

B.Tech Computer Engineering

Vth Semester

Lab 1

Sub: OOPS Lab

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Q1.) To multiply two matrices dynamically.

```

#include <bits/stdc++.h>

using namespace std;

int main()
{
    int r, c, i, j, k;
    cout << "Enter Length Of Matrix 1"
         << "\n";
    cin >> r >> c;
    vector<vector<int>> matrix1(r, vector<int>(c));
    cout << "\n"
         << "Enter Elements Of Matrix 1:"
         << "\n";
    for (i = 0; i < r; ++i)
    {
        for (j = 0; j < c; ++j)
        {
            cout << "Enter Elements "
                 << " : ";
            cin >> matrix1[i][j];
        }
    }
    cout << "Enter Size Of Matrix 2"
         << "\n";
    cin >> r >> c;
    vector<vector<int>> matrix2(r, vector<int>(c));
    cout << "\n"
         << "Enter Elements Of Matrix 2:"
         << "\n";
    for (i = 0; i < r; ++i)
    {
        for (j = 0; j < c; ++j)
        {
            cout << "Enter Elements "
                 << " : ";
            cin >> matrix2[i][j];
        }
    }
}

```

```

        vector<vector<int>> mat(matrix1.size(),
vector<int>(matrix2[0].size()));
        for (i = 0; i < matrix1.size(); ++i)
            for (j = 0; j < matrix2[0].size(); ++j)
                for (k = 0; k < matrix1[0].size(); ++k)
                {
                    mat[i][j] += matrix1[i][k] * matrix2[k][j];
                }
        cout << "Desired Product : "
            << "\n";
        for (i = 0; i < mat.size(); ++i)
        {
            for (j = 0; j < mat[0].size(); ++j)
            {
                cout << mat[i][j] << " ";
            }
            cout << "\n";
        }

        cout << "Syed Mohammad Raza"
            << "\n";
        return 0;
    }

```

Output:

```
File Edit Selection View Go Run Terminal Help prog5.cpp - OOPS Lab - Visual Studio Code
EXPLORER
> OPEN EDITORS
OOPS LAB
  a.exe
  LAB1_Syed Mohamm...
  prog1.cpp
  prog2.cpp
  prog3.cpp
  prog4.cpp
  prog5.cpp
OUTLINE
NPM SCRIPTS
DEPENDENCIES
MAVEN
Connect
1: cmd
Enter Length Of Matrix 1
3 3
Enter Elements Of Matrix 1:
Enter Elements : 1
Enter Elements : 2
Enter Elements : 3
Enter Elements : 4
Enter Elements : 5
Enter Elements : 6
Enter Elements : 7
Enter Elements : 8
Enter Elements : 9
Enter Size Of Matrix 2
3
3
Enter Elements Of Matrix 2:
Enter Elements : 10
Enter Elements : 11
Enter Elements : 12
Enter Elements : 13
Enter Elements : 14
Enter Elements : 15
Enter Elements : 16
Enter Elements : 17
Enter Elements : 18
Desired Product :
```

```
File Edit Selection View Go Run Terminal Help prog5.cpp - OOPS Lab - Visual Studio Code
EXPLORER
> OPEN EDITORS
OOPS LAB
  a.exe
  LAB1_Syed Mohamm...
  prog1.cpp
  prog2.cpp
  prog3.cpp
  prog4.cpp
  prog5.cpp
OUTLINE
NPM SCRIPTS
DEPENDENCIES
MAVEN
Connect
1: cmd
Enter Elements : 3
Enter Elements : 4
Enter Elements : 5
Enter Elements : 6
Enter Elements : 7
Enter Elements : 8
Enter Elements : 9
Enter Size Of Matrix 2
3
3
Enter Elements Of Matrix 2:
Enter Elements : 10
Enter Elements : 11
Enter Elements : 12
Enter Elements : 13
Enter Elements : 14
Enter Elements : 15
Enter Elements : 16
Enter Elements : 17
Enter Elements : 18
Desired Product :
84 90 96
201 216 231
318 342 366
Syed Mohammad Raza
C:\Users\raza9\Desktop\Labs Sem V\OOPS Lab>
```