

# Programming Basics - III

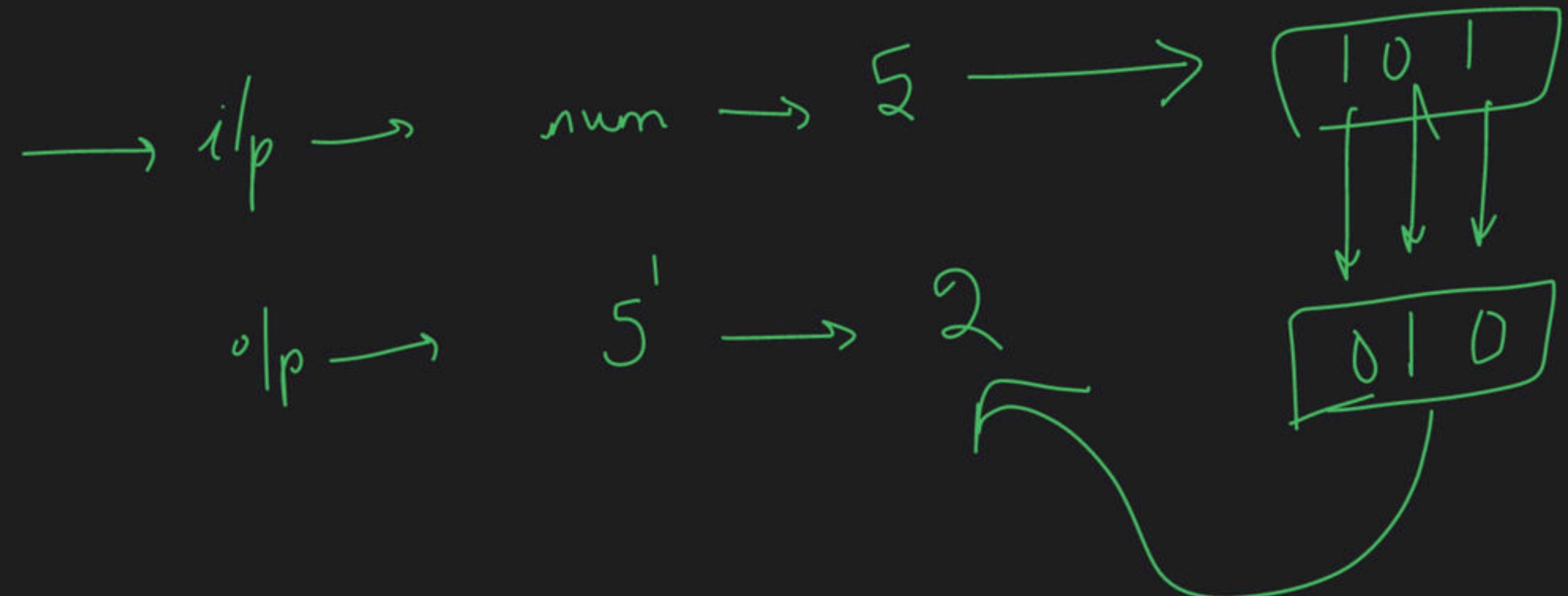
Foundation Course on Data Structures & Algorithm - Part I

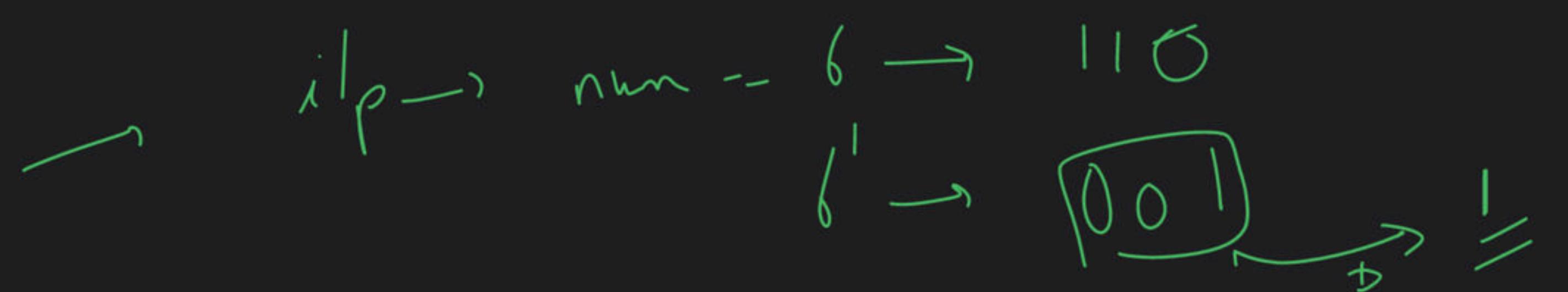
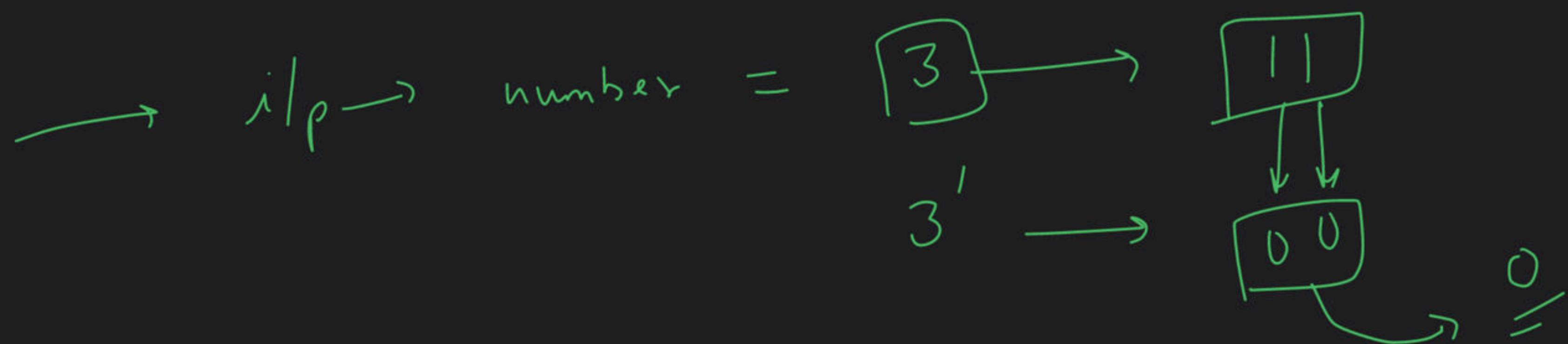
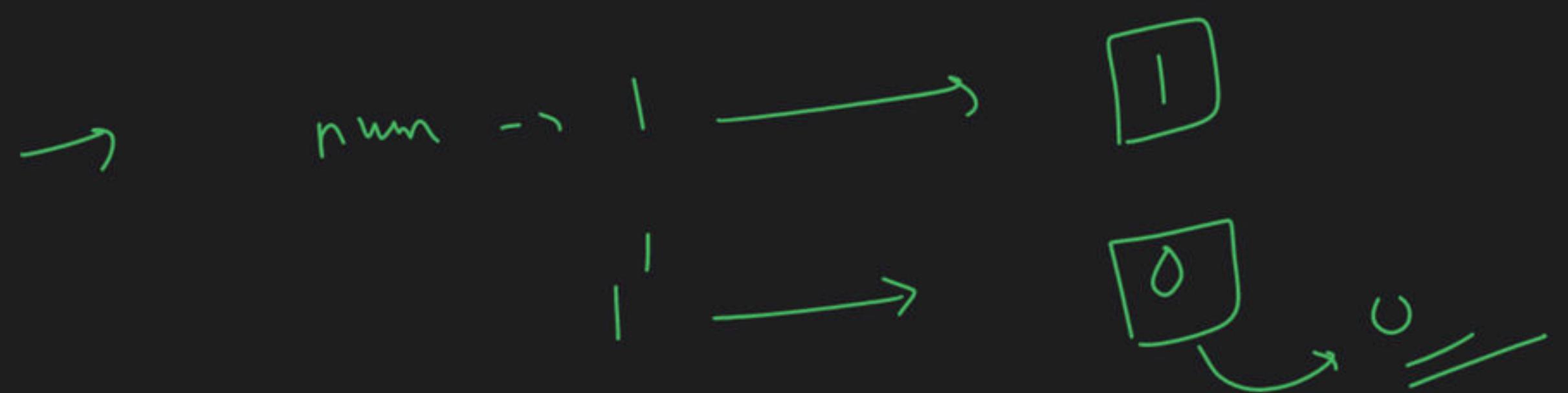
→ Problem Solving →

