16/11/2017 HackerRank



# 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  $45^{\circ}$  or  $135^{\circ}$  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 N lines describing a valid configuration:

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

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

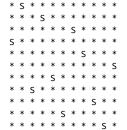
**Note:** Run and Custom Input are not available for this challenge; you must click Submit Code for your submission to be scored. Your score for this challenge will always be the maximum value scored by any of your submissions.

#### **Examples**

In the examples below,  ${m S}$  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>
```

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

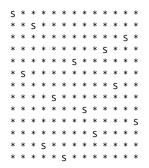
Produces this output:

```
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:

# 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**

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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.

f in Solved score: 99.90pts
Submissions:2539
Max Score:100
Difficulty: Expert
Rate This Challenge:
☆☆☆☆☆



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