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Alvas Institute of Engineering and



2020 ▼

C(gcc 6.3) ▼

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CodeChef was created as a platform

Code, Compile & Run

```
C++14 (gcc 6.3)

#include <stdio.h>
int main() {
    int a[10][10], transpose[10][10], r, c, i, j;
    printf("Enter rows and columns: ");
    scanf("%d %d", &r, &c);
    printf("Enter matrix elements:\n");
    for (i = 0; i < r; ++i)
        for (j = 0; j < c; ++j) {
            printf("Enter element a[%d][%d]: ", i + 1, j + 1);
            scanf("%d", &a[i][j]);
        }
    printf("Entered matrix: \n");
    for (i = 0; i < r; ++i)
        for (j = 0; j < c; ++j) {
            printf("%d\t", a[i][j]);
            if (j == c - 1)
                printf("\n");
        }
    for (i = 0; i < r; ++i)
        for (j = 0; j < c; ++j)
            transpose[j][i] = a[i][j];
    printf("\nTranspose of the matrix:\n");
    for (i = 0; i < c; ++i)
        for (j = 0; j < r; ++j) {
            printf("%d\t", transpose[j][i]);
        }
}
```

Open File

✓ Custom Input

Run

Custom Input

```
2 2
2 2
10 20
30 40
```

Status Successfully executed Date 2020-06-13 04:03:19 Time 0 sec Mem 15.232 kB

Input

```
2 2
2 2
10 20
30 40
```

Output

```
Enter rows and columns:
Enter matrix elements:
Enter element a11: Enter element a12: Enter element a21: Enter element a22:
Entered matrix:
2 2
10 20
```

Code, Compile & Run

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C++14 (gcc 6.3)

```
1 //Matrix transpose using 2D array
2 #include <iostream>
3 using namespace std;
4 int main() {
5     int r, c;
6     printf("\nEnter rows and columns: \n");
7     for (i = 0; i < r; ++i)
8         for (j = 0; j < c; ++j) {
9             printf("Enter element a[%d][%d]: ", i + 1, j + 1);
10            scanf("%d", &a[i][j]);
11        }
12    printf("\nEnter matrix: \n");
13    for (i = 0; i < r; ++i)
14        for (j = 0; j < c; ++j) {
15            printf("%d ", a[i][j]);
16            if (j == c - 1)
17                printf("\n");
18        }
19    for (i = 0; i < r; ++i)
20        for (j = 0; j < c; ++j)
21            transpose[j][i] = a[i][j];
22    printf("\nTranspose of the matrix: \n");
23    for (i = 0; i < c; ++i)
24        for (j = 0; j < r; ++j) {
25            printf("%d ", transpose[i][j]);
26            if (j == r - 1)
27                printf("\n");
28        }
29    return 0;
30 }
```

240

[Open File](#)☒ Custom Input[Run](#)

Custom Input

```
2 2
2 2
10 20
30 40
```

Status Successfully executed Date 2020-06-13 04:03:19 Time 0 sec Mem 15.232 kB

✕

Input

```
2 2
2 2
10 20
30 40
```

Output

```
Enter rows and columns:
Enter matrix elements:
Enter element a11: Enter element a12: Enter element a21: Enter element a22:
Entered matrix:
2 2
10 20
```

C Program to implement transpose of a matrix:

Algorithm:

- Step 1: Start
- Step 2: Declare all the necessary variables
- Step 3: Enter the Order of matrix
- Step 4: Enter the elements of matrix row wise using loop
- Step 5: Display the entered matrix in standard format
- Step 6: Assign number of rows with number of column
- Step 7: Swap (i, j) th element with (j, i)
- Step 8: Stop

Flowchart:

