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("\nEnter 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("\nEntered matrix: \n");
    for (i = 0; i < r; ++i)
        for (j = 0; j < c; ++j) {
            printf("%d  ", 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  ", transpose[i][j]);
```

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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

Ide

C++14 (gcc 6.3)

```
    printf("\nEnter 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("\nEntered matrix: \n");
    for (i = 0; i < r; ++i)
        for (j = 0; j < c; ++j) {
            printf("%d  ", 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  ", transpose[i][j]);
            if (j == r - 1)
                printf("\n");
        }
    return 0;
}
```

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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 formal
Step 6: Assign number of rows with number of column
Step 7: Swap $(i, j)^{th}$ element with (j, i)
Step 8: Stop

Flowchart: