Aliens

- June 1st, 1950

An **Alien** marking has been located in the region surrounding **Area 51**. You are tasked with a mission of utmost importance.

The marking is in the shape of a **large square** of numbers. A sample one (for demonstration purposes) is shown below.

1	**3**	**5**	**10**
4	**2**	**5**	**5**
5	**7**	**6**	**10**
10	**5**	**2**	**2**

There are a certain number of **subrectangles** in the square shown above. Each subrectangle has a **sum**.

1	**3**	**5**	**10**
4	**2**	**5**	**5**
5	**7**	**6**	**10**
10	**5**	**2**	**2**

The subrectangle shown above has a sum of **35** (2 + 5 + 5 + 7 + 6 + 10).

(**Note**: Subrectangles can range from the size of a unit cell (1x1 subrectangle) to the size of the entire square grid)

Unfortunately, the Aliens would have been more clever than that. In the real marking, various **bomb numbers** (aka -**1**) are placed.

Our team believes that the sum of a subrectangle should be multiplied by **-1** for **every bomb number**. For example,

Ex-1

5	**7**	**2**	**6**
4	**2**	**-1**	**5**
-1	**7**	**6**	**7**
10	**-1**	**-1**	**8**

Sum =
(2 - 1 + 5 + 7 + 6 + 7) * (-1) = -26

Ex-2

5	**7**	**2**	**6**
4	**2**	**-1**	**5**
-1	**7**	**6**	**10**
10	**-1**	**-1**	**8**

Sum =
(5 + 7 + 2 + 6) = 20

Ex-3

5	**7**	**2**	**6**
8	**12**	**-1**	**5**
-1	**7**	**6**	**10**
10	**-1**	**-1**	**8**

Sum =
(8 + 12 - 1 - 1 + 7 + 6 + 10 -1 - 1) * $(-1)^4$ = 39

It is widely known (in our base) that aliens have an unusual preference for the number **13,** and as such, we are only interested in subrectangles whose sum is divisible by **13**.

(In the three examples given above only Ex-1 and Ex-3 will be counted to the overall sum, but Ex-2 will not)

Your task: Find the sum of all subrectangles that sum to a number divisible by **13**.

We would have done so ourselves (to prevent disclosing vital information), but it appears that our program is ***too slow***.

We have given you the real marking **here**.

Important Information:

All numbers are either -1 or between 1 and 1,000 inclusive.

Numbers are arranged in a square (rows and columns have the same number of numbers).

In this text file, columns are separated with single spaces, and rows are separated by new lines.