



## Solution Review: Multiply Two Matrices

Let's go over the solution review of the challenge given in the previous lesson.

We'll cover the following

- Solution
- Explanation
  - multiplication function

## Solution #

Press the **RUN** button and see the output!

```
#include <iostream>
1
2
3 using namespace std;
4
5
   // multiplication function
   void multiplication(int arr1[][2], int row1, int col1, int arr2[][2], int row
7
      // Check if col of first array equal to row of second array
      if (col1 == row2) {:
        // Traverse first array row
        for (int x = 0; x < row1; x++) {
10
          // Traverse second array columns
11
12
          for (int y = 0; y < col2; y++) {
13
            // Traverse first array columns and second array rows
            for (int z = 0; z < col1; z++) {
14
              // Multiplication
15
              result[x][y] = result[x][y] + arr1[x][z] * arr2[z][y];
16
17
          }
18
        }
19
      }
20
```

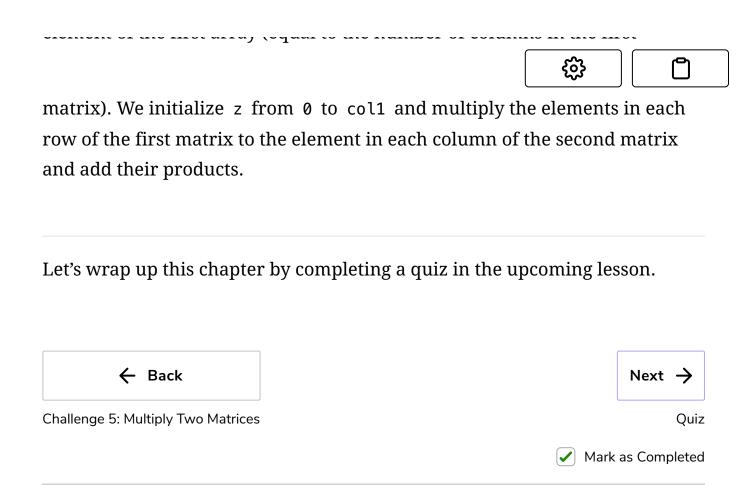
```
21
       else{
                                                                 ₩
22
       // Traverse first array row
23
         for (int x = 0; x < row1; x++) {
24
           // Traverse second array columns
25
           for (int y = 0; y < col2; y++) {
              // Fill the elements of array by -1
26
    (/learn)
              result[x][v] = -1;
                                                                \triangleright
                                                                         \leftarrow
                                                                                X
                                                                           0.97s
Output
 70 100
 150 220
 230 340
```

## Explanation#

## multiplication function#

The multiplication function takes three 2D arrays arr[][] of type int and its row and column of type int in its input parameters, and returns nothing in the output.

Matrix multiplication is only possible if the number of columns of the 1st matrix is equal to the number of rows of the 2nd matrix. We first check for this condition. If col1 is not equal to row2, we fill each element of the matrix with -1. If matrices can be multiplied, traverse through the 2D array (matrix) using two nested loops. In matrix multiplication, each value at a certain [row][column] is computed by multiplying each element of the row index of the first matrix with its corresponding column index elements of the 2nd matrix. For this, we use a 3rd nested loop to iterate over each row element of the first array (equal to the number of columns in the first



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