

- 1Q) Find if 2 rectangles overlap ✓
- 2Q) Repeat and Missing array ✓
- 3Q) Find N^{th} Magical Number ✓
- 4Q) Length of longest consecutive ones ✓
- 5Q) Smallest XOR ✓

Recent - past

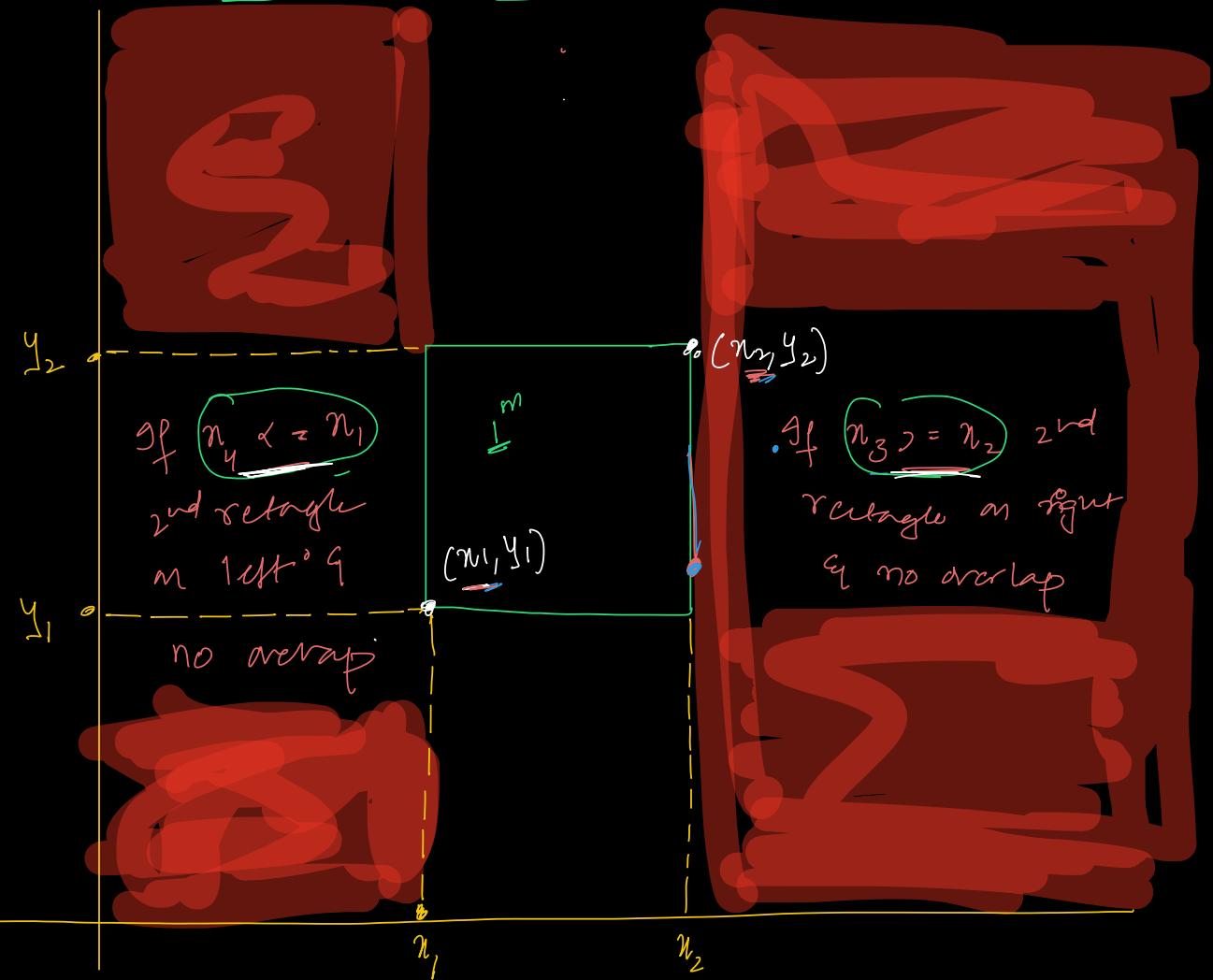
Black - white

Q) Find if 2 rectangular charts overlap with each other?