→ Homework

→ Sunday → DS

P1 → Number Complement





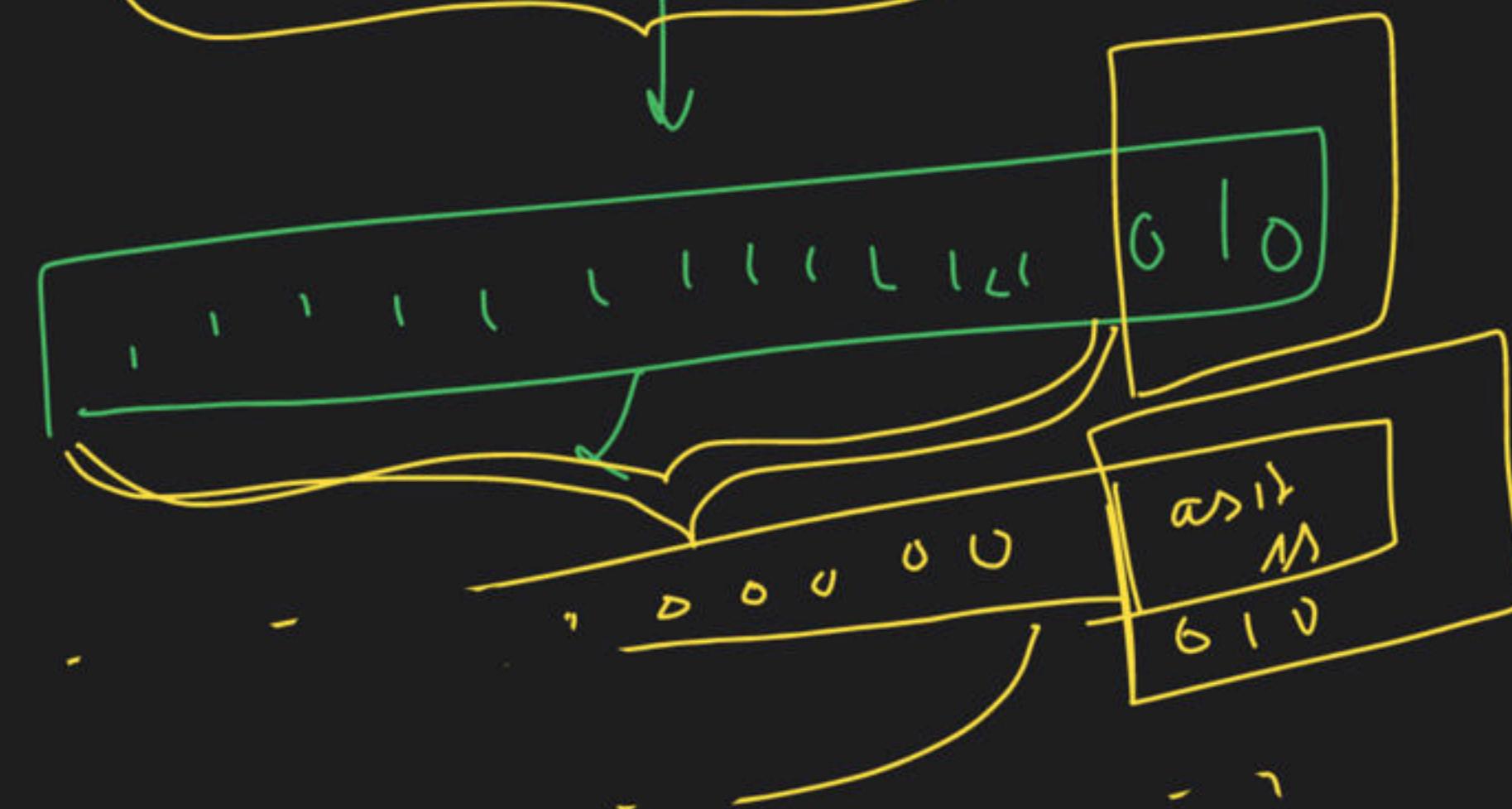
32 bit

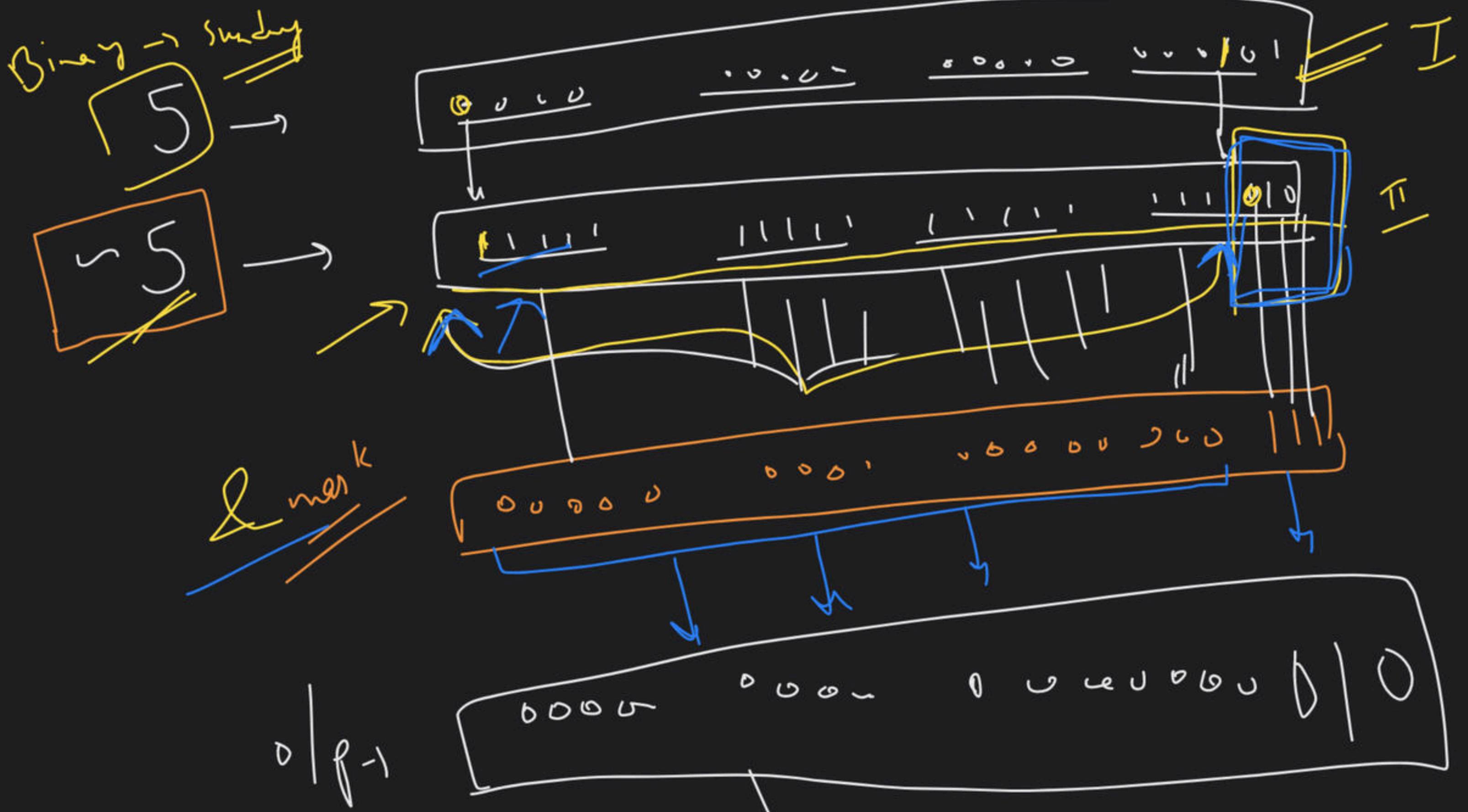
~

int n = 5



mask





$1 \wedge 0 \rightarrow 0$

$0 \wedge 0 \rightarrow 0$

$1 \wedge 1 \rightarrow 1$

print → ( )

