

Assingment no 6-

```
#include<iostream>
```

```
using namespace std;
```

```
class ADT{
```

```
int x;
```

```
};
```

```
int main()
```

```
{
```

```
//fill your code
```

```
int msg;
```

```
int m, n;
```

```
cout<<"enter the no of rows and column"<<endl;
```

```
cin >> m >> n;
```

```
try{
```

```
    if(m<=2 || n<=2){
```

```
int i, j;
```

```
int mat1[m][n], mat2[m][n], mat3[m][n] , mat4[m][n];
```

```
//mat5[m][n];
```

```
cout<<"enter the element of matrix 1"<<endl;
```

```
for(i = 0; i < m; i++)
```

```
{
```

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

```
//cout<<"enter the element of matrix 1"<<endl;
```

```
cin >> mat1[i][j];
```

```
}
```

```
cout<<"enter the element of matrix 1"<<endl;
```

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

```
{
```

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

```
//cout<<"enter the element of matrix 1"<<endl;
```

```

cin >> mat2[i][j];
}
cout<<"additon of two matrix"<<endl;
for(i = 0; i < m; i++)
{
for(j = 0; j < n; j++)
{
mat3[i][j] = mat1[i][j]+ mat2[i][j];
}
}
cout<<"substraction of two matrix"<<endl;
for(i = 0; i < m; i++)
{
for(j = 0; j < n; j++)
{
mat4[i][j] = mat1[i][j]- mat2[i][j];
}

}

/*for(i = 0; i < m; i++)
{
for(j = 0; j < n; j++)
{
mat5[i][j] = mat1[i][j]* mat2[i][j];
}

}*/

```

```
for(i = 0; i < m; i++)
{
for(j = 0; j < n; j++)
cout << mat3[i][j] << " ";
cout << endl;
}
for(i = 0; i < m; i++)
{
for(j = 0; j < n; j++)

cout << mat4[i][j] << " ";
cout << endl;
}
}
else{
throw msg;
}
}
catch(int msg){
cout<<"exception occured";
}

return 0;
}
```

```
58 */
59 */
60
61
62
63 for(i = 0; i < m; i++)
64 {
65     for(j = 0; j < n; j++)
66         cout << mat3[i][j] << " ";
67     cout << endl;
68 }
69 for(i = 0; i < m; i++)
70 {
71     for(j = 0; j < n; j++)
72
73     cout << mat4[i][j] << " ";
74     cout << endl;
75 }
76 }
77 else{
78     throw msg;
79 }
80 }
81 catch(int msg){
82     cout<<"exception occurred";
83 }
84
85
86 return 0;
87 }
```

```
> clang++7 -pthread -std=c++17 -o main main.cpp
> ./main
enter the no of rows and column
2 2
enter the element of matrix 1
2 3 4 5
enter the element of matrix 1
1 3 4 6
addition of two matrix
subtraction of two matrix
3 6
8 11
1 0
0 -1
>
```

```
#include <iostream>
```

```
using namespace std;
```

```
class ADT{
```

```
    int x;
```

```
};
```

```
int main()
```

```
{
```

```
int m, n, p, q, c, d, k, sum = 0;
```

```
int msg;
```

```
try{
```

```
    if(m<=2 || n<=2)
```

```
    {
```

```
int mat1[10][10], mat2[10][10], mat3[10][10];
```

```
cout << "Enter number of rows and columns of matrix1\n";
```

```
cin >> m >> n;
```

```
cout << "Enter elements of matrix 1\n";
```

```
for (c = 0; c < m; c++)
```

```

for (d = 0; d < n; d++)
    cin >> mat1[c][d];

cout << "\nEnter number of rows and columns of matrix2\n";
cin >> p >> q;

if (n != p)
    cout << "\nThe matrices can't be multiplied with each other.\n";
else
{
    cout << "\nEnter elements of matrix2\n";

    for (c = 0; c < p; c++)
        for (d = 0; d < q; d++)
            cin >> mat2[c][d];

    for (c = 0; c < m; c++) {
        for (d = 0; d < q; d++) {
            for (k = 0; k < p; k++) {
                sum = sum + mat1[c][k]*mat2[k][d];
            }

            mat3[c][d] = sum;
            sum = 0;
        }
    }

    cout << "\nProduct of the matrices:\n";

    for (c = 0; c < m; c++) {
        for (d = 0; d < q; d++)

```

```
cout << mat3[c][d] << " ";
```

```
cout << endl;
```

```
}
```

```
}
```

```
}
```

```
else{
```

```
    throw msg;
```

```
}
```

```
}
```

```
catch(int msg){
```

```
    cout<<"exception occured"<<endl;
```

```
}
```

```
return 0;
```

```
}
```

The screenshot shows a web-based IDE (Replit) with a C++ program for matrix multiplication. The code is as follows:

```
37 for (c = 0; c < m; c++) {
38   for (d = 0; d < q; d++) {
39     for (k = 0; k < p; k++) {
40       sum = sum + mat1[c][k]*mat2[k][d];
41     }
42   }
43   mat3[c][d] = sum;
44   sum = 0;
45 }
46 }
47
48 cout << "\nProduct of the matrices:\n";
49
50 for (c = 0; c < m; c++) {
51   for (d = 0; d < q; d++) {
52     cout << mat3[c][d] << " ";
53   }
54   cout << endl;
55 }
56 }
57 }
58 else{
59   throw msg;
60 }
61 }
62 catch(int msg){
63   cout<<"exception occured"<<endl;
64 }
65 return 0;
66 }
```

The console output shows the program's execution with the following user inputs and results:

```
> clang++-7 -pthread -std=c++17 -o main main.cpp
> ./main
Enter number of rows and columns of matrix1
2 2
Enter elements of matrix 1
1 2 3 4

Enter number of rows and columns of matrix2
2 2
Enter elements of matrix2
2 3 4 4

Product of the matrices:
10 11
22 25
>
```