↳ Common area

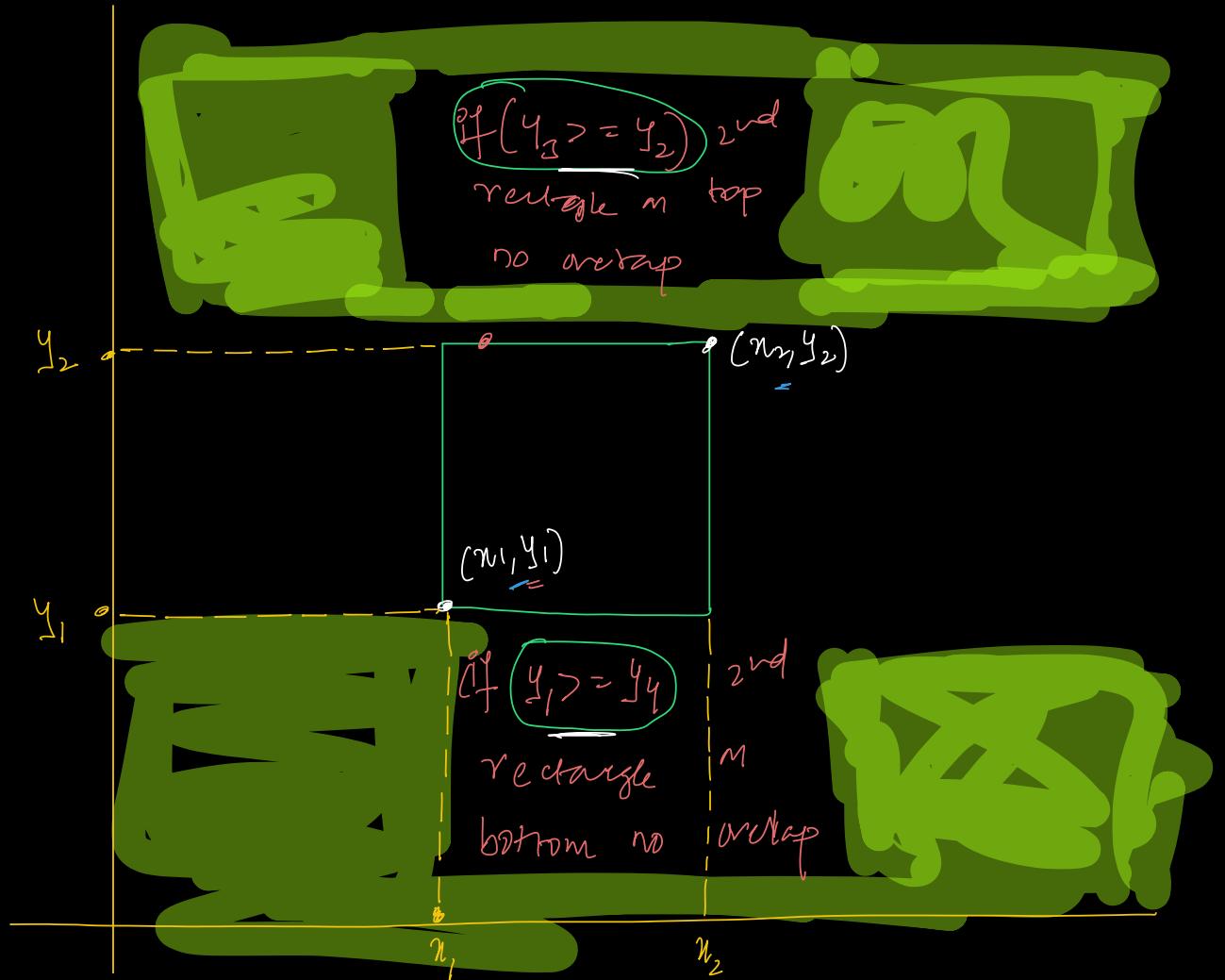
Given BL & TB rectangle fixed

All Rectangle are parallel to 2 axis & y-axis



Inputs are $\rightarrow (x_1, y_1) (x_2, y_2) (x_3, y_3) (x_4, y_4)$

↳ 8 variables



Q3) Repeat and Missing number array. \rightarrow All elements

\Rightarrow Given N array element, in Range $[1 \leftrightarrow N]$ $[1 - N]$

a) Each element appears exactly once except A which appears twice and B is entirely missing

Ex1:

<u>ar[8]:</u>	\rightarrow	$\boxed{N=8}$	$\Rightarrow \{ 3, 5, 7, 1, 5, 6, 2, 8 \}$	<u>Twice</u>	<u>Missing</u>
				5	4

$[1 - 8]$

Ex2:

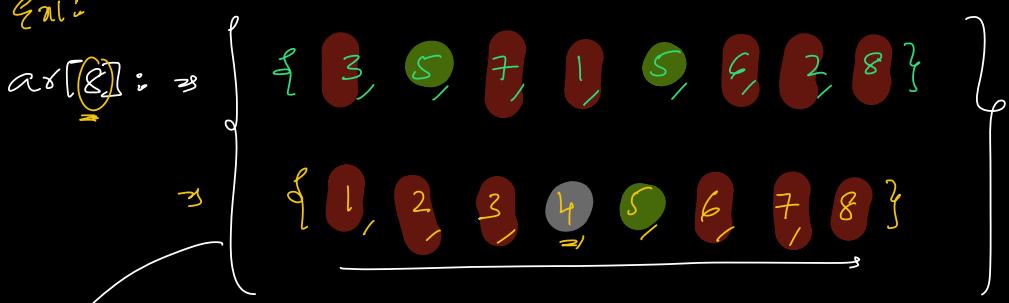
<u>ar[10]:</u>	\rightarrow	$\boxed{N=10}$	$\Rightarrow \{ 2, 7, 5, 8, 9, 10, 8, 1, 4, 6 \}$	<u>Twice</u>	<u>Missing</u>
				8	3

Ex3:

