C_57 → Two Dimensional Array

2D-Array Program 2

*Program to print Transpose of a matrix:

```
void main()
{
  int i, j, a[2][3];          // b[3][2];
  printf("Enter Matrix elements:\n");
  for(i=0; i<2; i++)
  {
    for(j=0; j<3; j++)
    {
      scanf("%d", &a[i][j]);
    }
  }
  printf("2x3 Matrix is;\n");
  for(i=0; i<2; i++)
  {
    for(j=0; j<3; j++)
    {
      printf("%d\t", a[i][j]);
    }
    printf("\n");
  }
                              3x2
  printf("Transpose Matrix:\n");
  for(i=0; i<3; i++)
  {
    for(j=0; j<2; j++)
    {
// b[i][j] = a[j][i];
      printf("%d\t", a[j][i]);
    }
    printf("\n");
  }
  getch();
}
```

(2×3)

	0	1	2
0	(0,0) 1	(0,1) 2	(0,2) 3
1	(1,0) 4	(1,1) 5	(1,2) 6

(3×2)

	0	1
0	(0,0) 1	(0,1) 4
1	(1,0) 2	(1,1) 5
2	(2,0) 3	(2,1) 6

In, 3×2 matrix,

(0,0) → value 1 a[0][0]
i,j

So we access (0,0) → value (1).

(0,1) → value 4 a[1][0].
i,j

So we access (1,0) → value (4).

Q/P

(0,0) 1	(1,0) 4
(0,1) 2	(1,1) 5
(0,2) 3	(1,2) 6

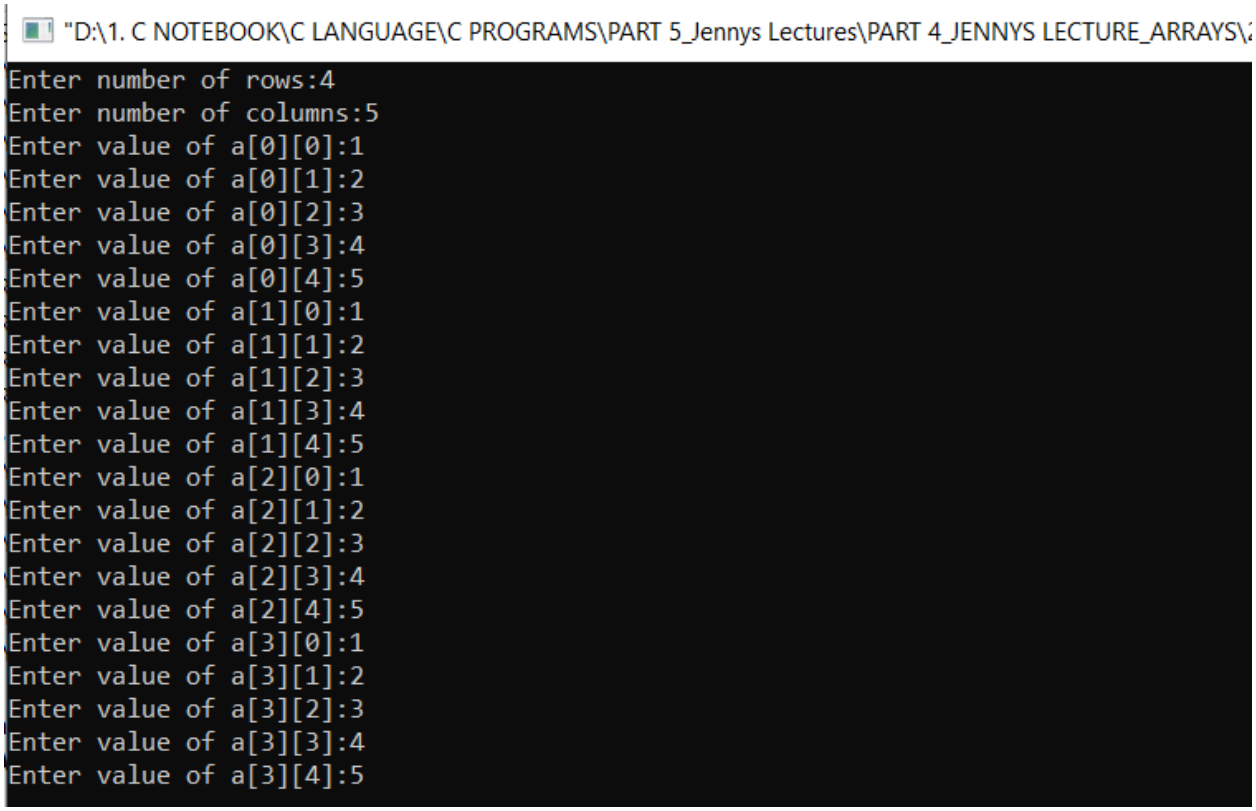
CODE 1:

```c
#include <stdio.h>
#include <stdlib.h>
#define N 100
/** 2 - 2D ARRAY PROGRAM **/
/** PRINT TRANSPOSE OF A MATRIX **/
int main()
{
 int a[N][N],m,n,i,j;
 printf("Enter number of rows:");
 scanf("%d",&m);
 printf("Enter number of columns:");
 scanf("%d",&n);
 for(i=0;i<m;i++)
 {
  for(j=0;j<n;j++)
  {
   printf("Enter value of a[%d][%d]:",i,j);
   scanf("%d",&a[i][j]);
  }
 }

```

```c
  printf("\nMatrix is:\n");
 for(i=0;i<m;i++)
 {
  for(j=0;j<n;j++)
  {
   printf("%d\t",a[i][j]);
  }
  printf("\n");
 }

  printf("\nTranspose Matrix is:\n");
  for(i=0;i<n;i++)
 {
  for(j=0;j<m;j++)
  {
   printf("%d\t",a[j][i]);
  }
  printf("\n");
 }
getch();
}
```




```
Matrix is:
1       2       3       4       5
1       2       3       4       5
1       2       3       4       5
1       2       3       4       5

Transpose Matrix is:
1       1       1       1
2       2       2       2
3       3       3       3
4       4       4       4
5       5       5       5
```