;

for(i=1;i<=n;i++){
for(j=1;j<=n;j++){
cout<<a[i][j]<<" ";

    }cout<<endl;

}

cout<<"Enter size of matrix 2: "<<endl;
cin>>m;

```

```

        for(i=1;i<=m;i++){
for(j=1;j<=m;j++){

        cout<<"enter elements of matrix in pocket: ["<<i<<"
["<<j<<"]:";

        cin>>b[i][j];

        }cout<<endl;

}

```

```

cout << "Matrix 2: " << endl;

```

```

        for(i=1;i<=m;i++){
for(j=1;j<=m;j++){          cout<<b[i][j]<<"
";

```

```

        }cout<<endl;

```

```

}

```

```

cout<<"adding matrix a and b : "<< endl;

```

```

        for(i=1;i<=n;i++){

for(j=1;j<=n;j++){

```

```

        addition=a[i][j]+b[i][j];

        cout <<addition << " ";

    } cout << endl;

}

return 0;

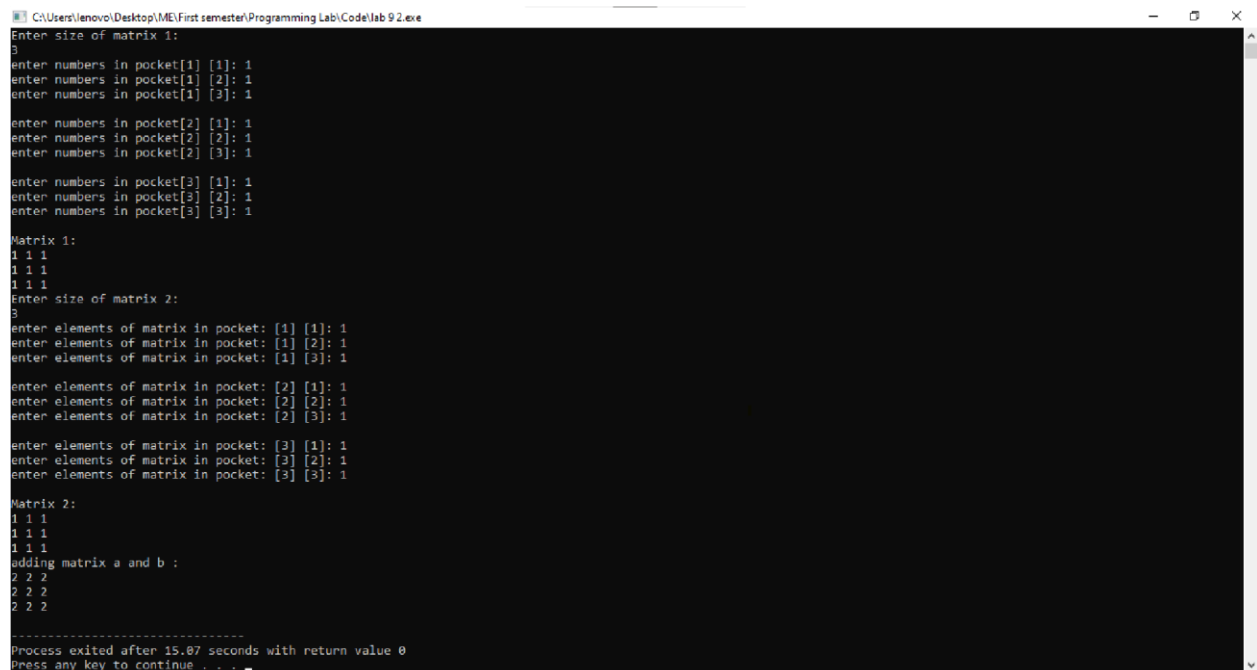
}

```

//task 3

//Transpose of matrix

#include<iostream>



```

C:\Users\lenovo\Desktop\ME\First semester\Programming Lab\Code\lab 9 2.exe
Enter size of matrix 1:
3
enter numbers in pocket[1] [1]: 1
enter numbers in pocket[1] [2]: 1
enter numbers in pocket[1] [3]: 1

enter numbers in pocket[2] [1]: 1
enter numbers in pocket[2] [2]: 1
enter numbers in pocket[2] [3]: 1

enter numbers in pocket[3] [1]: 1
enter numbers in pocket[3] [2]: 1
enter numbers in pocket[3] [3]: 1

Matrix 1:
1 1 1
1 1 1
1 1 1
enter size of matrix 2:
3
enter elements of matrix in pocket: [1] [1]: 1
enter elements of matrix in pocket: [1] [2]: 1
enter elements of matrix in pocket: [1] [3]: 1

enter elements of matrix in pocket: [2] [1]: 1
enter elements of matrix in pocket: [2] [2]: 1
enter elements of matrix in pocket: [2] [3]: 1

enter elements of matrix in pocket: [3] [1]: 1
enter elements of matrix in pocket: [3] [2]: 1
enter elements of matrix in pocket: [3] [3]: 1

Matrix 2:
1 1 1
1 1 1
1 1 1
adding matrix a and b :
2 2 2
2 2 2
2 2 2
.....
Process exited after 15.07 seconds with return value 0
Press any key to continue . . .

```