$0 \rightarrow 0$   
 $1 \rightarrow 1$

mark  
 prepare

How

→ View

mark  $\rightarrow$

5 →

$$n = 6$$

5000 1000 500 100 50 10 5 1

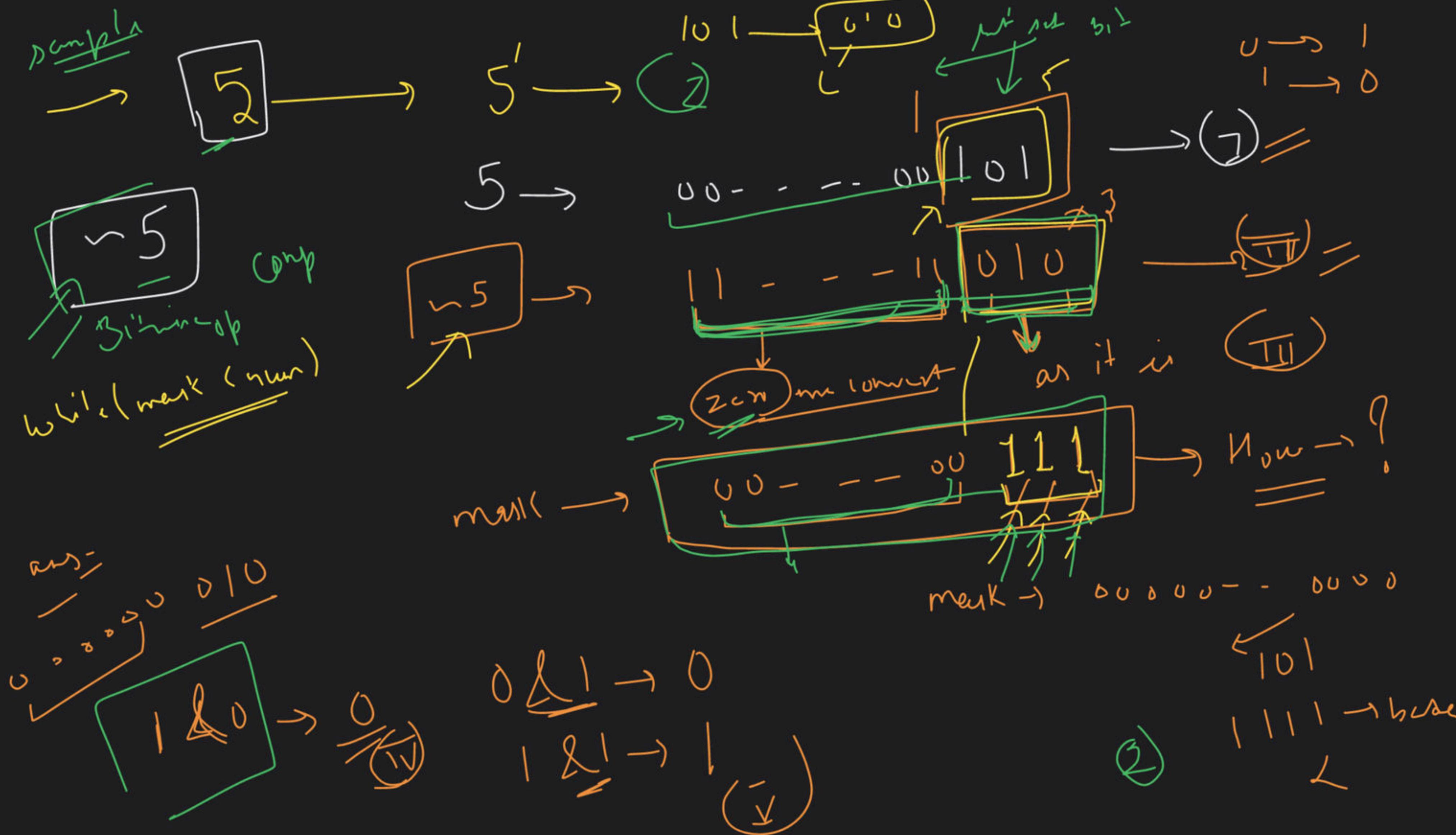
٥٠٥٦٥٥٦٦٧٦٥٥٥٥٥١١

mark

—  
—  
—

110

c a o - - - / / /



$\text{mark} \leftarrow$

$\text{while } (\text{mark} < \text{num})$



0 | 1 → 1

$\text{mark} \leftarrow$

0000 - - - 0000 <<



0000 - - - 0000 <<



0 | 1 → 1



5 - 1  
5 >

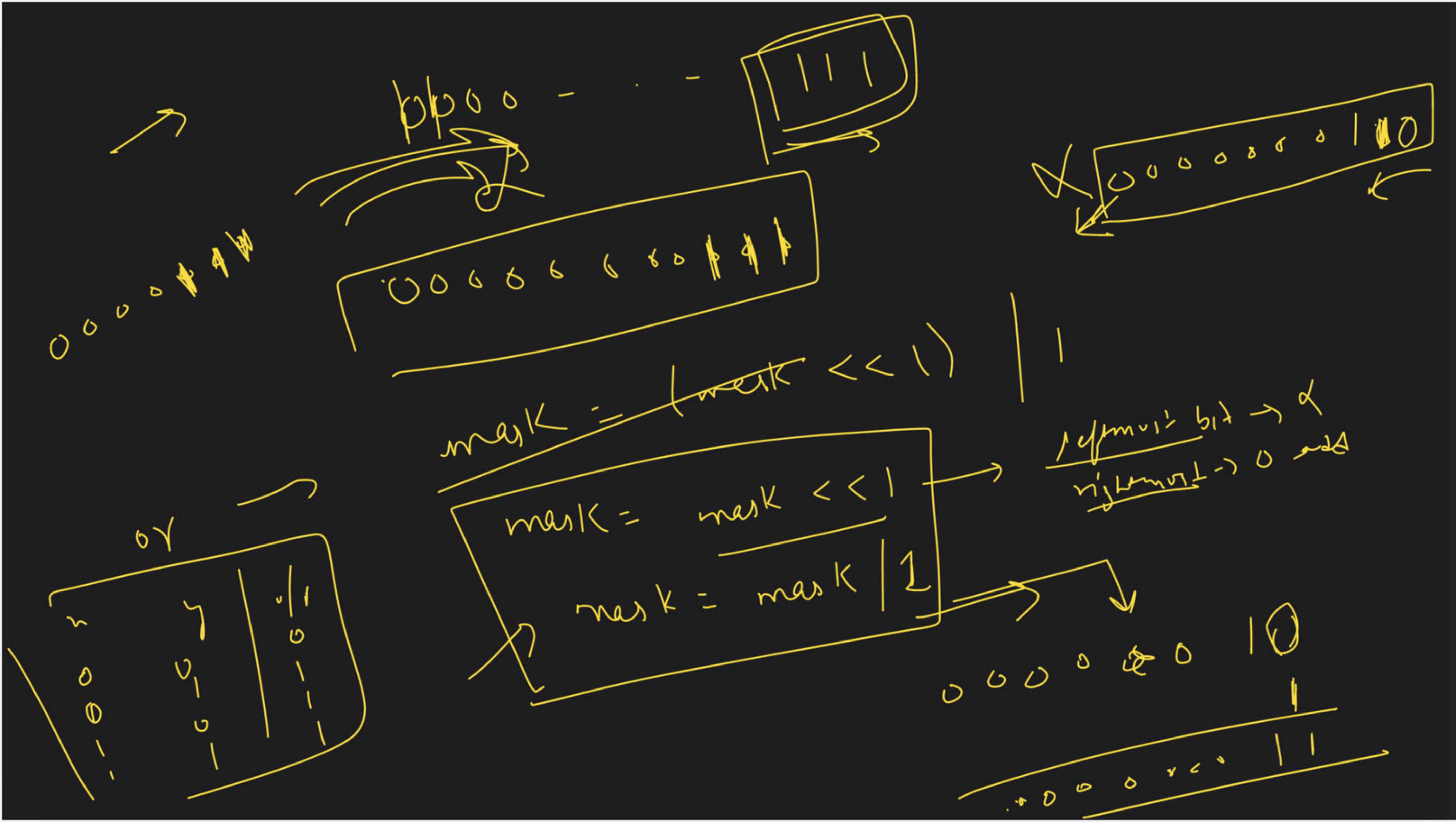
١٥٦ - — —

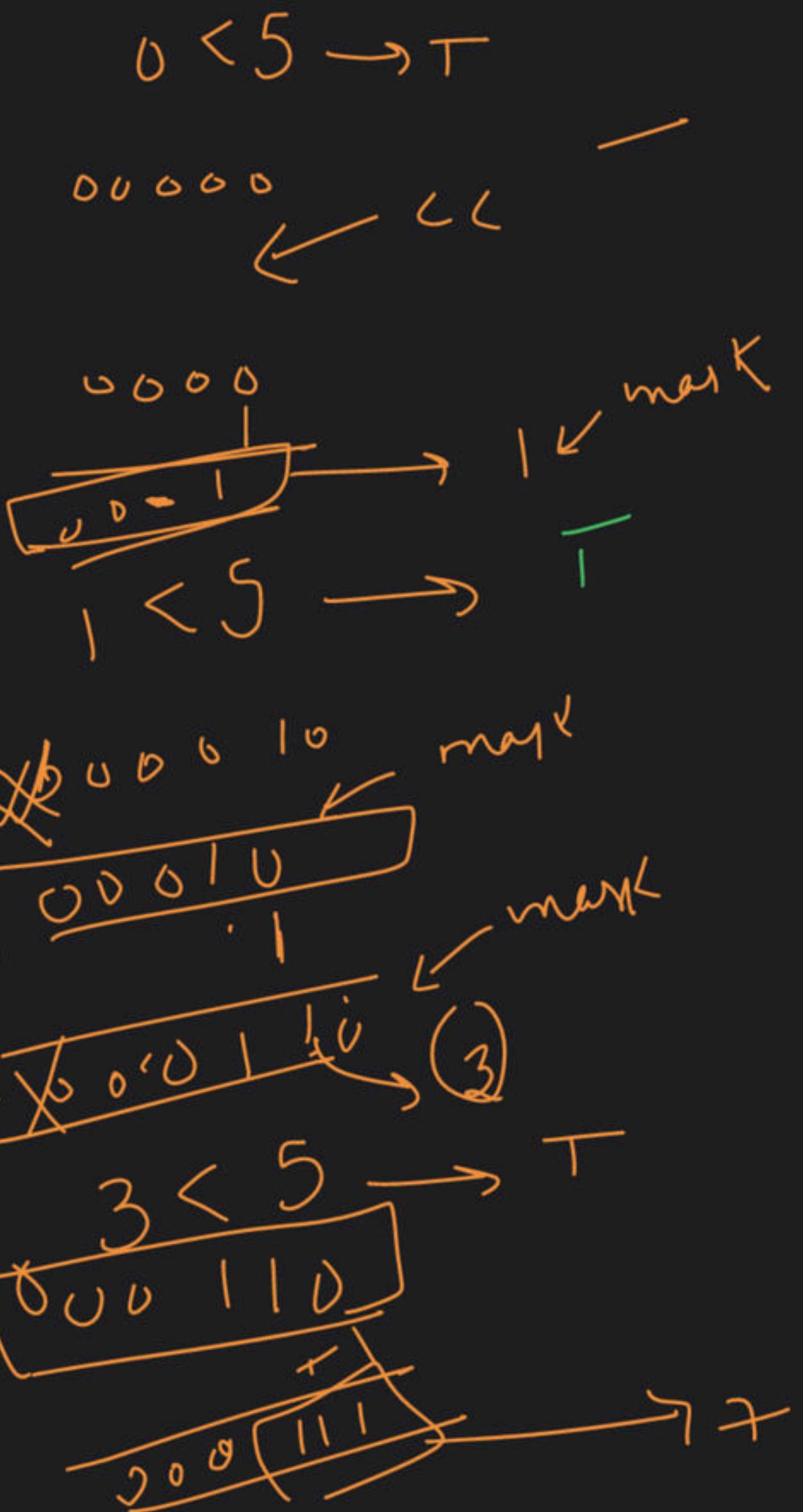
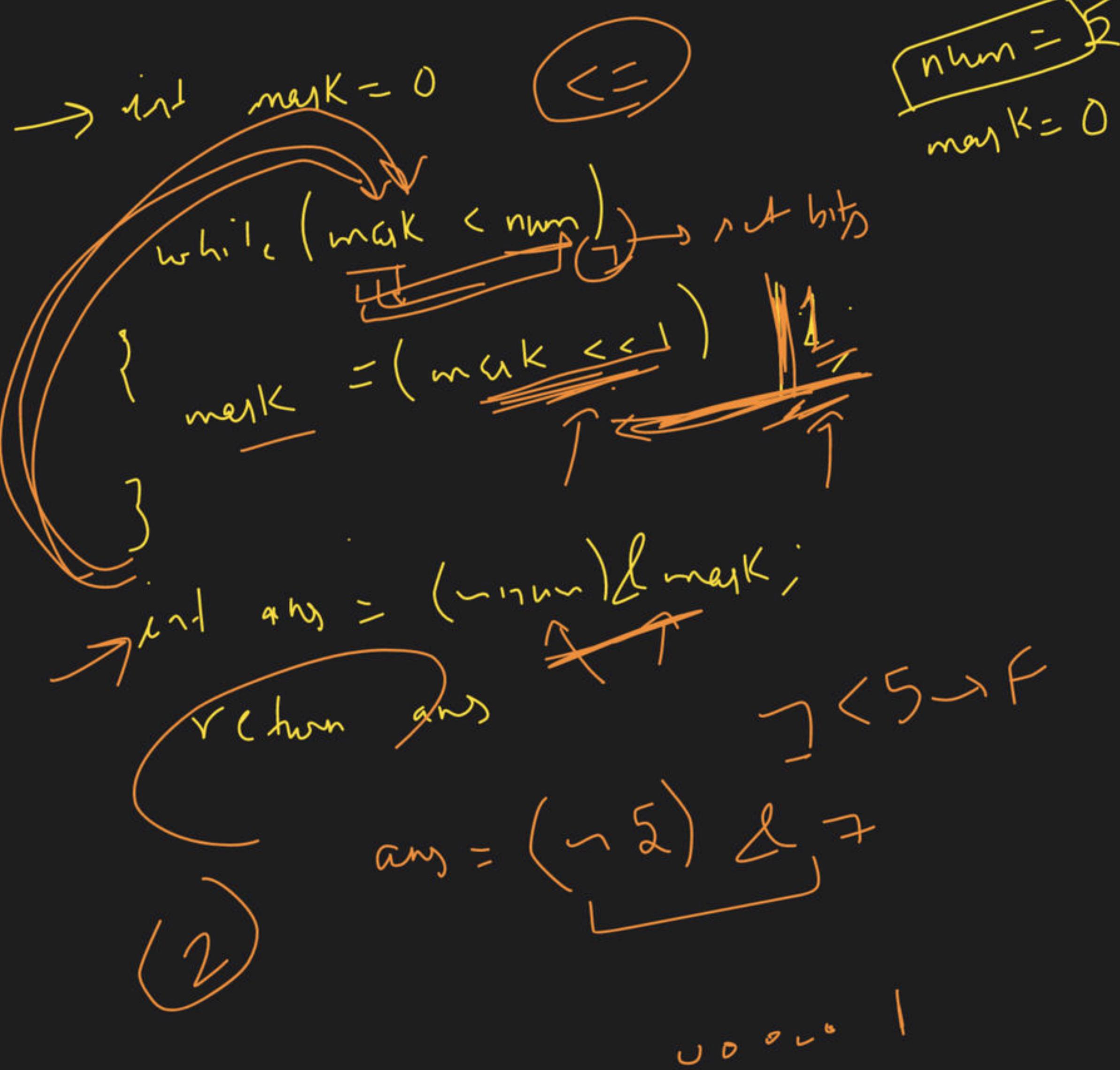
1 1 1 - - - 1 1 0 1 0 &  
0 0 0 0 0 0 0 1 1 1  
0 0 0 0 0 0 0 0 0 0  
0 0 0 0 0 0 0 0 0 0

```
while ( <= )
```

