nqueens.py

Calculates count of solutions for N-Queen problem.

General information

Main idea of N-Queen problem is to place

N-Queen problem - you need N chess queens on a chess board with dimensions NxN in a way that they do not threat each other (according to chess rules).

Program can find all possible solutions for N-dimensional board. Also, program able to print available solutions to console or to the file.

Usage

Command line keys

```
Options:
  -h, --help            show this help message and exit
  -d DIMENSIONS, --dimensions=DIMENSIONS
                        Dimensions for chess board
  -p, --printsolutions  Prints solutions
```

Usage

With solutions on the screen

Calculate solution for 4 dimension board and print to console:

```
$ nqueens.py -p -d 4
```

You will got something like this:

```
2017-04-18 20:46:20,629 - DEBUG - solver initialized for chessboard size: 4
2017-04-18 20:46:20,630 - INFO - solution:
_ _ Q _
Q _ _ _
_ _ _ Q
_ Q _ _
2017-04-18 20:46:20,633 - INFO - solution:
_ Q _ _
_ _ _ Q
Q _ _ _
_ _ Q _
2017-04-18 20:46:20,635 - INFO - solutions search complete, found solutions coun
t: 2
2017-04-18 20:46:20,636 - INFO - total solutions count - 2
2017-04-18 20:46:20,637 - INFO - done at 0.01s
Done
```

Where:

```
_ _ Q _
Q _ _ _
_ _ _ Q
_ Q _ _
```

one of possible solutions.

Calculating solutions count

When you need just count solutions count, you can execute `nqueens` using:

```
$ nqueens.py -d 8
```

You will get someting like this

```
2017-04-18 20:47:49,566 - DEBUG - solver initialized for chessboard size: 8
2017-04-18 20:47:49,605 - INFO - solutions search complete, found solutions coun
t: 92
2017-04-18 20:47:49,606 - INFO - total solutions count - 92
2017-04-18 20:47:49,607 - INFO - done at 0.04s
```

So total solutions count for 8-dimensional board is **92**.