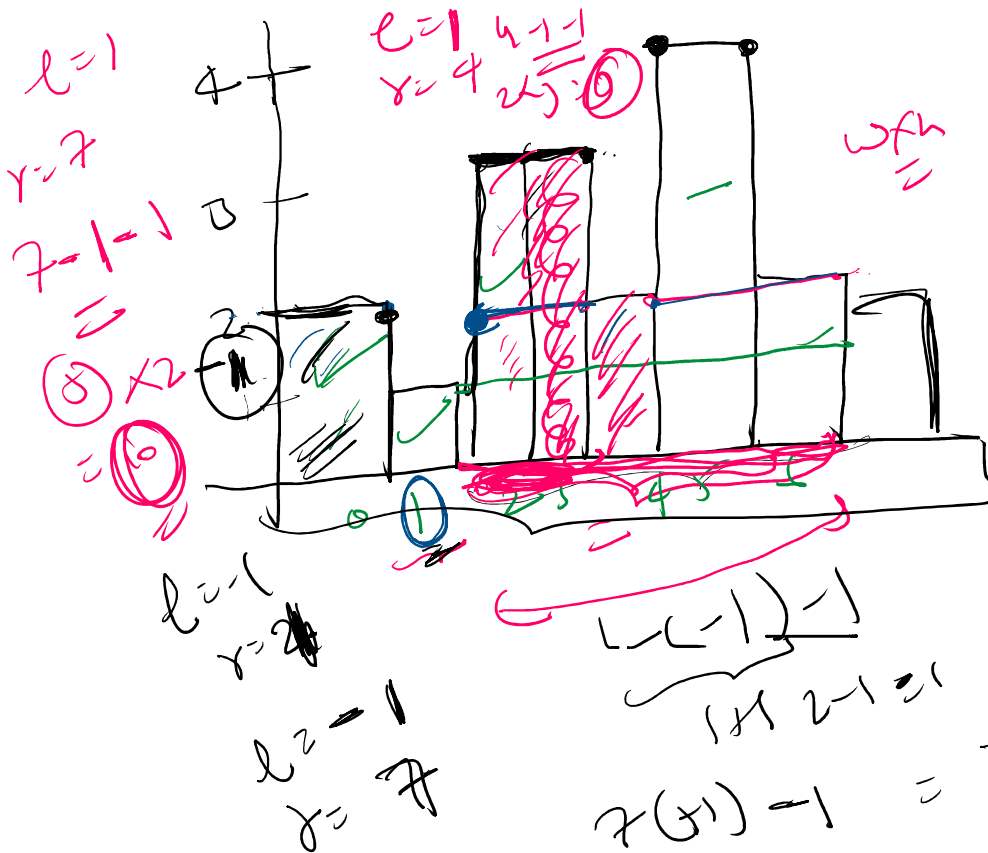
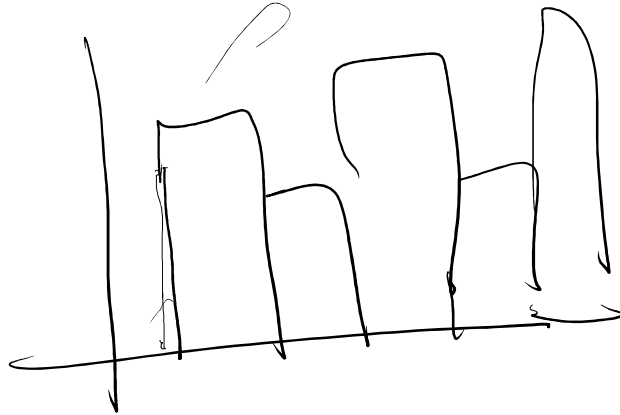


