



Problem

Submissions

Leaderboard

Discussions

Editorial



We define a **magic square** to be an $n \times n$ matrix of distinct positive integers from 1 to n^2 where the sum of any row, column, or diagonal of length n is always equal to the same number: the magic constant.

You will be given a 3×3 matrix s of integers in the inclusive range $[1, 9]$. We can convert any digit a to any other digit b in the range $[1, 9]$ at cost of $|a - b|$. Given s , convert it into a magic square at minimal cost. Print this cost on a new line.

Note: The resulting magic square must contain distinct integers in the inclusive range $[1, 9]$.

Example

$s = [[5, 3, 4], [1, 5, 8], [6, 4, 2]]$

The matrix looks like this:

```
5 3 4
1 5 8
6 4 2
```

We can convert it to the following magic square:

```
8 3 4
1 5 9
6 7 2
```

This took three replacements at a cost of $|5 - 8| + |8 - 9| + |4 - 7| = 7$.

Function Description

Complete the formingMagicSquare function in the editor below.

formingMagicSquare has the following parameter(s):

- int s[3][3]: a 3×3 array of integers

Returns

- int: the minimal total cost of converting the input square to a magic square

Input Format

Each of the 3 lines contains three space-separated integers of row $s[i]$.

Constraints

- $s[i][j] \in [1, 9]$

Sample Input 0

```
4 9 2
3 5 7
8 1 5
```

Sample Output 0

```
1
```

Explanation 0

If we change the bottom right value, $s[2][2]$, from 5 to 6 at a cost of $|6 - 5| = 1$, s becomes a magic square at the minimum possible cost.

Sample Input 1

```
4 8 2
4 5 7
6 1 6
```

Sample Output 1

Author

pkacprzak

Difficulty

Medium

Max Score

20

Submitted By

176597

NEED HELP?

View discussions

View editorial

View top submissions

RATE THIS CHALLENGE



MORE DETAILS

Download problem statement

Download sample test cases

Suggest Edits



Explanation 1

Using 0-based indexing, if we make

- $s[0][1] \rightarrow 9$ at a cost of $|9 - 8| = 1$
- $s[1][0] \rightarrow 3$ at a cost of $|3 - 4| = 1$
- $s[2][0] \rightarrow 8$ at a cost of $|8 - 6| = 2$,

then the total cost will be $1 + 1 + 2 = 4$.

Change Theme


Language

C#



```
1  using System.CodeDom.Compiler;
2  using System.Collections.Generic;
3  using System.Collections;
4  using System.ComponentModel;
5  using System.Diagnostics.CodeAnalysis;
6  using System.Globalization;
7  using System.IO;
8  using System.Linq;
9  using System.Reflection;
10 using System.Runtime.Serialization;
11 using System.Text.RegularExpressions;
12 using System.Text;
13 using System;
14
15 class Result
16 {
17
18     /*
19      * Complete the 'formingMagicSquare' function below.
20      *
21      * The function is expected to return an INTEGER.
22      * The function accepts 2D_INTEGER_ARRAY s as parameter.
23      */
24
25     public static int formingMagicSquare(List<List<int>> s)
26     {
27
28     }
29
30 }
31
32 class Solution
33 {
34     public static void Main(string[] args)
35     {
36         TextWriter textWriter = new StreamWriter(@System.Environment.
37             GetEnvironmentVariable("OUTPUT_PATH"), true);
38
39         List<List<int>> s = new List<List<int>>();
40
41         for (int i = 0; i < 3; i++)
42         {
43             s.Add(Console.ReadLine().TrimEnd().Split(' ').ToList().Select(sTemp =>
44                 Convert.ToInt32(sTemp)).ToList());
45
46         }
47
48         int result = Result.formingMagicSquare(s);
49
50         textWriter.WriteLine(result);
51
52         textWriter.Flush();
```

Line: 53 Col: 1

 UploadCodeasFile

☐ Test against custom input

Run Code

Submit Code

[Blog](#) | [Scoring](#) | [Environment](#) | [FAQ](#) | [About Us](#) | [Support](#) | [Careers](#) | [Terms Of Service](#) | [Privacy Policy](#)