$$1000 \rightarrow 0$$

A hand-drawn diagram in yellow ink on a black background. The diagram consists of several rounded rectangles containing binary code and various symbols. 
 - Top left: A circle containing a circled '7' with an arrow pointing to the text '1000 - -'.
 - Top right: A rectangle containing '1111-0000' with three vertical lines above it.
 - Middle left: A rectangle containing '0001' with an arrow pointing to the text '1111-0000'.
 - Middle center: A rectangle containing '<=' with 'num' written next to it.
 - Middle right: An arrow pointing to the text '1111'.
 - Bottom left: A rectangle containing '0011' with an arrow pointing to the text '1111'.
 - Bottom right: A rectangle containing '0100' with an arrow pointing to the text '1111'.
 - Bottom center: A large rounded rectangle containing '0000 1111' with a curved arrow pointing from it back towards the first binary box.





$q_w =$

(~5)  $\lambda^7$

5 → 6000 - - 101

5

\ \ \ \ \ - D \ V

28806001

0 0 0 0 0 0 0 0

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For more information about the study, please contact Dr. Michael J. Hwang at (310) 794-3000 or via email at [mhwang@ucla.edu](mailto:mhwang@ucla.edu).

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10.1002/anie.201907002

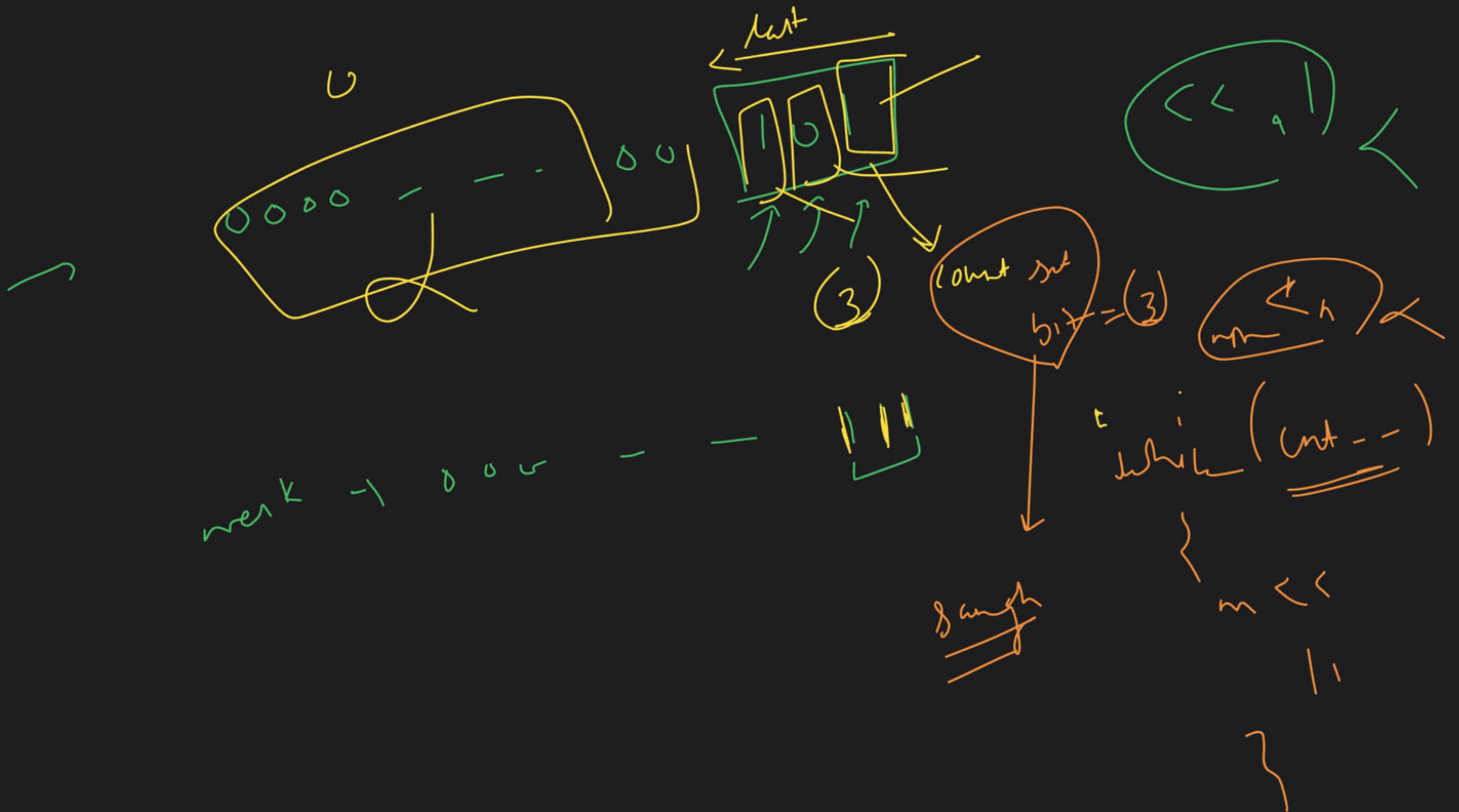
Figure 1. A typical example of a single ECG tracing showing the effect of a 100 ms delay in the timing of the stimulus.

Digitized by srujanika@gmail.com

*Conrad*

→ **WZ**

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→

$$n = \frac{16}{2^n} \rightarrow 2^4 = 2 \times 2 \times 2 \times 2 - (\text{if } 16 \text{ is } 2^n)$$