### 3.12 - Stacks - 3

Wednesday, July 30, 2025 9:08 PM

# Largest histogram area



$$B1: 1 \times 2 = 2$$

$$B2: 1 \times 7 = 7$$

$$B3: 2 \times 3 = 6$$

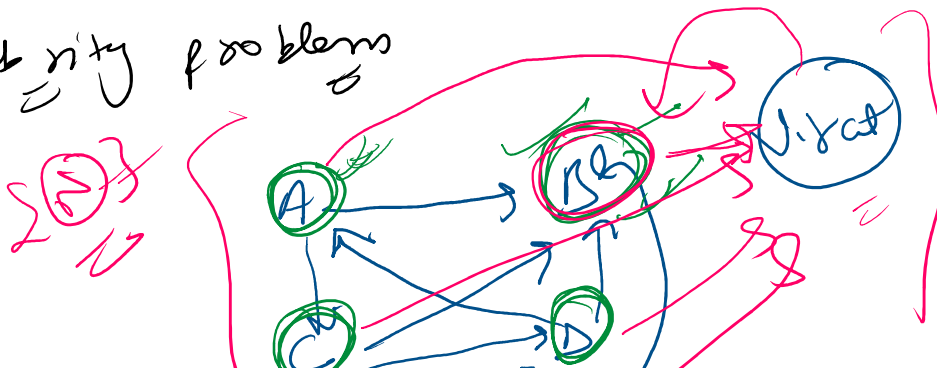
$$B4: 2 \times 3 = 6$$

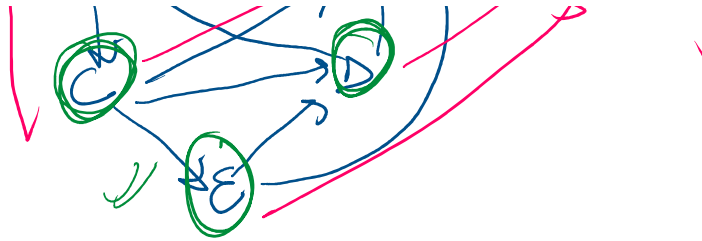
$$B5: 2 \times 5 = 10$$

$$B6: 1 \times 4 = 4$$

$$B7: 2 \times 5 = 10$$

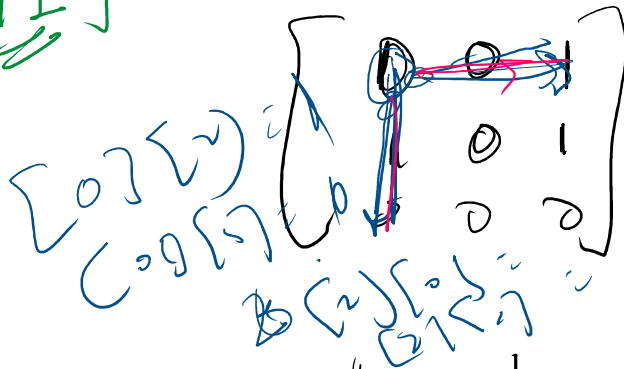
# Celebrity problem



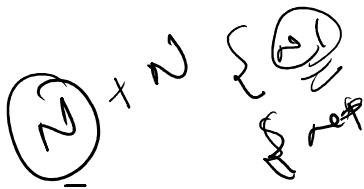
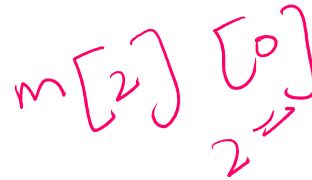


