מטלה 7 – מערכים ופונקציות + מערך דו ממדי

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שאלה 1

```
#define SIZE 7
int arrChange(int arr[], int size, int choosesize, int
addNumber);
#include <stdio.h>
int main()
{
    int arr[SIZE], choosesize, addNumber, check;
    printf("Please enter how many numbers you want to
insert to the array between 1 to %d: ", SIZE);
    scanf("%d", &choosesize);
    for (int i = 0; i < choosesize; i++)
    {
        printf("%d. Please enter number to the array: ",
i+1);
        scanf("%d", &arr[i]);
        printf("\n");
    }
    printf("The array is: ");
    for (int i = 0; i < choosesize; i++)
    {
        printf("%d ", arr[i]);
    }
    printf("\n");
    printf("Please enter another number: ");
    scanf("%d", &addNumber);
    check = arrChange(arr, SIZE, choosesize, addNumber);
    if (check == 1)
    {
        printf("The array is: ");

        for (int i = 0; i < choosesize + 1; i++)
        {
            printf("%d ", arr[i]);
        }
    }
```

```
    else
    {
        for (int i = 0; i < choosesize; i++)
         {
             printf("%d ", arr[i]);
         }
    }
    printf("\n");
}
int arrChange(int arr[], int size, int choosesize, int
addNumber)
{
    int temp = 0, temp2 = 0, index = 0;
    if(choosesize == size)
    {
        return 0;
    }
    if (arr[choosesize-1] < addNumber)
    {
        arr[choosesize] = addNumber;
        return 1;
    }
    for (int i = 0; i < choosesize; i++)
    {
        if (arr[i] > addNumber)
        {
            index = i;
            temp = arr[i];
            arr[i] = addNumber;
            break;
        }
    }
    for (int i = index + 1; i < choosesize + 1; i++)
    {
        temp2 = arr[i];
        arr[i] = temp;
        temp = temp2;
    }
    return 1;
}
```

```
Please enter how many numbers you want to insert to the array between 1 to 7: 5
1. Please enter number to the array: 1

2. Please enter number to the array: 3

3. Please enter number to the array: 15

4. Please enter number to the array: 23

5. Please enter number to the array: 48

The array is: 1 3 15 23 48
Please enter another number: 17
The array is: 1 3 15 17 23 48
Program ended with exit code: 0
```

```
Please enter how many numbers you want to insert to the array between 1 to 7: 7
1. Please enter number to the array: 1

2. Please enter number to the array: 3

3. Please enter number to the array: 15

4. Please enter number to the array: 23

5. Please enter number to the array: 48

6. Please enter number to the array: 55

7. Please enter number to the array: 70

The array is: 1 3 15 23 48 55 70
Please enter another number: 17
1 3 15 23 48 55 70
Program ended with exit code: 0
```

שאלה 2

```c
#define ROWS 3
#define COLS 4
#include <stdio.h>
int arrCheck(int arr[][COLS], int rows, int cols);
int main()
{
    int arr[ROWS][COLS];
    printf("Insert %d numbers to the array %dx%d: \n",
ROWS * COLS, ROWS, COLS);
    for (int i = 0; i < ROWS; i++)
    {
        for (int j = 0; j < COLS; j++)
        {
            scanf("%d", &arr[i][j]);
        }
    }
    printf("The maximum number in the frame is: %d\n",
arrCheck(arr, ROWS, COLS));
}
int arrCheck(int arr[][COLS], int rows, int cols)
{
    int max = arr[0][0];
    for (int i = 0; i < cols; i++)
    {
        if (arr[0][i] > max)
        {
            max = arr[0][i];
        }
        if (arr[rows - 1][i] > max)
        {
            max = arr[rows - 1][i] = max;
        }
    }
    for (int i = 0; i < rows; i++)
    {
        if (arr[i][0] > max)
        {
            max = arr[i][0];
        }

        if (arr[i][cols - 1] > max)
        {
            max = arr[i][cols - 1];
        }
    }
    return max;
}
```

```
Insert 12 numbers to the array 3x4:
1 2 0 4
5 11 -5 9
-3 -54 2 7
The maximum number in the frame is: 9
Program ended with exit code: 0
```

