

matrixSubstraction.c

```
1  #include <stdio.h>
2
3  int main() {
4      int rows, cols;
5
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 matrices
13     int matrixA[rows][cols];
14     int matrixB[rows][cols];
15     int resultMatrix[rows][cols];
16
17     // Input elements for matrix A
18     printf("\nEnter elements for Matrix A:\n");
19     for (int i = 0; i < rows; i++) {
20         for (int j = 0; j < cols; j++) {
21             printf("Enter element A[%d][%d]: ", i, j);
22             scanf("%d", &matrixA[i][j]);
23         }
24     }
25
26     // Input elements for matrix B
27     printf("\nEnter elements for Matrix B:\n");
28     for (int i = 0; i < rows; i++) {
29         for (int j = 0; j < cols; j++) {
30             printf("Enter element B[%d][%d]: ", i, j);
31             scanf("%d", &matrixB[i][j]);
32         }
33     }
34
35     // display matrix A
36     printf("\nMatrix A:\n");
37     for (int i = 0; i < rows; i++) {
38         for (int j = 0; j < cols; j++) {
39             printf("%d\t", matrixA[i][j]);
40         }
41         printf("\n");
42     }
43
44     // display matrix B
45     printf("\nMatrix B:\n");
46     for (int i = 0; i < rows; i++) {
47         for (int j = 0; j < cols; j++) {
48             printf("%d\t", matrixB[i][j]);
49         }
50         printf("\n");
51     }
```

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52
53 // Perform matrix subtraction (A - B)
54 for (int i = 0; i < rows; i++) {
55     for (int j = 0; j < cols; j++) {
56         resultMatrix[i][j] = matrixA[i][j] - matrixB[i][j];
57     }
58 }
59
60 // Print the result matrix
61 printf("\nResult of Matrix A - Matrix B:\n");
62 for (int i = 0; i < rows; i++) {
63     for (int j = 0; j < cols; j++) {
64         printf("%d\t", resultMatrix[i][j]);
65     }
66     printf("\n");
67 }
68
69 return 0;
70 }
71
72 /**
73  * Example Input/Output:
74  * Enter the number of rows: 2
75 Enter the number of columns: 2
76
77 Enter elements for Matrix A:
78 Enter element A[0][0]: 1
79 Enter element A[0][1]: 4
80 Enter element A[1][0]: 5
81 Enter element A[1][1]: 6
82
83 Enter elements for Matrix B:
84 Enter element B[0][0]: 2
85 Enter element B[0][1]: 3
86 Enter element B[1][0]: 1
87 Enter element B[1][1]: 6
88
89 Matrix A:
90 1      4
91 5      6
92
93 Matrix B:
94 2      3
95 1      6
96
97 Result of Matrix A - Matrix B:
98 -1     1
99 4      0
100 */

```