⑧ At most one

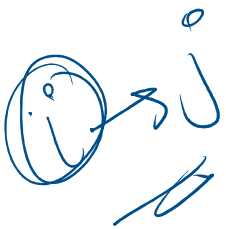
$\{0, 1\}$



⑨ Elimination



$$O(N + N + N^2 + N) = O(N^2)$$



$$m[i][j] = 0$$

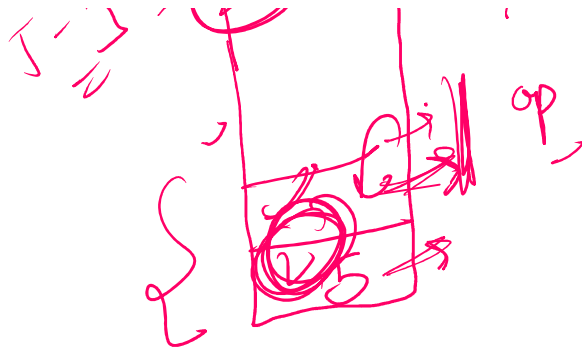
$$m[i][j] = 1$$

$$m[i][j] = 0$$

$$m[i][j] = 0$$



24/8



op 1 = 29  
op 2 = 8  
op 3 = 5  
op 4 = 3

#

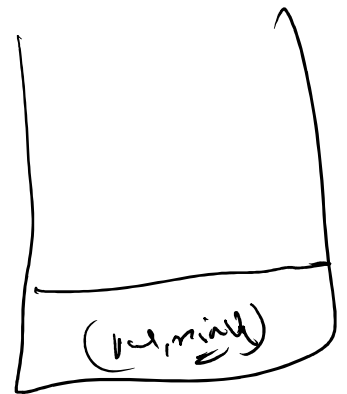
class → use defined data type

class Pair {

int val;

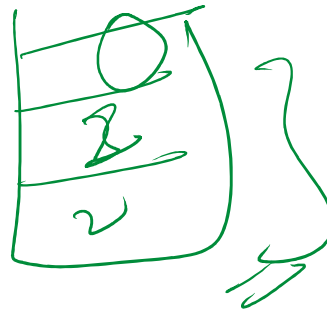
int minVal;

}



push(2)