<u>ar[6]:</u>	\rightarrow	$\boxed{N=6}$	$\Rightarrow \{ 6, 3, 3, 1, 4, 2 \}$	<u>Repeat</u>	<u>Missing</u>
All elements				3	5

In range $[1 - 6]$

Ex:



Reverse } { Every Element is repeating twice except
once } { 2 Elements { find Both Elements } } { Bits Manipulation

Note: We won't need any extra space.

$\text{arr}[10] :=$ { 2, 7, 5, 8, 9, 10, 8, 1, 4, 6 }

$\text{arr}[6] :=$ { 6, 3, 3, 1, 4, 2 }

3Q) Man consecutive is \int^s Either you can replace a not

Q) In any string, Atmost replace a 0 with 1, find max consecutive 1's we can get

Ans = 2

$i = 0; i < N; i++$:

If $\text{str}[i] == '0'$:

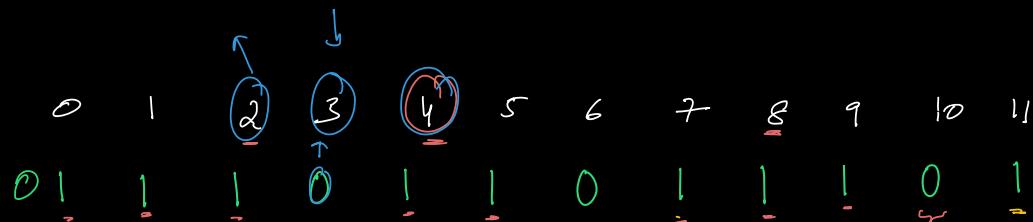
get no. of consecutive 0's in left side = L : } Preform sum

get no. of consecutive 1's in right side = R : }

Total ans = $L + R + 1$

ans = max (ans, Total)

