Hw1_1

Hungary is well-known for its Halas lace, a new lace-making technique developed at the turn of the 20th century in the farming town of Kiskunhalas a hundred miles south of Budapest. The lace comes in different sizes, consisting of concentric squares. We obtain the lace of size N+1 by circumscribing the lace of size N with a square that's rotated 45 degrees with respect to the previously added square. Here are the ASCII patterns of the laces for N = 1,..., 5 together with helpful line diagrams.

```
?- lace(1).

***

* *

***



?- lace(2).

  *

 ***

** **

 ***

  *



?- lace(3).

*****

*****

** **

*****

*****



?- lace(4).

   *

  * *

 *****

*******
```

```
* ** ** *
 *******
  *****
   * *
    *
```

```
?- lace(5).
*********
* * * *
* ***** *
*********
* ** ** *
*********
* ***** *
* * * *
*********
```

Write a lace/1 predicate that draws the ASCII pattern of size N > 0 on the screen.

Hw1_2

A Scottish tartan is a pattern consisting of cross-crossed horizontal and vertical colors.

- You have to implement a method that prints the tartan of the Young McProlog clan.

Write a tartan/1 predicate that generates the tartan for any given size N on the screen by the goal ?- tartan(N). Here are the patterns for size 1, 2, 3 and 7:

```
?- tartan(1).

*

?- tartan(2).

***

 *

***

?- tartan(3).

*  *

*****

* * *

*****

*  *

?- tartan(4).

*******

 *  *

 *****

 * * *

 *****

 *  *

*******

?- tartan(5).

*     *

*********

* *  * *
```

```
* ***** *
* * * * *
* ***** *
* *  * *
*********
*    *
```

```
?- tartan(6).
**********
 *    *
 *********
 * *  * *
 * ***** *
 * * * * *
 * ***** *
 * *  * *
 *********
 *    *
**********
```

```
?- tartan(7).
*       *
**********
* *    * *
* ********* *
* * *  * * *
* * ***** * *
* * * * * * *
* * ***** * *
* * *  * * *
```

```
* ********* *

* *     * *

**********

*        *
```