```
using namespace std; int
```

```
main()
```

```
{
```

```
    int a[4][3];
```

```
    int i = 0 ;    int j
```

```
    = 0;
```

```
    for(i=1;i<=3;i++)
```

```
    {
```

```
        for(j=1;j<=3;j++)
```

```
        {
```

```
            cout<<"Enter element in pocket["<<i<<"]["<<j<<"]: ";
```

```
            cin>>a[i][j];
```

```
        }
```

```
        cout<<endl;
```

```
    }
```

```
cout << "Original Matrix is:"<< endl;
```

```
for(i=1;i<=3;i++)
```

```
{
```

```
    for(j=1;j<=3;j++)
```

```
    {
```

```
        cout<<a[i][j]<<" ";
```

```
    }
```

```
        cout<<endl;
```

```
}
```

```
cout << "Transpose of Matrix:"<<endl;
```

```
for(i=1;i<=3;i++)
```

```
{
```

```
    for(j=1;j<=3;j++)
```

```
    {
```

```
        if ( i != j )
```

```
        {
```

```
            cout << a[j][i] <<" ";
```

```
        }
```



```


        else if ( i = j )
        {
            cout <<a[i][j]<<" ";
        }

    }

    cout<<endl;
}

return 0;
}

```

 C:\Users\lenovo\Desktop\ME\First semester\Programming Lab\Code\T2.exe

```

Enter element in pocket[1][1]: 1
Enter element in pocket[1][2]: 2
Enter element in pocket[1][3]: 3

```

```

Enter element in pocket[2][1]: 4
Enter element in pocket[2][2]: 5
Enter element in pocket[2][3]: 6

```

```

Enter element in pocket[3][1]: 7
Enter element in pocket[3][2]: 8
Enter element in pocket[3][3]: 9

```

Original Matrix is:

```

1 2 3
4 5 6
7 8 9

```

Transpose of Matrix:

```

1 4 7
2 5 8
3 6 9

```

```

-----
Process exited after 8.641 seconds with return value 0
Press any key to continue . . .

```

```
//task 4
```

```
// printing table of 15 using recursion
```

```
#include<iostream> using
```

```
namespace std; void
```

```
table (int x,int y)
```

```
{
```

```
    if (y!=1)
```

```
    {
```

```
        table(x,y-1);
```

```
    }
```

```
cout<<x*y<<endl;
```

```
}
```

```
int main(){
```

```
    table(15,10);
```

```
return 0;
```

```
}
```

```
C:\Users\lenovo\Desktop\ME\First semester\Programming Lab\Code\multipl
15
30
45
60
75
90
105
120
135
150

-----
Process exited after 0.593 seconds with return value 0
Press any key to continue . . .
```

/

// multiplication of matrix

//task 5

```
#include<iostream>
```

```
using namespace std;
```

```
int main() {
```

```
int matrix1[3][3], matrix2[3][3],
```

```
multiplied[3][3],element;
```

```
//loop to get input for matrix one
```

```
cout << "Write element for matrix 1" << endl;
```

```
for (int i = 0; i < 3; i++) {
```

```
for (int j = 0; j < 3; j++) {
```

```
    cout << "Enter the element of coloumn " << i  
+ 1 << " and row " << j + 1 << ": " << endl;
```

```
    cin >> matrix1[i][j];
```

```
}
```

```
}
```

```
//loop to get input for matrix two
```

```

cout << "Write element for matrix 2" << endl;;
for (int i = 0; i < 3; i++) {
for (int j = 0; j < 3; j++) {
    cout << "Enter the element of coloumn " << i
+ 1 << " and row " << j + 1 << ": " << endl;
    cin >> matrix2[i][j];
}
}
//loops for the multiplication of matrices
//outer loop for the coloumn of matrix 1
for (int i = 0; i < 3; i++) {
//inner loop 1 for the rows of matrix 2
for (int j = 0; j < 3; j++) {
    int sum = 0;
    //inner loop 2 for row of matrix one and
coloumn of matrix 2
    for (int k = 0; k < 3; k++) {
        element=matrix1[i][k] * matrix2[k][j];
        sum += element;
    }
    multiplied[i][j] = sum;
}
}
//loops to display the matrices
cout << "Matrix 1" << endl;
for (int i = 0; i < 3; i++) {
for (int j = 0; j < 3; j++) {
    cout << matrix1[i][j] << "\t";
}
cout << endl;
}
cout << "Matrix 2" << endl;
for (int i = 0; i < 3; i++) {
for (int j = 0; j < 3; j++) {

```

```

        cout << matrix2[i][j] << "\t";
    }
    cout << endl;
}
cout << "Multiplication of the two matrices" <<
endl;
for (int i = 0; i < 3; i++) {
    for (int j = 0; j < 3; j++) {
        cout << multiplied[i][j] << "\t";
    }
    cout << endl;
}
return 0;
}

```

```

C:\Users\lenovo\Desktop\ME\First semester\Programming Lab\Code\multiplicatio
Enter the element of coloumn 1 and row 3:
3
Enter the element of coloumn 2 and row 1:
4
Enter the element of coloumn 2 and row 2:
5
Enter the element of coloumn 2 and row 3:
6
Enter the element of coloumn 3 and row 1:
7
Enter the element of coloumn 3 and row 2:
8
Enter the element of coloumn 3 and row 3:
9
Matrix 1
1      2      3
4      5      6
7      8      9
Matrix 2
1      2      3
4      5      6
7      8      9
Multiplication of the two matrices
30     36     42
66     81     96
102    126    150

-----
Process exited after 16.8 seconds with return value 0
Press any key to continue . . .

```