$2^n$  true

→

$$15 \rightarrow 2^n \cancel{2}$$

$2^n$  false

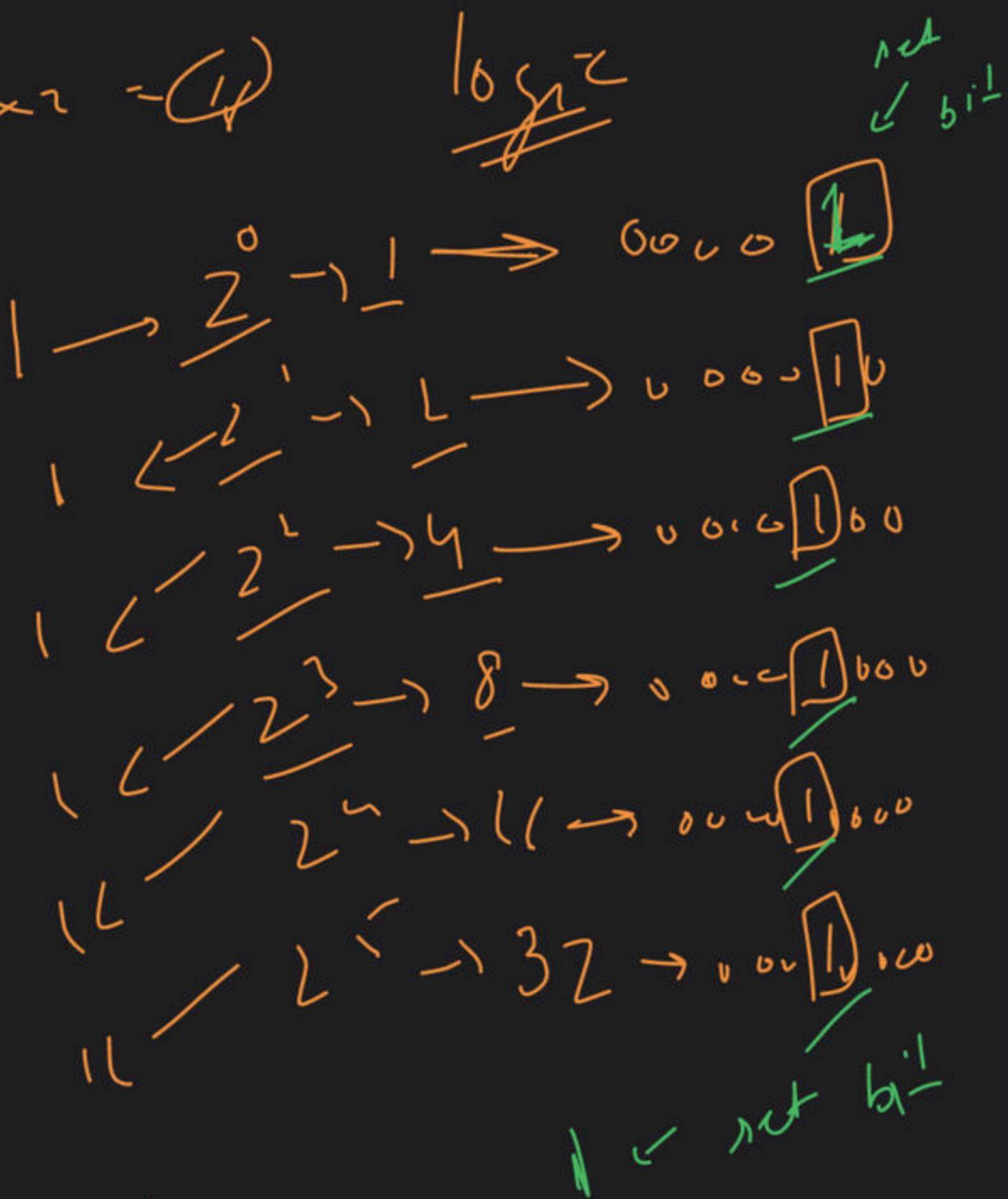
$$0 \rightarrow 2^n \rightarrow$$

$2^n$  false

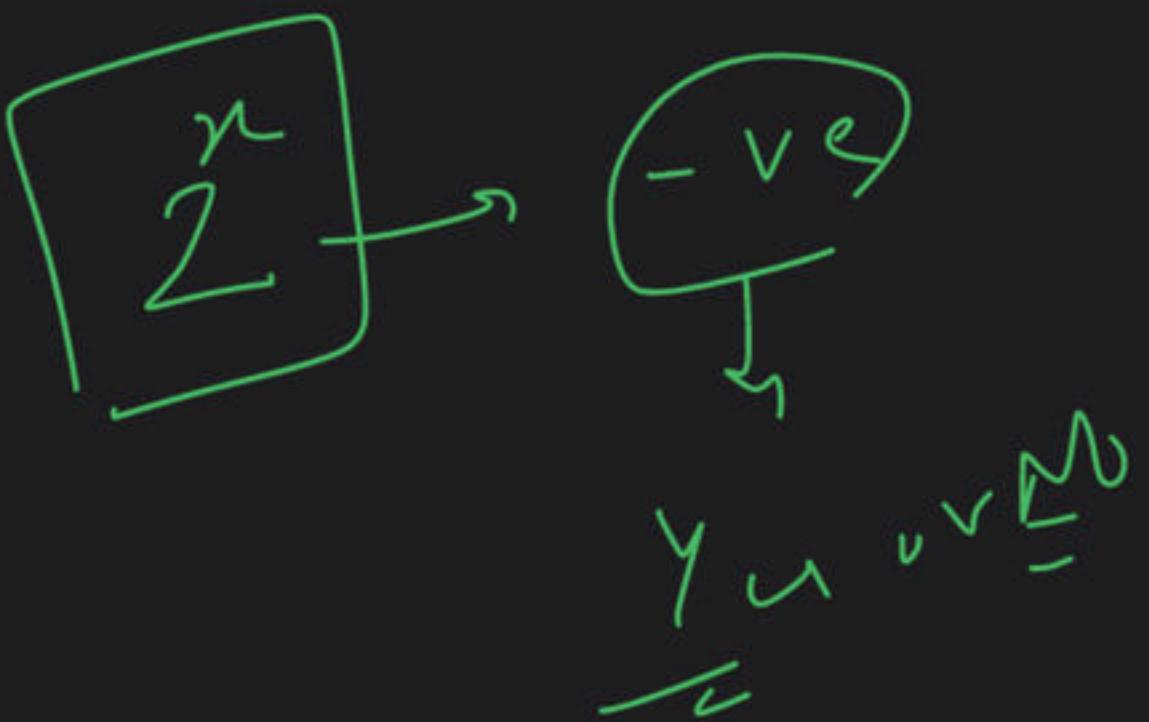
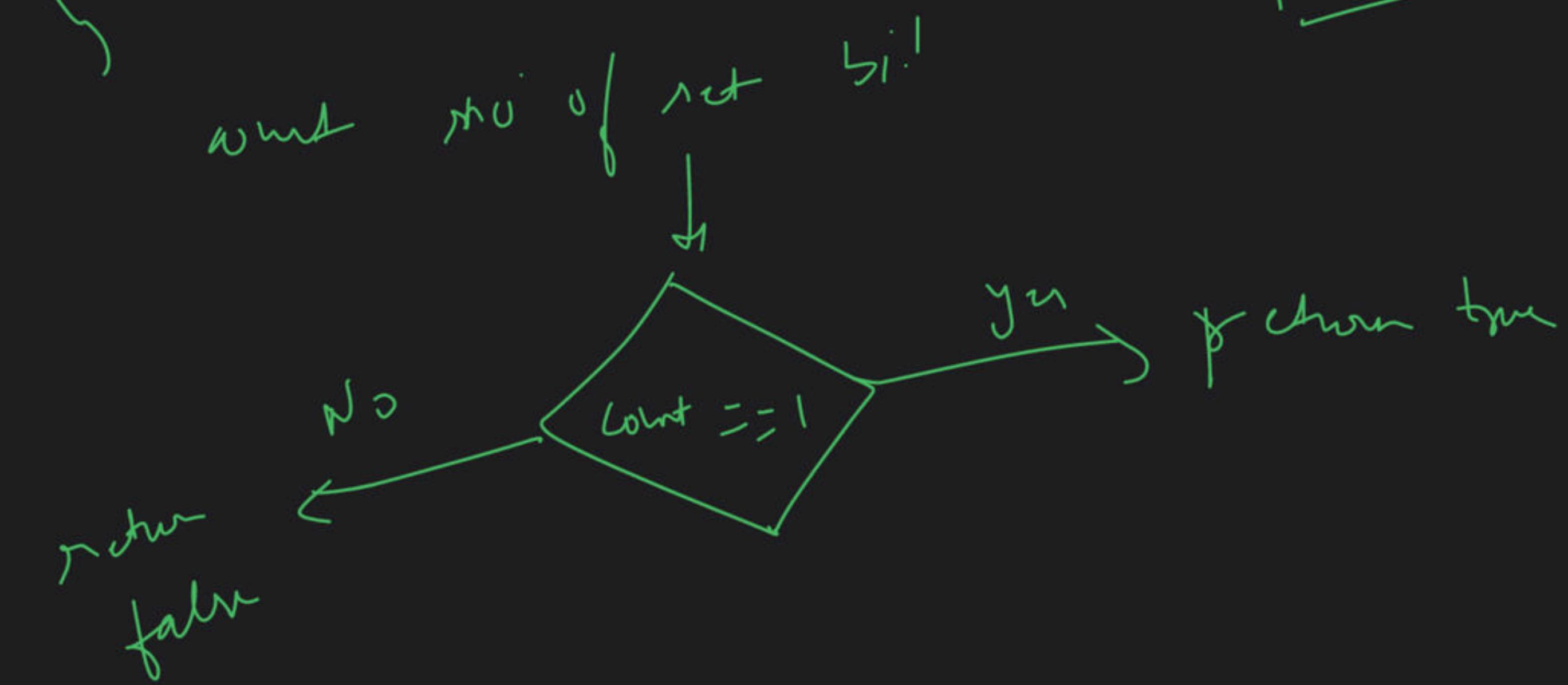
→