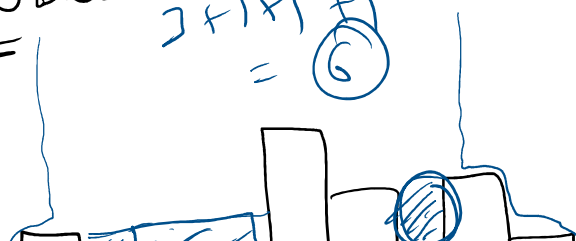
① push

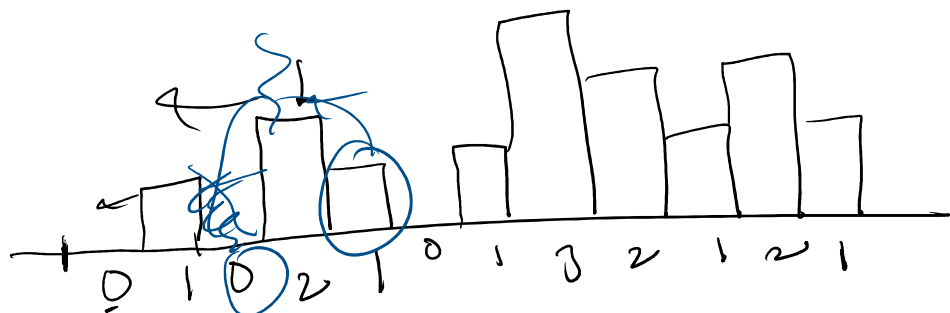
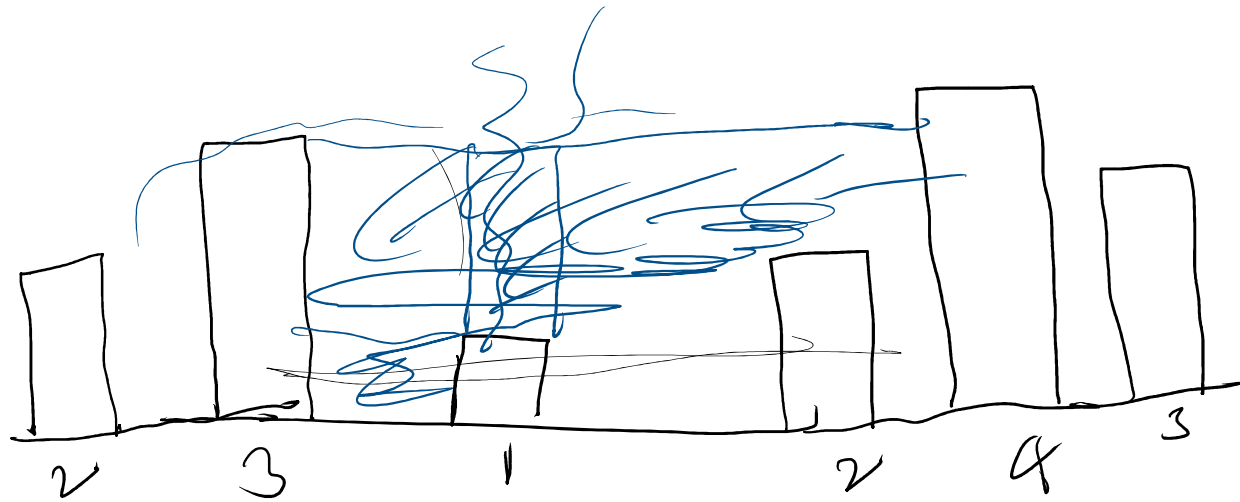
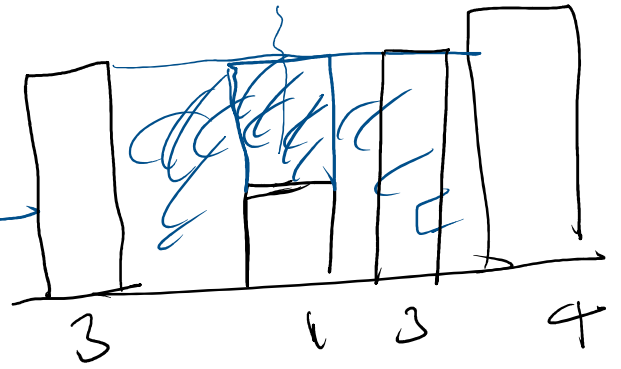
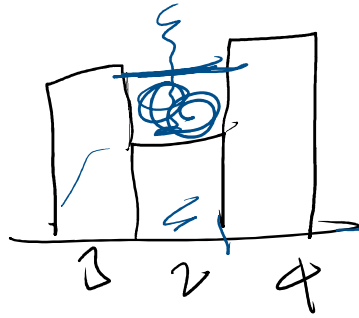
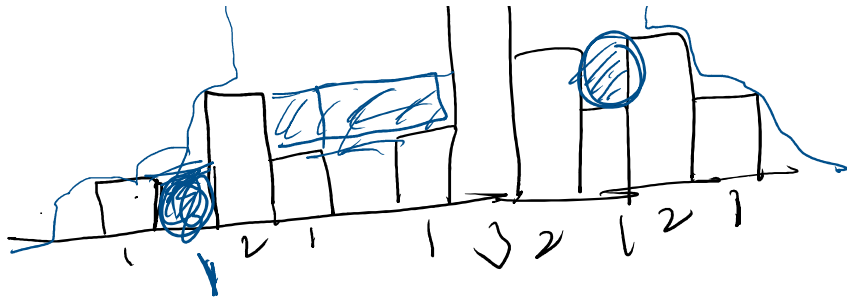


mark 2, 2

# Trapping Rain Water

3 + 1 + 1 = 6





$l.m. = 0 \ 0 \ 1 \ 1 \ 2$   
 $R.m. = 3 \ 3 \ 3 \ 3 \ 2$   
 $\begin{array}{r} 0-0-1 \\ 1-0-1 \end{array}$