שאלה 3 – א'

```c
#define SIZE 3
#include <stdio.h>
int arrCheck(int arr1[], int arr2[]);
int main()
{
    int arr1[SIZE], arr2[SIZE], check = 0;
    printf("Insert %d numbers to arr1: \n", SIZE);
    for (int i = 0; i < SIZE; i++)
    {
        scanf("%d", &arr1[i]);
    }
    printf("Insert %d numbers to arr2: \n", SIZE);

    for (int i = 0; i < SIZE; i++)
    {
        scanf("%d", &arr2[i]);
    }
    check = arrCheck(arr1, arr2);
    if (check == 1)
    {
        printf("The arrays are a mirror duo\n");
    }
    else
    {
        printf("The arrays are not a mirror duo\n");
    }

}
int arrCheck(int arr1[], int arr2[])
{
    int check = 0;
    for (int i = 0; i < SIZE; i++)
    {
            if (arr1[i] == arr2[SIZE-1-i])
            {
                check = 1;
            }
            else
            {
                check = 0;
                break;
            }
    }
    return check;
}
```

```
Insert 3 numbers to arr1:
1 2 3
Insert 3 numbers to arr2:
3 2 1
The arrays are a mirror duo
Program ended with exit code: 0
```

```
Insert 3 numbers to arr1:
4 5 6
Insert 3 numbers to arr2:
5 6 4
The arrays are not a mirror duo
Program ended with exit code: 0
```

שאלה 3 – ב'

```
#define ROWS 6
#define COLS 3
#include <stdio.h>
int arrCheck(int arr1[][COLS]);
int arrCheck1(int arr1[], int arr2[]);
int main()
{
    int arr[ROWS][COLS], check;
    printf("Insert %d digits between 0 to 9 to %dx%d
array: \n", ROWS * COLS, ROWS, COLS);
    for (int i = 0; i < ROWS; i++)
    {
        for (int j = 0; j < COLS; j++)
        {
            scanf("%d", &arr[i][j]);
        }
    }
    check = arrCheck(arr);
    if (check == 1)
    {
        printf("The array is a mirror array\n");
    }
    else
    {
        printf("The array is not a mirror array\n");
    }

}
int arrCheck(int arr1[][COLS])
{
    int check = 0;
    for (int i = 0; i < ROWS / 2; i++)
    {
            if (arrCheck1(arr1[i], arr1[ROWS-i-1]))
            {
                check = 1;
            }
            else
            {
                check = 0;
                break;
            }
        }

    return check;
}
```

```
int arrCheck1(int arr1[], int arr2[])
{
    int check = 0;
    for (int i = 0; i < COLS; i++)
    {
            if (arr1[i] == arr2[COLS-1-i])
            {
                check = 1;
            }
            else
            {
                check = 0;
                break;
            }
    }
    return check;
}
```

```
Insert 18 digits between 0 to 9 to 6x3 array:
1 2 3
1 2 1
4 5 8
8 5 4
1 2 1
3 2 1
The array is a mirror array
Program ended with exit code: 0
```

```
Insert 18 digits between 0 to 9 to 6x3 array:
1 2 3
1 2 3
4 5 8
8 5 4
1 2 1
3 2 1
The array is not a mirror array
Program ended with exit code: 0
```

שאלה 3 - ג'

```
#define ROWS 6
#define COLS 3
#include <stdio.h>
int arrCheck(int arr1[][COLS]);
int arrCheck1(int arr1[], int arr2[]);
int main()
{
    int arr[ROWS][COLS], check;
    printf("Insert %d digits between 0 to 9 to %dx%d
array: \n", ROWS * COLS, ROWS, COLS);
    for (int i = 0; i < ROWS; i++)
    {
        for (int j = 0; j < COLS; j++)
        {
            scanf("%d", &arr[i][j]);
            if (arr[i][j] < 0 || arr[i][j] > 9)
            {
                printf("You need to enter digits between
0 to 9, please try again: \n");
                j--;
            }
        }
    }
    check = arrCheck(arr);
    if (check == 1)
    {
        printf("The array is a mirror array\n");
    }
    else
    {
        printf("The array is not a mirror array\n");
    }

}
int arrCheck(int arr1[][COLS])
{
    int check = 0;
    for (int i = 0; i < ROWS / 2; i++)
    {
            if (arrCheck1(arr1[i], arr1[ROWS-i-1]))
            {
                check = 1;
            }
            else
            {
                check = 0;
                break;
            }
```

```
        }

    return check;
}
int arrCheck1(int arr1[], int arr2[])
{
    int check = 0;
    for (int i = 0; i < COLS; i++)
    {
            if (arr1[i] == arr2[COLS-1-i])
            {
                check = 1;
            }
            else
            {
                check = 0;
                break;
            }
    }
    return check;
}
```

```
Insert 18 digits between 0 to 9 to 6x3 array:
1 2 3
11
You need to enter digits between 0 to 9, please try again:
1 2 1
4 5 8
8 5 4
1 2 1
3 2 1
The array is a mirror array
Program ended with exit code: 0
```

```
Insert 18 digits between 0 to 9 to 6x3 array:
1 2 3
1 2 3
4 5 55
You need to enter digits between 0 to 9, please try again:
8
8 5 4
-1
You need to enter digits between 0 to 9, please try again:
1 2 1
3 2 1
The array is not a mirror array
Program ended with exit code: 0
```