$n \rightarrow$  right bit = 1  
(own)  $\rightarrow 2^{n-1}$  power ✓

otherwise → false



$\rightarrow i \mid p \rightarrow \text{num}$



if ( $n \leq 0$ )  
return false

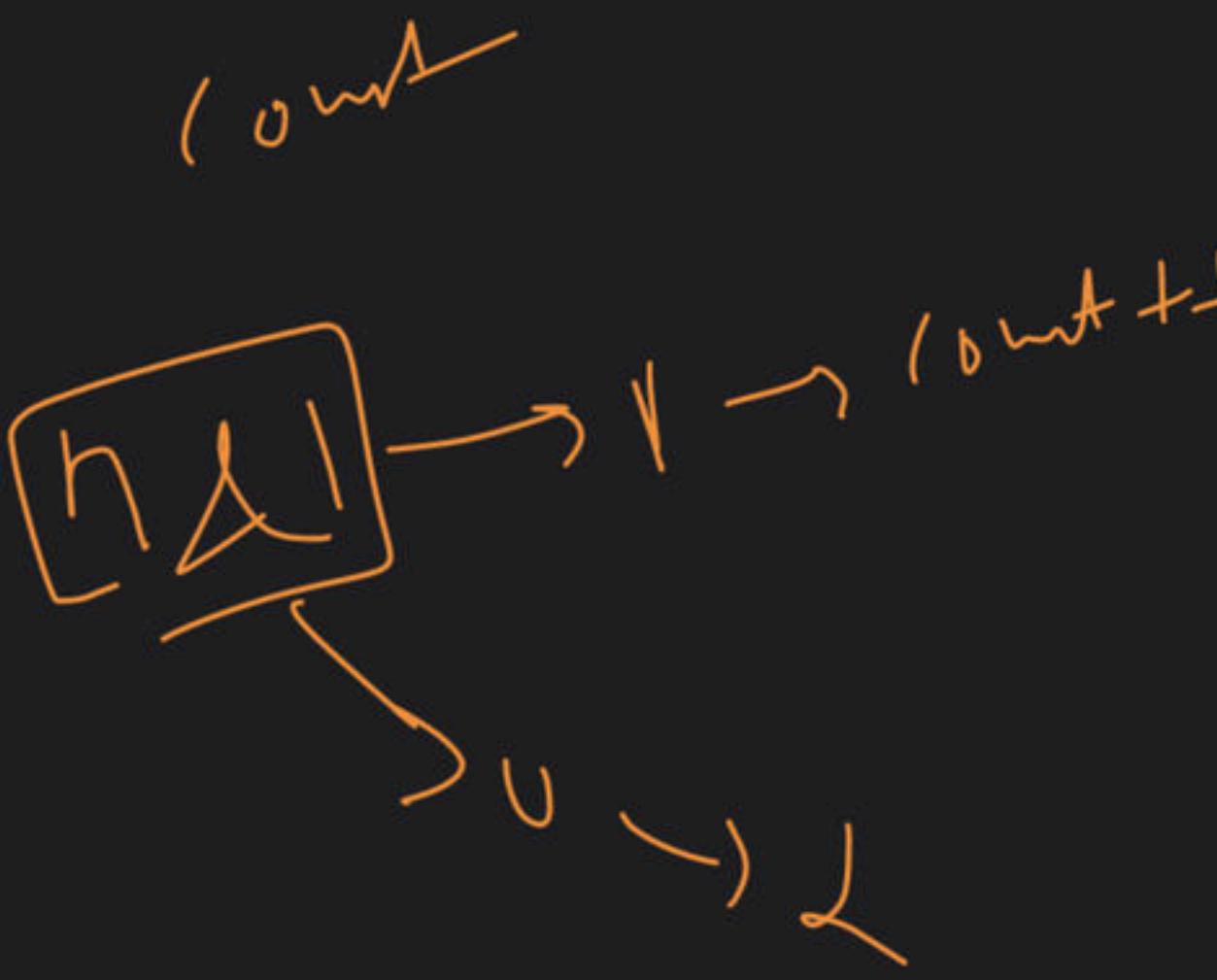
Now to count next bit

5 →

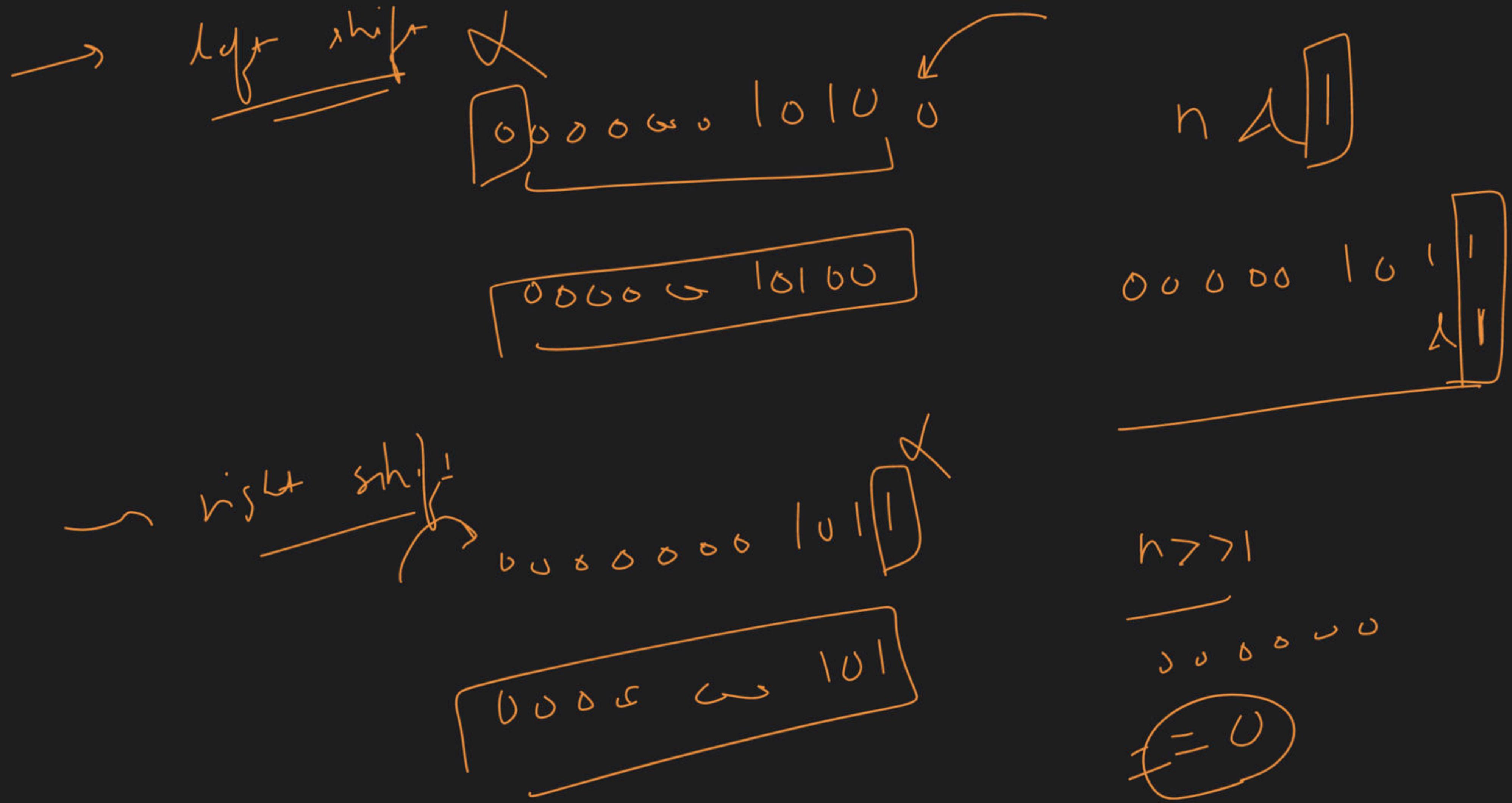
0 0 0 0 0 0 0

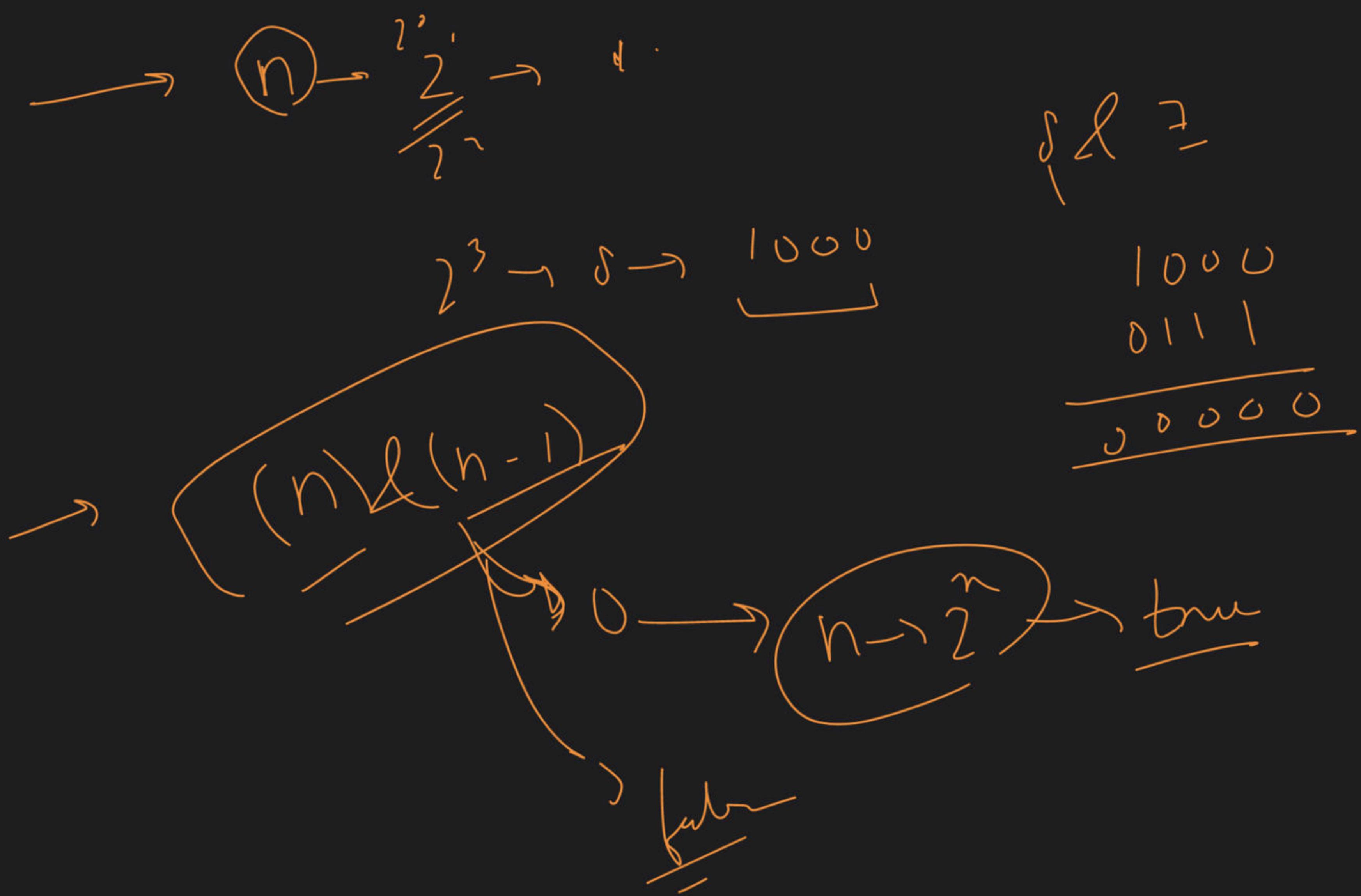


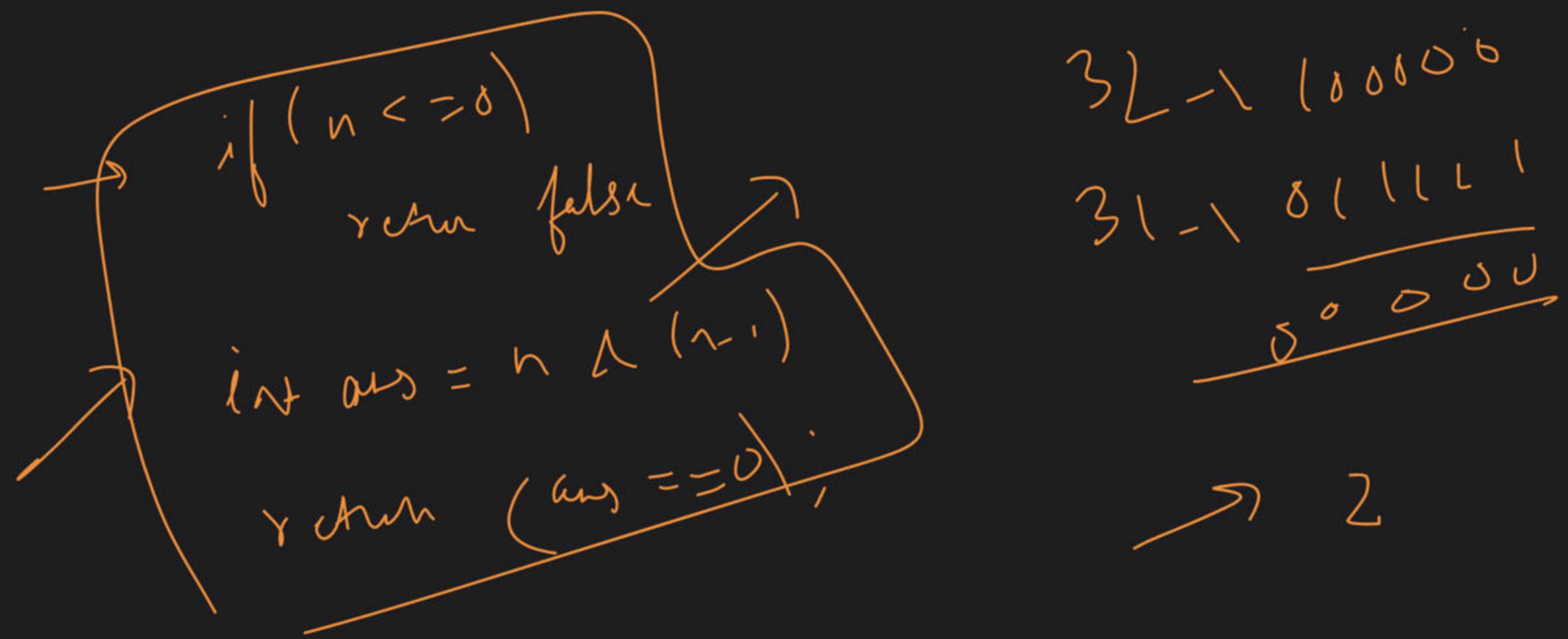
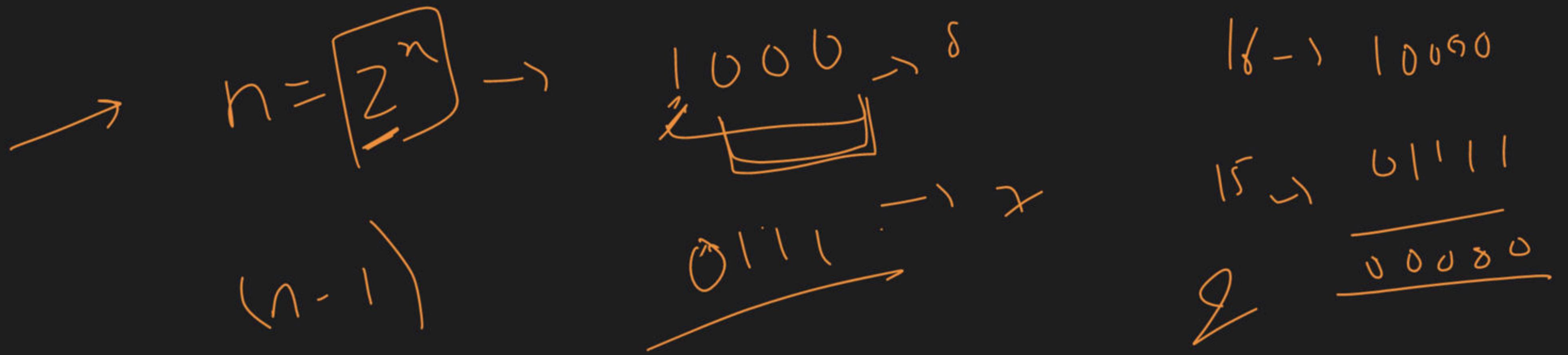
AI → 1 next bit  
AI → 0 next bit



