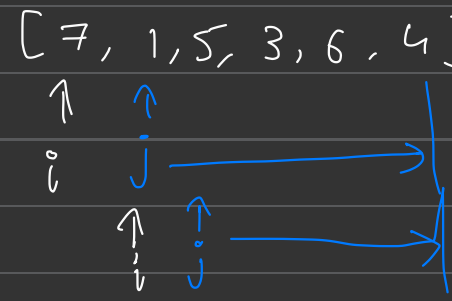
Brute force



max_profit = max(max_profit, a[j]-a[i])

Time complexity : $O(n^2)$
Space complexity : $O(1)$

Optimised Solution (Single pass approach)

- While traversing the array, keep a note of smallest element on left of current_element

(Intuition : $x - y$ ↑ when y ↓
∴ $x \rightarrow$ curr_elem, $y \rightarrow$ left_min)

a = | 7 | 1 | 5 | 3 | 6 | 4 |

left_min = INT_MAX
profit = 0;

| 7 | 1 | 5 | 3 | 6 | 4 |
↑

left_min = ∞ or 7 ✓
Profit = 0 or (7-7)

| 7 | 1 | 5 | 3 | 6 | 4 |
↑

left_min = 7 or 1 ✓
profit = 0 or (1-1)

| 7 | 1 | 5 | 3 | 6 | 4 |
↑

left_min = 1 or 5 ✓
profit = 0 or (5-1)

7	1	5	3	6	4

left_min = 1 or 3

profit = 4 or (3-1)

7	1	5	3	6	4

left_min = 1 or 6

profit = 4 or (6-1)

7	1	5	3	6	4

left_min = 1 or 4

profit = 5 or (4-1)

Hence profit = 5

Time complexity → O(n)

Space complexity → O(1)