$\rightarrow \textcircled{1}$

$\begin{array}{c} 2 \\ 0 \\ \textcircled{-1} \end{array} \quad \begin{array}{c} 1 \\ 0 \\ \textcircled{0} \end{array} \quad \begin{array}{c} 0 \\ 1 \\ \textcircled{1} \end{array} \quad \begin{array}{c} 2 \\ 1 \\ \textcircled{1} \end{array} \quad \begin{array}{c} 3 \\ 2 \\ \textcircled{3} \end{array}$   
 $3 \quad 1 \quad 1$

# Comparator / Lambda func<sup>n</sup>

Arrays.sort (args)

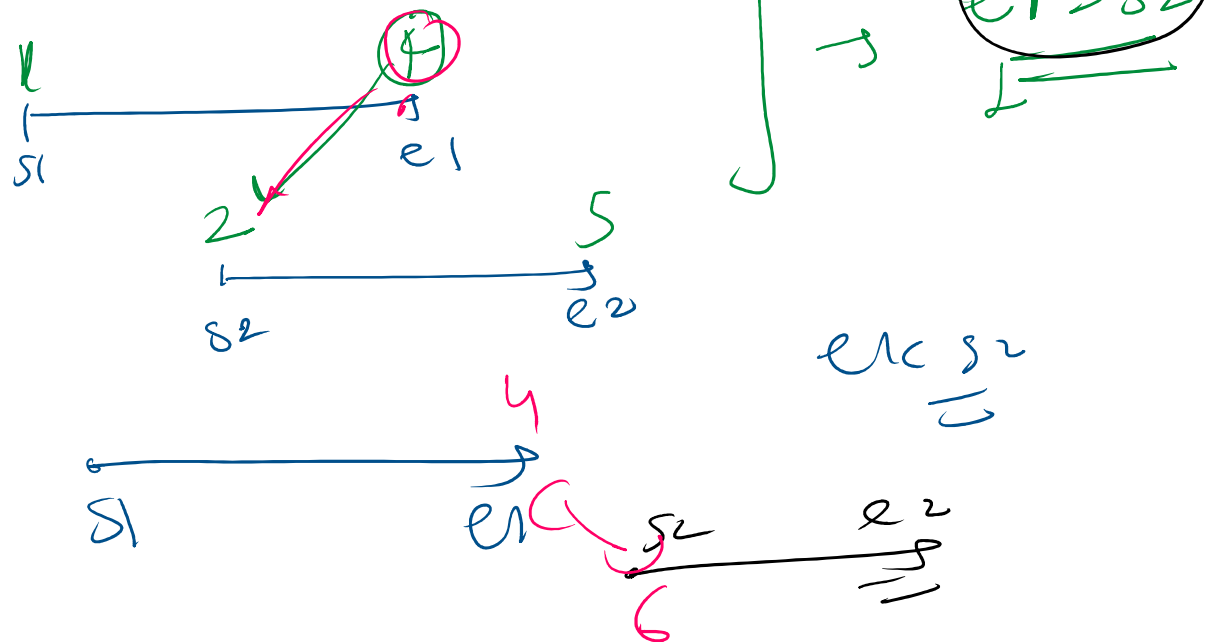
⊙ Used to write our own custom sorting logic

$\rightarrow \text{Arrays.sort}(\text{arr}, (a, b) \rightarrow (a - b < 0))$   
 $\downarrow$   
 any two elements of the arr<sup>n</sup>

