

## 48 - Rotate Image

1	2	3
4	5	6
7	8	9

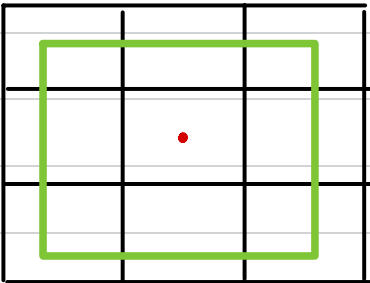
Rotate 90° CW  
→

7	4	1
8	5	2
9	6	3

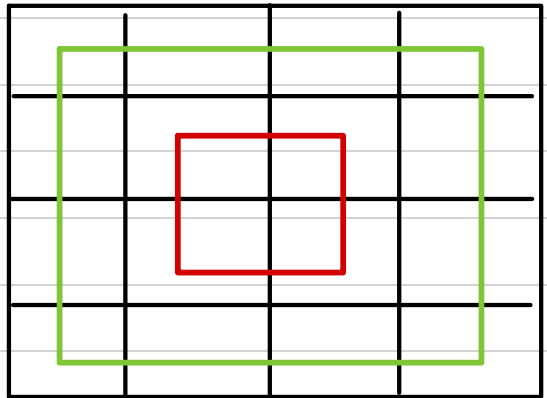
Must be done in-place.

Approach 1: Go layer-wise, from out to in, and use an array to store and rotate the elements of that layer. X

3 × 3



4 × 4



Move each layer like a conveyor belt,  
# shifts =  $n-1$ , where layer is outer layer  
of  $n \times n$  square.

## Approach 2: Transpose + Horizontal Reflection ✓

After transpose, we get :

TOP → LEFT

BOTTOM → RIGHT

LEFT → TOP

RIGHT → BOTTOM

But we want :

TOP → RIGHT

BOTTOM → LEFT

LEFT → TOP

RIGHT → BOTTOM

So, we need only swap LEFT and RIGHT  
i.e., horizontal reflection.