

Spies, Revised **■**



Problem Submissions Leaderboard Discussions

Two spies in a grid will have their covers blown if:

- 1. They are both in the same row.
- 2. They are both in the same column.
- 3. They can see each other diagonally (i.e., lie in a line inclined 45° or 135° to the base of the grid).

The level of danger is now increased! In addition to the conditions above, no **3** spies may lie in any straight line. This line need not be aligned **45°** or **135°** to the base of grid.

Write a program in the language of your choice to place N spies (one spy per row) on an $N \times N$ grid without blowing anyone's cover. Your program must then print the following 2 lines describing a valid configuration:

- 1. The value of N.
- 2. A space-separated list of **1**-indexed column numbers, where each value i is the column number of the spy in row i (where $1 \le i \le N$).

Solve this problem for $m{N}$ as large as possible, up to (and including) $m{1000}$.

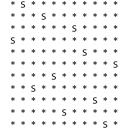
Note: Run and Custom Input are not available for this challenge; you must click Submit Code for your submission to be scored. Your score for this challenge will always be the maximum value scored by any of your submissions.

Examples

In the examples below, \boldsymbol{S} denotes a spy and * denotes an empty cell.

Sample Configuration 0

A valid configuration for N = 11:



Sample Output 0

```
This C++ code:

#include <stdio>
using namespace std;
```

int main(){
 cout << "11\n" ;</pre>

```
cout << "2 4 7 1 8 11 5 3 9 6 10";
return 0;
}</pre>
```

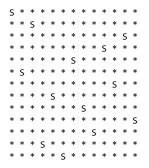
Produces this output:

```
11
2 4 7 1 8 11 5 3 9 6 10
```

This configuration will earn a score of 11/10 = 1.1.

Sample Configuration 1

A valid configuration for N = 13:



Sample Output 1

This Python code:

```
print "13"
print "1 3 12 10 7 2 11 5 8 13 9 4 6"
```

Produces this output:

```
13
1 3 12 10 7 2 11 5 8 13 9 4 6
```

This configuration will earn a score of 13/10 = 1.3.

Sample Configuration 2

An invalid configuration for N = 7:

```
* * S * * * * *

* * * * S * * *

* * * * * * * *

* S * * * * *

* * * * S * * *
```

Sample Output 2

The following output:

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

Will earn a score of **0** because the spies in the first **3** rows are in a straight line.

Input Format

There is no input for this challenge.

Constraints

- **N** is odd.
- $N \leq 1000$ (*Do not* submit for any value of N larger than 1000)

Scoring

A correct configuration will get a score of $\frac{N}{10}$.

Output Format

Print the following 2 lines of output:

- 1. The first line should be a single integer denoting the value of N.
- 2. The second line should contain a space-separated list of integers. Each integer i (where $0 \le i < N$) should be the 1-indexed column number where the spy in row i is located.

Solved score: 99.90pts
Submissions: 2020
Max Score: 100
Difficulty: Expert
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