}



$\text{left}[0] = \text{arr}[0]$ \swarrow

$i = 1; i < N; i++$:

If $\text{arr}[i] == 0$:

$\text{left}[i] = 0$

else:

$\text{left}[i] = \underbrace{\text{left}[i-1]}_{\text{want } p=0} + 1$

}

$\text{right}[N-1] = \text{arr}[N-1] \swarrow$

$i = N-2; i >= 0; i--$:

If $\text{arr}[i] == 0$:

$\text{right}[i] = 0$

else

$\text{right}[i] = \overbrace{\text{right}[i+1]}^{\text{want}} + 1$

$i = N-1 \text{ want}$

}

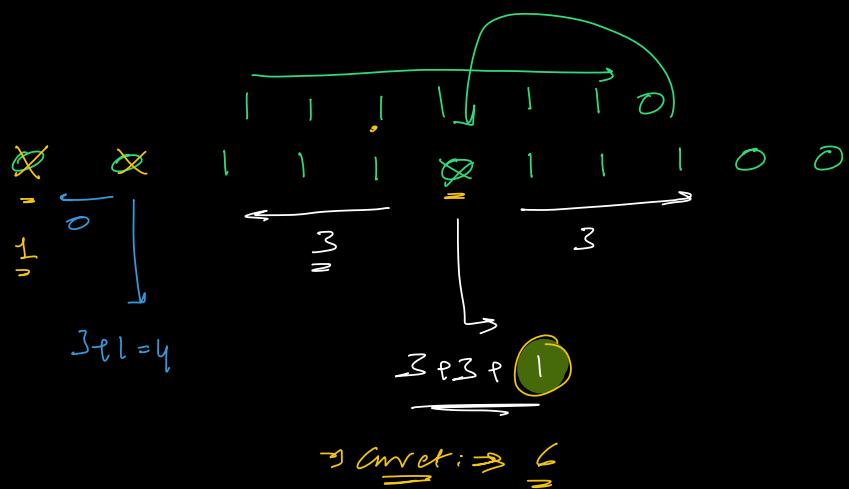
$$\text{ans} = 0$$

// Iterate & count no: f 's = $\subseteq \{ \} \rightarrow o(n)$

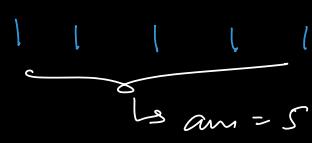
if ($c == N$) return N

$$f = o(\sqrt{N}) \Rightarrow o(N)$$

Envi:



Emissions



{ 11:00 PM }

k^{th} Nth Magical Number

Find k^{th} magical which is a power of 5 or it can be as

sum of powers of 5

Note: A single power can only be used once:

