

- You have a string of  $n \leq 100$  red/green/blue lights.
- Every time you touch a light bulb, it randomly takes one of the three colours, each with equal probability.
- You want the lights to have *any* identical colour.
- What is the expected number of times you need to touch a light bulb to make all of them have the same colour?

Example: Given two lights  $rb$ , an optimal strategy is to keep touching the first light until it turns blue. This takes 3 steps on average.



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