

transposeSquareMatrix.c

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