# Overlapping Intervals



# Overlapping Intervals

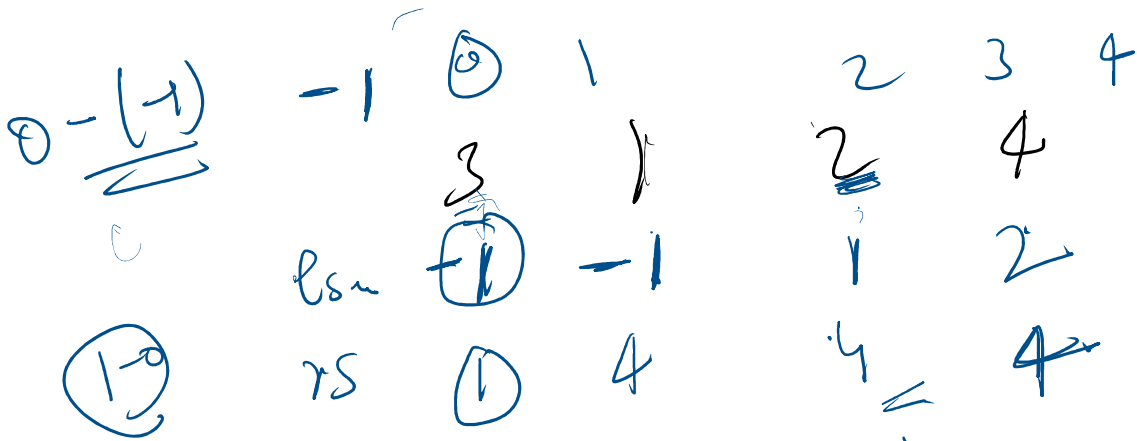
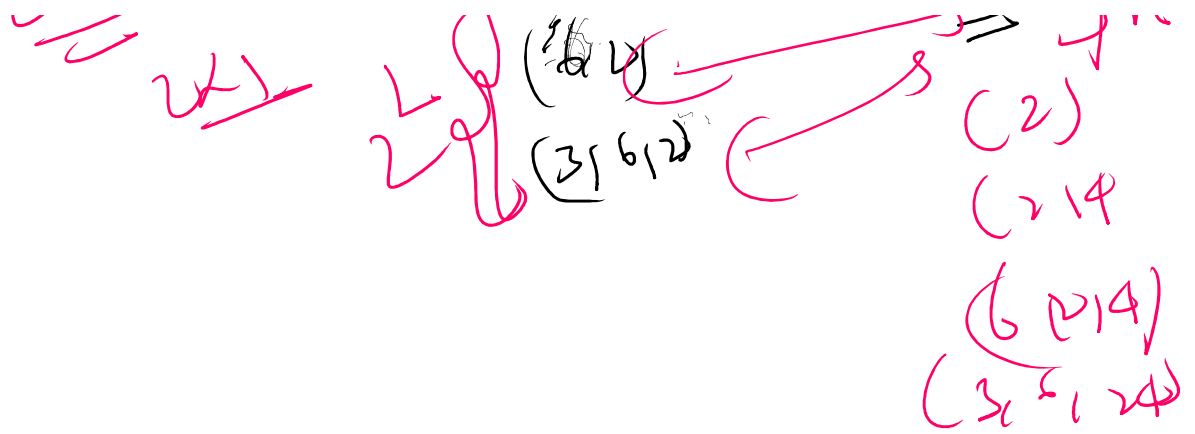


# Sum of Subarray Minimums

3 1 2 4  
 (3) (1) (2) (4)  
 (3, 1) (1, 2) (2, 4)  
 (3, 1, 2) (1, 2, 4)  
 (3, 1, 2, 4)

1 3 6 2 4 0 3 2

$L \times R \times H$   
 $L \times R \times H$   
 $L \times R \times H$



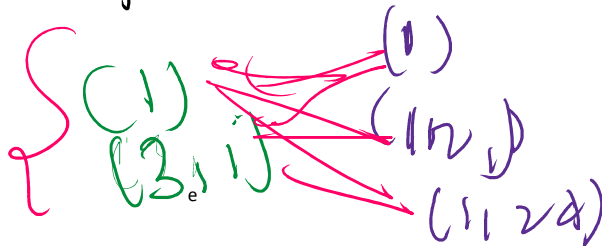
1x1

$$(2-1) \times (4-2)$$

$$(1-(-1)) \times (4-1)$$



$$2 \times 3$$



$$(1)$$

$$(1, 2)$$

$$(1, 2, 4)$$

$$(3, 6, 12, 4)$$

$$-1 \quad 0 \quad (-1) = 1$$