

transposeMatrix.c

```
1  #include <stdio.h>
2
3  int main(){
4
5      int rows, cols;
6      // Get dimensions from the user
7      printf("Enter the number of rows: ");
8      scanf("%d", &rows);
9      printf("Enter the number of columns: ");
10     scanf("%d", &cols);
11
12     // Declare matrix
13     int matrix[rows][cols];
14     int transposedMatrix[cols][rows];
15
16     // Get matrix elements from the user
17     printf("Enter the elements of the matrix:\n");
18     for (int i = 0; i < rows; i++) {
19         for (int j = 0; j < cols; j++) {
20             printf("Element [%d][%d]: ", i, j);
21             scanf("%d", &matrix[i][j]);
22         }
23     }
24     // print original matrix
25     printf("Original matrix:\n");
26     for (int i = 0; i < rows; i++) {
27         for (int j = 0; j < cols; j++) {
28             printf("%d ", matrix[i][j]);
29         }
30         printf("\n");
31     }
32
33     // Transpose the matrix
34     for (int i = 0; i < cols; i++) {
35         for (int j = 0; j < rows; j++) {
36             transposedMatrix[i][j] = matrix[j][i];
37         }
38     }
39
40     // Display the transposed matrix
41     printf("Transposed matrix:\n");
42     for (int i = 0; i < cols; i++) {
43         for (int j = 0; j < rows; j++) {
44             printf("%d ", transposedMatrix[i][j]);
45         }
46         printf("\n");
47     }
48
49     return 0;
50 }
```