Kodlås, 40 poäng

Insight

We want to solve the problem for $N <= 5$ and $M <= 5$, therefore trying all possible ways to set the disks is efficient enough.

Solution

The solution will use a recursive function

```
def count(plate_nr, mask)
```

where $plate\_nr$ is the number of the current disc and $mask$ is the current result, represented by a string where for position i the symbol is '.' if all previous discs have a hole on this position and '#' otherwise.

The function will return the number of possible positions of the next discs (starting from the disc $plate\_nr$) so that there exists a fully empty column.

If we've already checked all the discs ($plate\_nr = N$) check if there is an empty column (if there is a '.' in $mask$). If yes, return 1, otherwise 0.

Otherwise, try all possible shifts of the current disc, and for each of them update the $mask$. Each time call the function for the next disc and the updated mask. Sum up the returned values. This sum will be the result of this function.