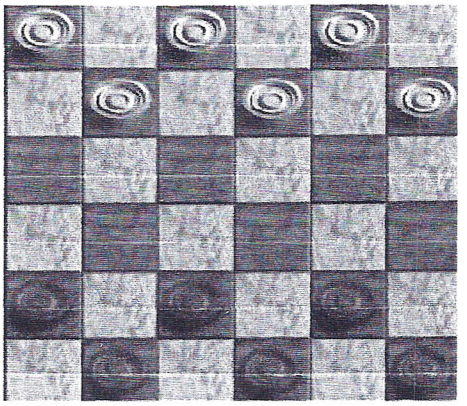
PRIMERAS COMPETENCIAS INTERUNIVERSITARIAS DE PROGRAMACIÓN
UNIVERSIDAD DE PUERTO RICO EN PONCE
20 DE NOVIEMBRE DE 2010

CATEGORÍA EXPERTO

PROBLEM #1: 6X6 CHECKERS

PROBLEMA # 1
VALOR: 6 PUNTOS



Problem

Examine the 6x6 checkboard below and note that the six checkers are arranged on the board so that one and only one is placed in each row and each column, and there is never more tan one in any diagonal. (Diagonals run from southeast to northwest and southwest to northeast and include all diagonals, not just the major two.)

Columns

```
   1   2   3   4   5   6
 -----------------------
1|   | O |   |   |   |   |
 -----------------------
2|   |   |   | O |   |   |
 -----------------------
3|   |   |   |   |   | O |
 -----------------------
4| O |   |   |   |   |   |
 -----------------------
5|   |   | O |   |   |   |
 -----------------------
6|   |   |   |   | O |   |
 -----------------------
```

Rows

The solution shown above is described by the sequence 2 4 6 1 3 5, which gives the column positions of the checkers for each row from 1 to 6.

ROW	1 2 3 4 5 6
COLUMN	2 4 6 1 3 5

This is one solution to the 6X6 Checker Challenge. Write a program that searches and finds all unique solution sequences to the 6x6 Checker Challenge. Print out the solutions using the column notation described above and count the total number of solutions found (including reflections and rotations.).

Input

No input is required to this program.

Output (Screen)

The complete solutions for this problem, including the final sentence with the total of solutions using capital letters.

Sample Run

```
2 4 6 1 3 5
3 6 2 5 1 4
? ? ? ? ? ?
? ? ? ? ? ?

THERE ARE ? SOLUTIONS TO THE 6X6 CHECKER CHALLENGE.
```

Output Example

```
2 4 6 1 3 5
3 6 2 5 1 4
X X X X X X
      :
      :
      :
X X X X X X

THERE ARE X SOLUTIONS TO THE 6X6 CHECKER CHALLENGE.
```