when  
will give







num

int i= 0

for (int i= 0

    ;

    ;

    )

    {

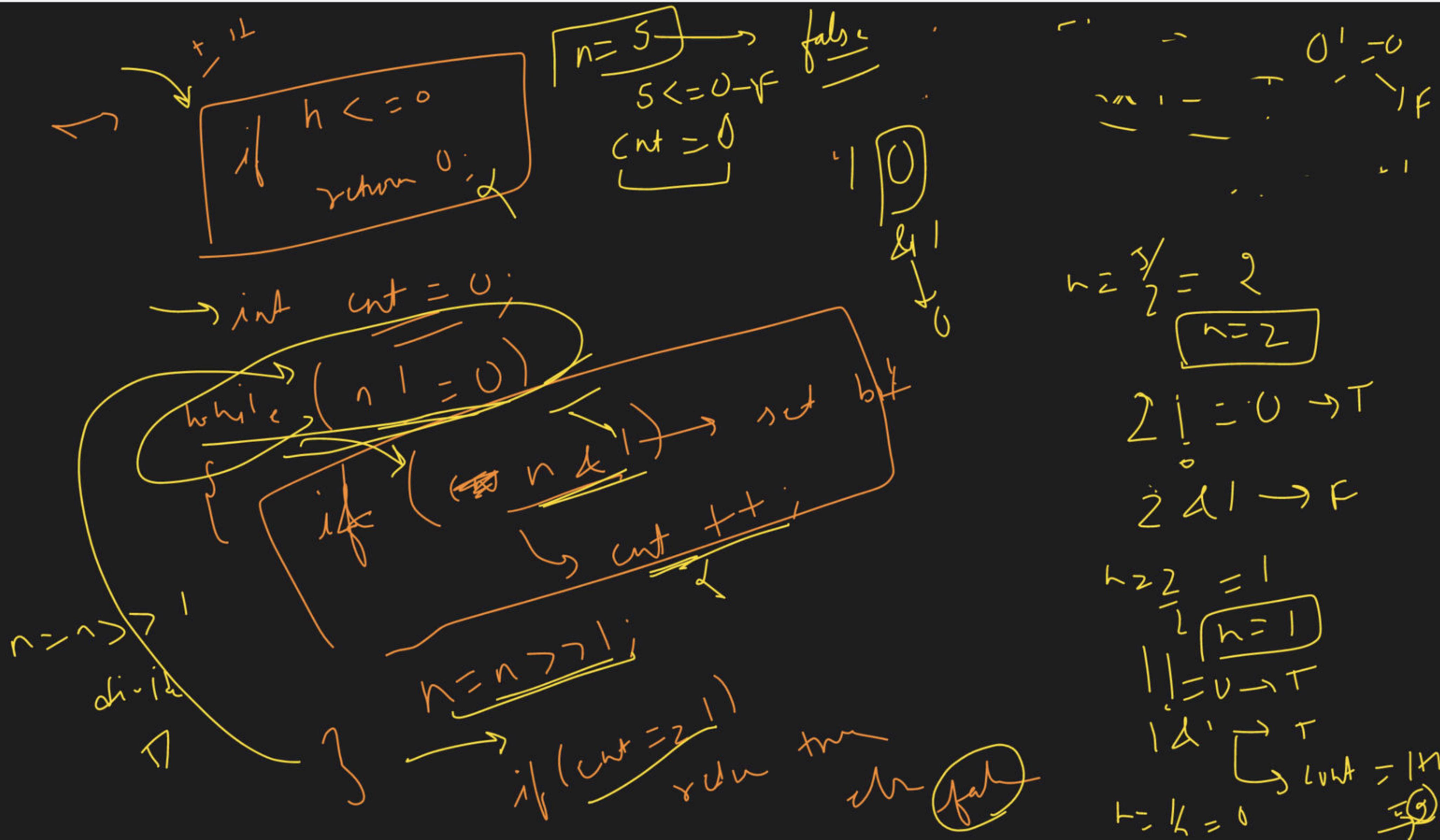
        n = pow (2, i)

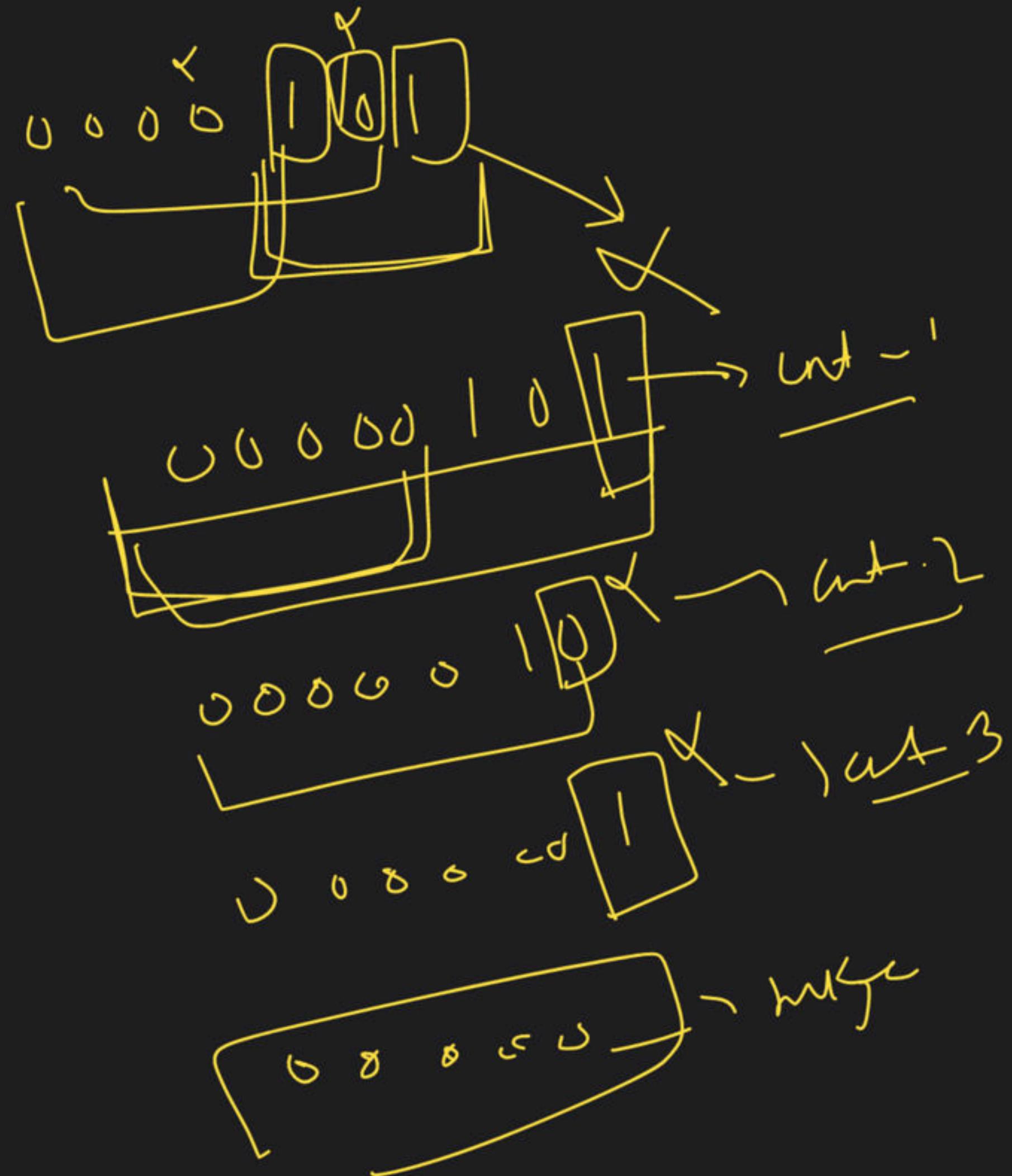
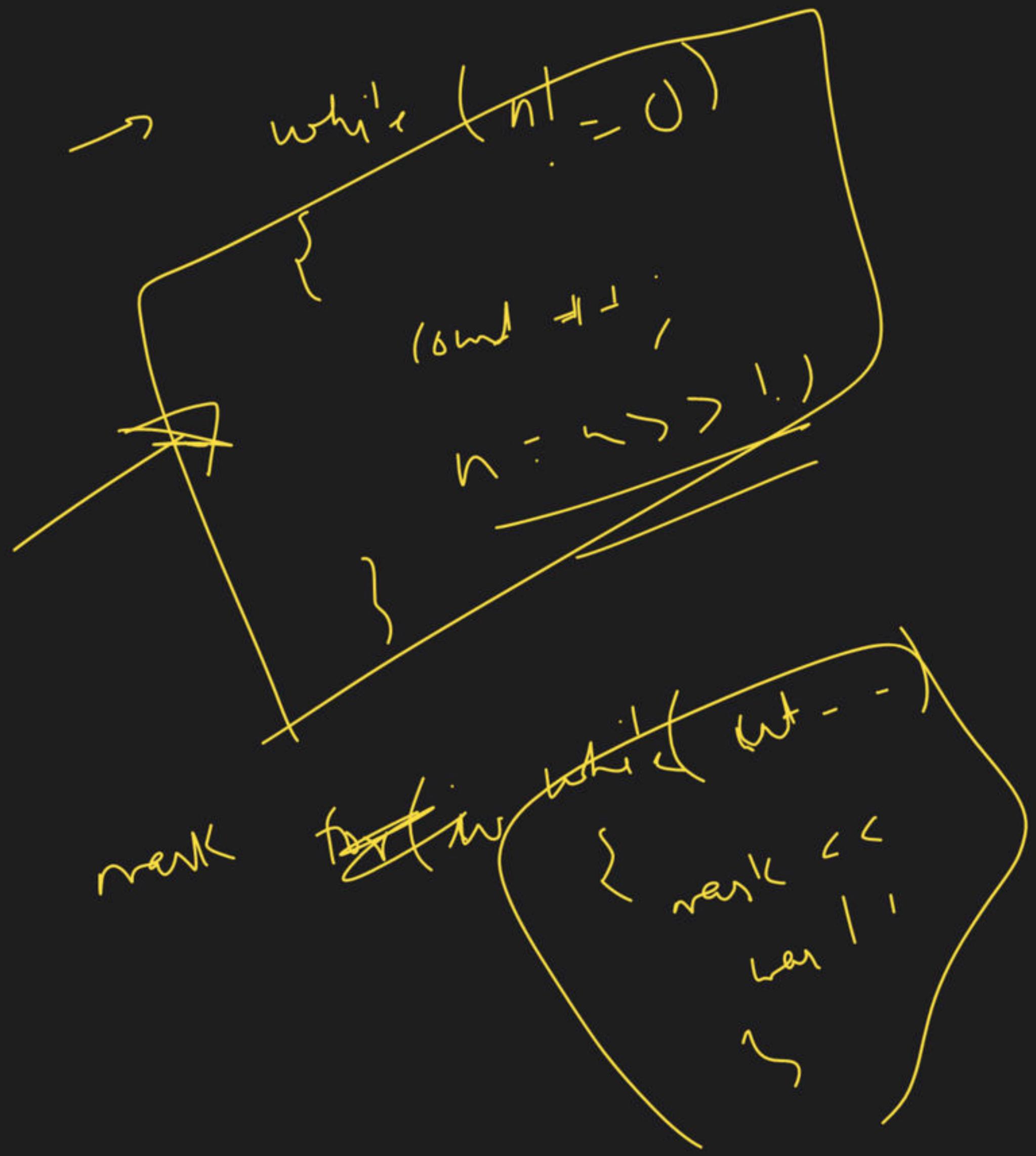
        if (n == num)

