Assignment - 7

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Code:

```
#include <iostream>
#include <vector>

using namespace std;

int main() {
   int r1, c1, r2, c2;
   cout << "Enter rows and columns for first matrix: ";
   cin >> r1 >> c1;
   cout << "Enter rows and columns for second matrix: ";
   cin >> r2 >> c2;

   // Check if multiplication is possible
   if (c1 != r2) {
      cout << "Matrix multiplication is not possible.";
      return 0;
   }

   vector<vector<int>> matrix1(r1, vector<int>(c1));
   vector<vector<int>> matrix2(r2, vector<int>(c2));
```

```
    vector<vector<int>> result(r1, vector<int>(c2));

    cout << "Enter elements of first matrix:\n";
    for (int i = 0; i < r1; ++i)
        for (int j = 0; j < c1; ++j)
            cin >> matrix1[i][j];

    cout << "Enter elements of second matrix:\n";
    for (int i = 0; i < r2; ++i)
        for (int j = 0; j < c2; ++j)
            cin >> matrix2[i][j];

    // Matrix multiplication
    for (int i = 0; i < r1; ++i)
        for (int j = 0; j < c2; ++j)
            for (int k = 0; k < c1; ++k)
                result[i][j] += matrix1[i][k] * matrix2[k][j];

    cout << "Resultant Matrix:\n";
    for (int i = 0; i < r1; ++i) {
        for (int j = 0; j < c2; ++j)
            cout << result[i][j] << " ";
        cout << "\n";
    }

    return 0;
}
```

Output:

```
PS C:\Users\Dhairya Arora\OneDrive\Desktop\C++> cd "c:\Users\Dhairya Arora\OneDrive\Desktop\C++\" ; if ($?) { g++ DAAassignment-1.cpp -o DAAassignment-1 } ;
if ($?) { .\DAAassignment-1 }
Enter rows and columns for first matrix: 3 3
Enter rows and columns for second matrix: 3 4
Enter elements of first matrix:
1 2 3 4 5 6 7 8 9
Enter elements of second matrix:
1 2 3 4 5 6 7 7 8 9 9 2
Resultant Matrix:
35 41 44 24
77 92 101 63
119 143 158 102
PS C:\Users\Dhairya Arora\OneDrive\Desktop\C++>
```