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Magic Square Forming   🔒 locked

👤 by pkacprzak

| Problem | Submissions | Leaderboard | Discussions | Editorial |

Consider a 3×3 matrix, s, of integers in the inclusive range $[1, 9]$. Any digit, a, can be changed to any other digit, b, in the range $[1, 9]$ at cost $|a - b|$.

Given matrix s, convert it into a magic square by changing zero, one, or more of the digits in s. You must do this in such a way that the cost is minimal and then print the minimum possible cost on a new line.

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

Input Format

There are 3 lines of input. Each line describes a row of the matrix in the form of 3 space-separated integers denoting the respective first, second, and third elements of that row.

Constraints

- All integers in s are in the inclusive range $[1, 9]$.

Output Format

Print a single integer denoting the smallest possible cost of turning matrix s into a magic square.

Sample Input

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

Sample Output

```
1
```

Explanation
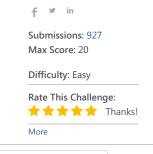
Matrix s initially looks like this:

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

Observe that it's not yet magic, because not all rows, columns, and center diagonals sum to the same number.

If we change the bottom right value, $s[2][2]$, from 5 to 6 at a cost of $|6 - 5| = 1$, s will become a magic square at the minimum possible cost. Thus, we print the cost, 1, on a new line.

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Submissions: 927
Max Score: 20

Difficulty: Easy

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More

Current Buffer (saved locally, editable)   ⑂ 🕐   C#   ⌄   ⤢ ⚙

```csharp
1   using System;
2   using System.Collections.Generic;
3   using System.IO;
4 ▾ class Solution {
5 ▾     static void Main(String[] args) {
6           /* Enter your code here. Read input from STDIN. Print output to STDOUT. Your class should be
    named Solution */
7
8           string[] input = new string[3];
9             for (int i = 0; i < 3; i++)
10 ▾          {
11                input[i] = Console.ReadLine();
12            }
13
14            List<List<string>> todos = new List<List<string>>();
15            todos.Add(new List<string>(new string[] { "816", "357", "492" }));
16            todos.Add(new List<string>(new string[] { "618", "753", "294" }));
17            todos.Add(new List<string>(new string[] { "438", "951", "276" }));
18            todos.Add(new List<string>(new string[] { "276", "951", "438" }));
19            todos.Add(new List<string>(new string[] { "294", "753", "618" }));
20            todos.Add(new List<string>(new string[] { "492", "357", "816" }));
21            todos.Add(new List<string>(new string[] { "672", "159", "834" }));
22            todos.Add(new List<string>(new string[] { "834", "159", "672" }));
23
24
25            //string[] input = {
26            //          "4 9 2",
27            //          "3 5 7",
28            //          "8 1 5"
29            //          };
30
31            int min_costo = int.MaxValue;
32            foreach (List<string> lista in todos)
33 ▾          {
34                int costo = 0;
35                for (int i = 0; i < lista.Count; i++)
36 ▾              {
37                    char[] linea = lista[i].ToCharArray();
38                    string[] linea_input = input[i].Split(' ');
39
40                    for (int j = 0; j < linea.Length; j++)
41 ▾                  {
42                        //if (linea[j] != linea_input[j][0])
43                        //{
44                        //    dif++;
45                        //}
46                        costo += Math.Abs(int.Parse(linea[j].ToString()) -
47                                    int.Parse(linea_input[j]));
48                    }
49                }
50                min_costo = Math.Min(min_costo, costo);
51            }
52
53            Console.WriteLine(min_costo);
54
55      }
56   }
```

Line: 53 Col: 42

⬆ Upload Code as File   ☐ Test against custom input   Run Code   Submit Code

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