**swap2RowsCols2D**

Write the code for the following matrix functions:

```
void swap2Rows(int ar[][SIZE], int r1, int r2);
/* the function swaps the row r1 with the row r2 of a 2-dimensional array ar */

void swap2Cols(int ar[][SIZE], int c1, int c2);
/* the function swaps the column c1 with the column c2 of a 2-dimensional array ar
*/
```

You may assume that the input matrix is a 3x3 matrix, i.e. SIZE = 3.

A sample program template is given below to test the functions:

```
#include <stdio.h>
#define SIZE 3
void swap2Rows(int ar[][SIZE], int r1, int r2);
void swap2Cols(int ar[][SIZE], int c1, int c2);
void display(int ar[][SIZE]);
int main()
{
  int array[SIZE][SIZE];
  int row1, row2, col1, col2;
  int i,j;
  int choice;

  printf("Select one of the following options: \n");
  printf("1: getInput()\n");
  printf("2: swap2Rows()\n");
  printf("3: swap2Cols()\n");
  printf("4: display()\n");
  printf("5: exit()\n");
  do {
    printf("Enter your choice: \n");
    scanf("%d", &choice);
    switch (choice) {
      case 1:
        printf("Enter the matrix (3x3): \n");
        for (i=0; i<SIZE; i++)
          for (j=0; j<SIZE; j++)
            scanf("%d", &array[i][j]);
        break;
      case 2:
        printf("Enter two rows for swapping: \n");
        scanf("%d %d", &row1, &row2);
        swap2Rows(array, row1, row2);
        printf("The new array is: \n");
        display(array);
        break;
      case 3:
```

```
            printf("Enter two columns for swapping: \n");
            scanf("%d %d", &col1, &col2);
            swap2Cols(array, col1, col2);
            printf("The new array is: \n");
            display(array);
            break;
          case 4:
            display(array);
            break;
        }
      } while (choice < 5);
      return 0;
    }
    void display(int ar[][SIZE])
    {
      int l,m;
      for (l = 0; l < SIZE; l++) {
        for (m = 0; m < SIZE; m++)
          printf("%d ", ar[l][m]);
        printf("\n");
      }
    }
    void swap2Rows(int ar[][SIZE], int r1, int r2)
    {
      /* Write your code here */
    }
    void swap2Cols(int ar[][SIZE], int c1, int c2)
    {
      /* Write your code here */
    }
```

Some sample input and output sessions are given below:

(1) Test Case 1:

```
Select one of the following options:
1: getInput()
2: swap2Rows()
3: swap2Cols()
4: display()
5: exit()
Enter your choice:
1
Enter the matrix (3x3):
5 10 15
15 20 25
25 30 35
Enter your choice:
2
Enter two rows for swapping:
1 2
The new array is:
```

5 10 15
25 30 35
15 20 25
Enter your choice:
5

(2) Test Case 2:
Select one of the following options:
1: getInput()
2: swap2Rows()
3: swap2Cols()
4: display()
5: exit()
Enter your choice:
1
Enter the matrix (3x3):
5 10 15
15 20 25
25 30 35
Enter your choice:
3
Enter two columns for swapping:
1 2
The new array is:
5 15 10
15 25 20
25 35 30
Enter your choice:
5

(3) Test Case 3:
Select one of the following options:
1: getInput()
2: swap2Rows()
3: swap2Cols()
4: display()
5: exit()
Enter your choice:
1
Enter the matrix (3x3):
1 2 3
4 5 6
7 8 9
Enter your choice:
2
Enter two rows for swapping:
0 2
The new array is:
7 8 9
4 5 6
1 2 3

Enter your choice:
3
Enter two columns for swapping:
0 2
The new array is:
9 8 7
6 5 4
3 2 1
Enter your choice:
5

(4) Test Case 4:
Select one of the following options:
1: getInput()
2: swap2Rows()
3: swap2Cols()
4: display()
5: exit()
Enter your choice:
1
Enter the matrix (3x3):
1 2 3
4 5 6
7 8 9
Enter your choice:
2
Enter two rows for swapping:
1 2
The new array is:
1 2 3
7 8 9
4 5 6
Enter your choice:
3
Enter two columns for swapping:
1 2
The new array is:
1 3 2
7 9 8
4 6 5
Enter your choice:
5