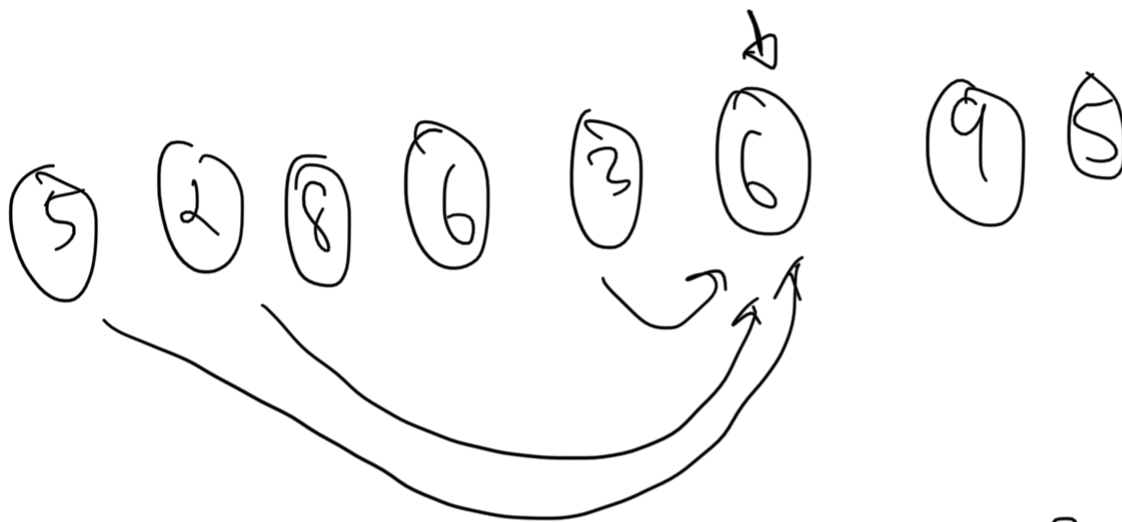


300. Longest Increasing Subsequence

$$A = [5, 2, 8, 6, 3, 6, 9, 5]$$

(5) (2) (8) (6) (3) (6) (9) (5)

$LIS[k] =$ LIS ending at index k



$$LIS[5] = 1 + \max \left(\begin{array}{l} LIS[4], \\ LIS[1], \\ LIS[0] \end{array} \right)$$

$$LIS[i] = 1 + \max \left\{ LIS(k) \mid k < i, A[k] < A[i] \right\}$$

$$LIS[n] = 1 + \max_{1 \leq k < n} \left\{ LIS[k] \mid A[k] < A[n] \right\}$$