

Let  $dp[j]$  be the side length of the largest all-1s square whose bottom-right corner is at the current row, column  $j$ .

Transition (for cell  $(i, j)$  with value '1'):

$$dp[j] = 1 + \min(\text{up} = dp[j], \text{left} = dp[j-1], \text{diag} = \text{prev}).$$

where:

- $dp[j]$  before update = value from the previous row (up).
- $dp[j-1]$  = value from current row's previous column (left),
- $\text{prev}$  = value from the previous row's previous column (diag), saved before we overwrite  $dp[j]$ .

Track the maximum side length seen; answer is its square.

### Complexity:

- Time:  $O(m \times n)$
- Space:  $O(n)$  (rolling array).