$$1^{\text{st}}: \Rightarrow 0 \quad 0 \quad 1$$

$$2^{\text{nd}}: \rightarrow 0 \quad 1 \quad 0$$

$$3^{\text{rd}}: \rightarrow 0 \quad 1 \quad 1$$

$$4^{\text{th}}: \rightarrow 1 \quad 0 \quad 0$$

$$5^{\text{th}}: \rightarrow 1 \quad 0 \quad 1$$

\downarrow

$5^3 + 5^1 = 130$

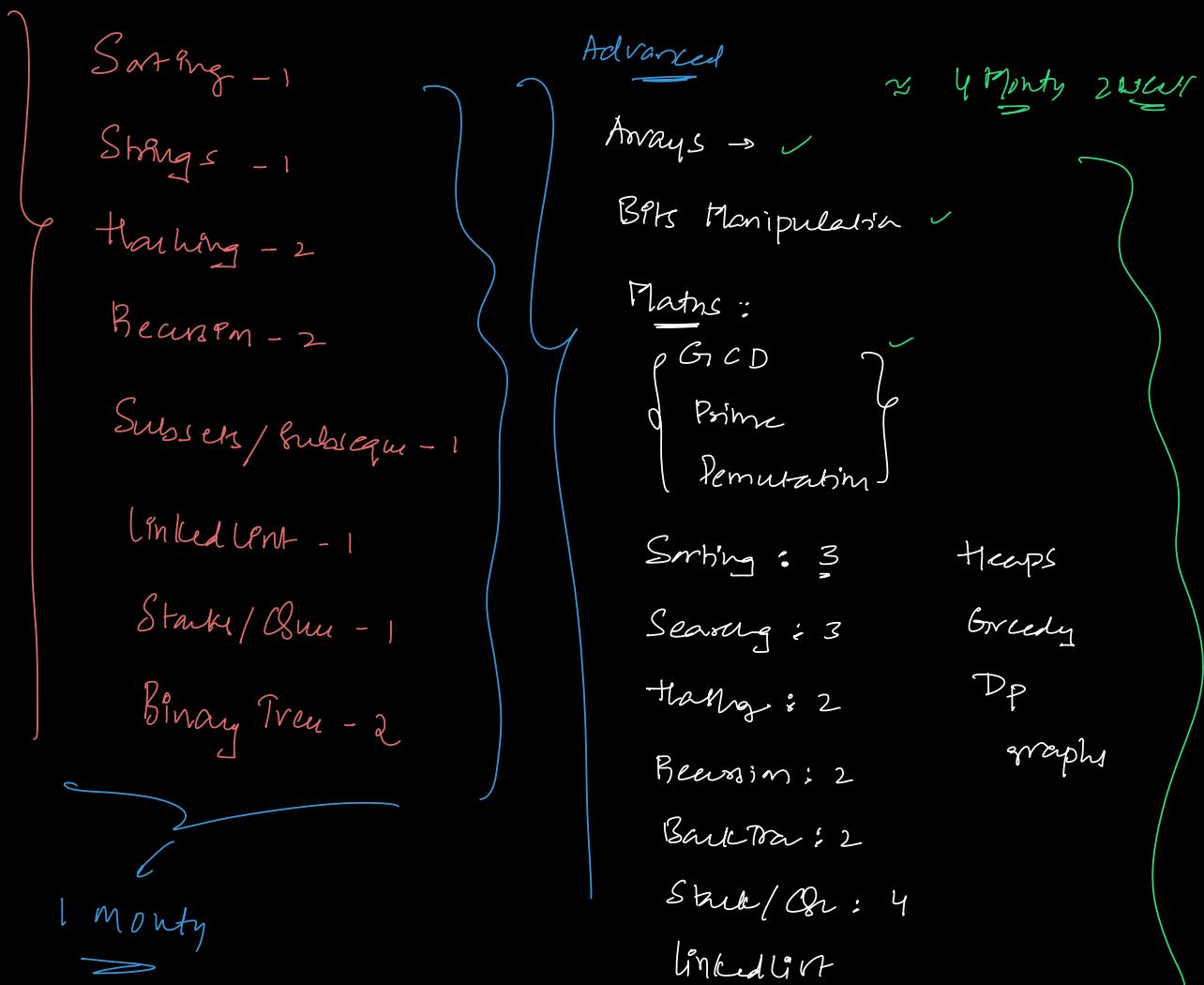
$$6^{\text{th}}: \rightarrow 1 \quad 1 \quad 0$$

$$7^{\text{th}}: \rightarrow 1 \quad 1 \quad 1$$

2	1	0
0	0	<u>5^1</u>
0	<u>5^2</u>	0
0	5^2	5^1
5^3	0	0
5^3	0	5^1
5^3	5^2	0
5^3	5^2	5^1

Th
11 :

$$\begin{array}{c|c|c|c}
 3 & (2) & (1) & (0) \\
 \hline
 1 & 0 & 1 & 1 \\
 \hline
 5^4 & X & 5^2 & 5^1 \\
 \hline
 & - & - & -
 \end{array}
 \quad 5^4 + 5^2 + 5^1 \rightarrow 6\underline{5}5$$



Dear 25 → Jan 1st

