

19BCE2484

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Matrix Multiplication

Code:

```
#include <stdio.h>

int main()
{
    int m, n, p, q, a, b, z, sum = 0;
    int first[10][10], second[10][10], multiply[10][10];
    printf("Enter number of rows and columns of first matrix\n");
    scanf("%d%d", &m, &n);
    printf("Enter elements of first matrix\n");
    for (a = 0; a < m; a++)
        for (b = 0; b < n; b++)
            scanf("%d", &first[a][b]);
    printf("Enter number of rows and columns of second matrix\n");
    scanf("%d%d", &p, &q);
    if (n != p)
        printf("The multiplication isn't possible.\n");
    else
    {
        printf("Enter elements of second matrix\n");
        for (a = 0; a < p; a++)
            for (b = 0; b < q; b++)
                scanf("%d", &second[a][b]);
        for (a = 0; a < m; a++) {
            for (b = 0; b < q; b++) {
                for (z = 0; z < p; z++) {
```

```

        sum = sum + first[a][z] * second[z][b];
    }

    multiply[a][b] = sum;

    sum = 0;
}

}

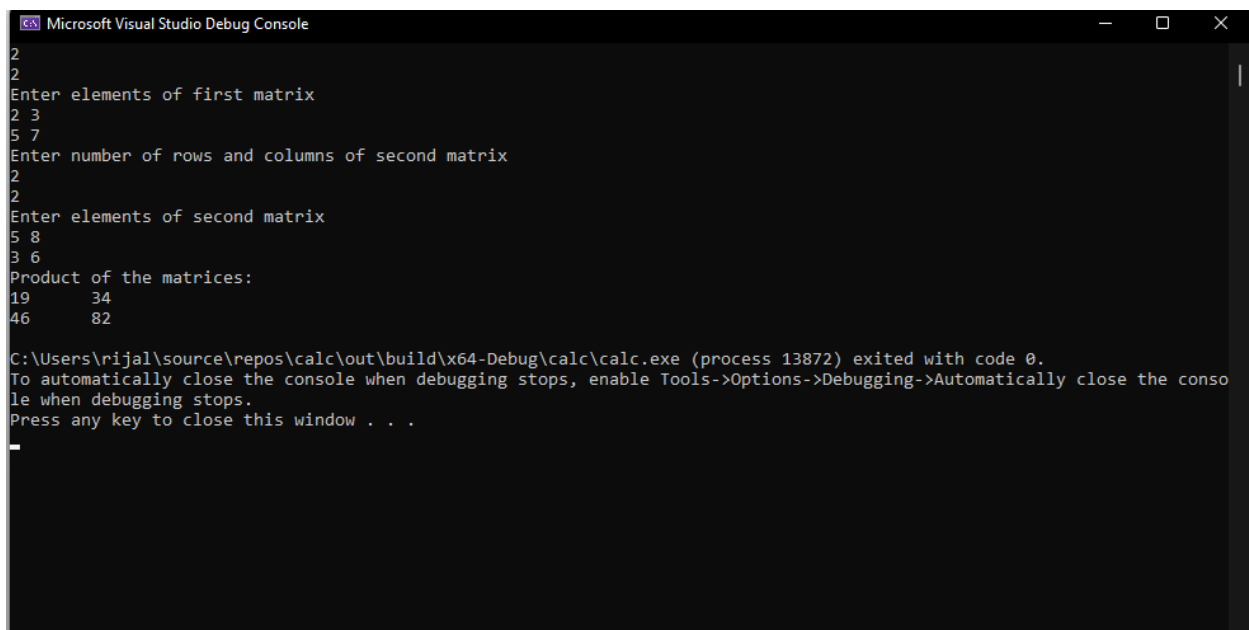
printf("Product of the matrices:\n");
for (a = 0; a < m; a++) {
    for (b = 0; b < q; b++)
        printf("%d\t", multiply[a][b]);
    printf("\n");
}

return 0;
}

```

Output:

Testcase 1:



```

Microsoft Visual Studio Debug Console
2
2
Enter elements of first matrix
2 3
5 7
Enter number of rows and columns of second matrix
2
2
Enter elements of second matrix
5 8
3 6
Product of the matrices:
19    34
46    82
C:\Users\rijal\source\repos\calc\out\build\x64-Debug\calc\calc.exe (process 13872) exited with code 0.
To automatically close the console when debugging stops, enable Tools->Options->Debugging->Automatically close the console when debugging stops.
Press any key to close this window . . .

```

Test case 2:

```
Microsoft Visual Studio Debug Console
Enter number of rows and columns of first matrix
2
2
Enter elements of first matrix
11 10
20 40
Enter number of rows and columns of second matrix
2
2
Enter elements of second matrix
15 12
14 20
Product of the matrices:
305    332
860    1040

C:\Users\rijal\source\repos\calc\out\build\x64-Debug\calc\calc.exe (process 11416) exited with code 0.
To automatically close the console when debugging stops, enable Tools->Options->Debugging->Automatically close the console when debugging stops.
Press any key to close this window . . .
```