Input: R matrix of placed rooms
Output: r a room to add a new neighbor
           s side on which to add the neighbor

1: **function** RANDOM NEIGHBOR
2:     **repeat**
3:         let (x, y) be a random index from R
4:         $r \leftarrow R_{(x,y)}$
5:         let s be a side of r
6:     **until** r is not special **and** r has no neighbor on s
7:     **return** r, s

Input: $N \geq 2$ number of rooms to generate
        $L \neq$ list of rooms
        $p_s \in [0, 1]$ probability of having a special room
Output: R matrix of rooms

8: **function** LEVEL GENERATION
    # $c(r) \in \{(x, y) \mid R_{(x,y)} = r\}$
9:     let $r_0 \in L$
10:     make r_0 the spawn room
11:     $R_{(0,0)} \leftarrow r_0$
12:     **while** the number of placed rooms is less than $N - 1$ **do**
13:         $r_1, s_1 \leftarrow$ RANDOM NEIGHBOR(R)
14:         $x_1, y_1 \leftarrow c(r_1)$
15:         let x_2, y_2 be x_1, y_1 incremented towards s
16:         let r_2 a random room from L
17:         **if** p a uniformly random probability $\geq p_s$ **then**
18:             make the room special
19:         $R_{(x_2,y_2)} \leftarrow r_2$
20:         make a door between r_1 and r_2
21:     let $r_3 \in R$ such that $dist(r_3, R_{(0,0)}) = max\{dist(r, R_{(0,0)} \mid r \in R)\}$
22:     make r_3 the boss room