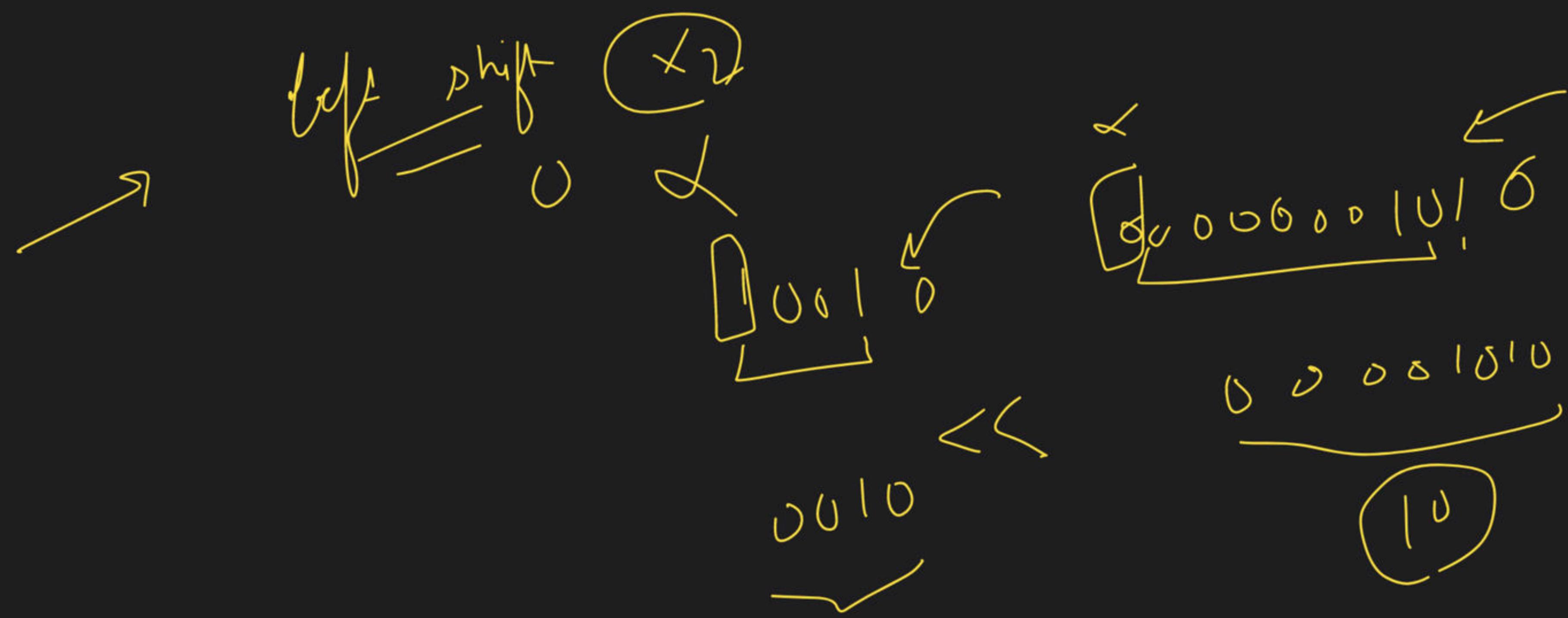
            return true

    }

i







$1^{11}$  Quas [alpha(he)]



Map

code map

$i | p \rightarrow num \rightarrow [n]$

1 2 3 4

# index (limits.h)

→

$j | p \rightarrow$

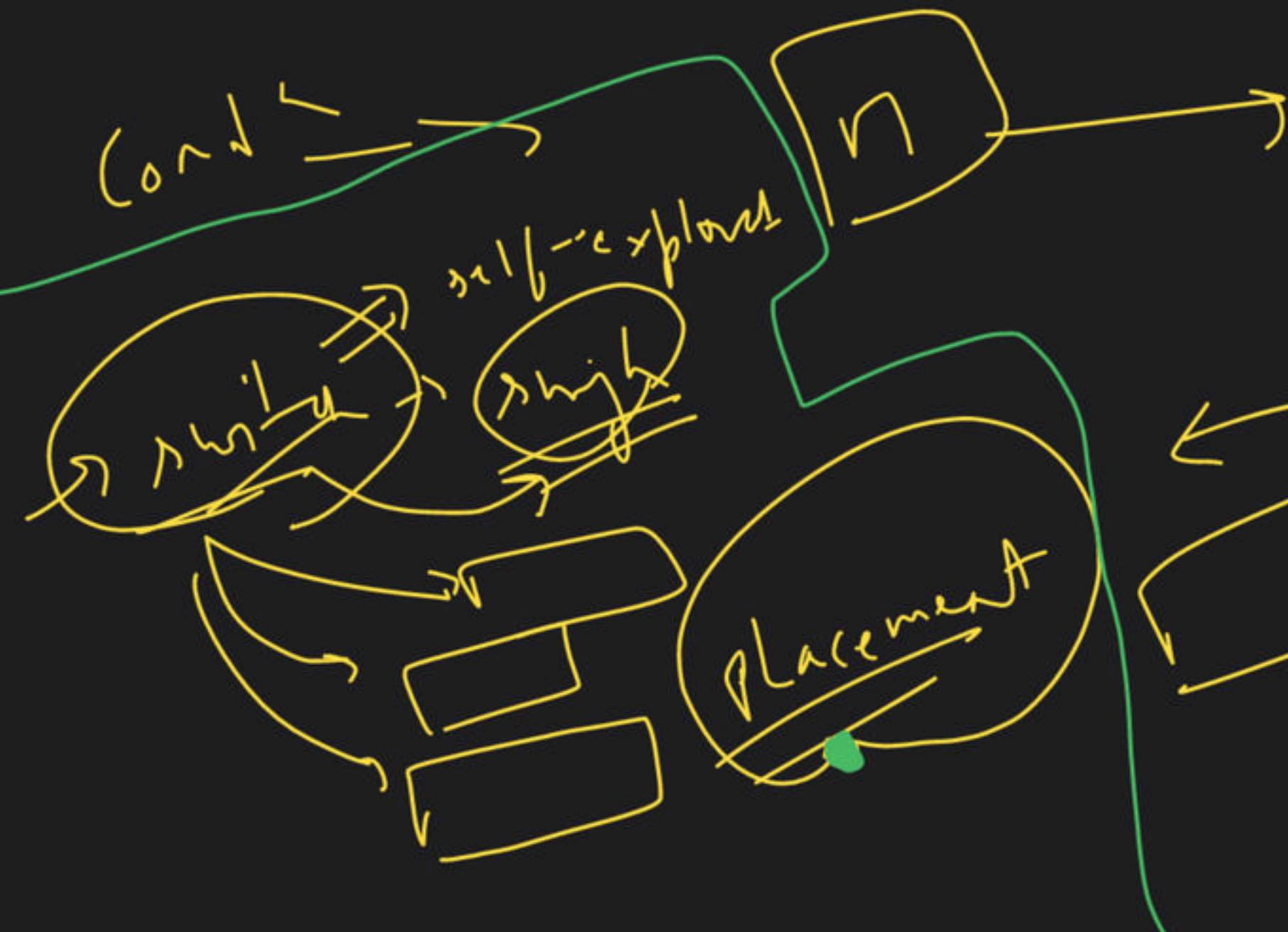
4 3 2 1

INT-MIN

INT-MAX

5006

(ord)



2a

rw-n

INT-MIN  
-2<sup>31</sup>

INT-MAX  
2<sup>31</sup>-1

down 0

Intellim

210

180  
200

220  
confidence

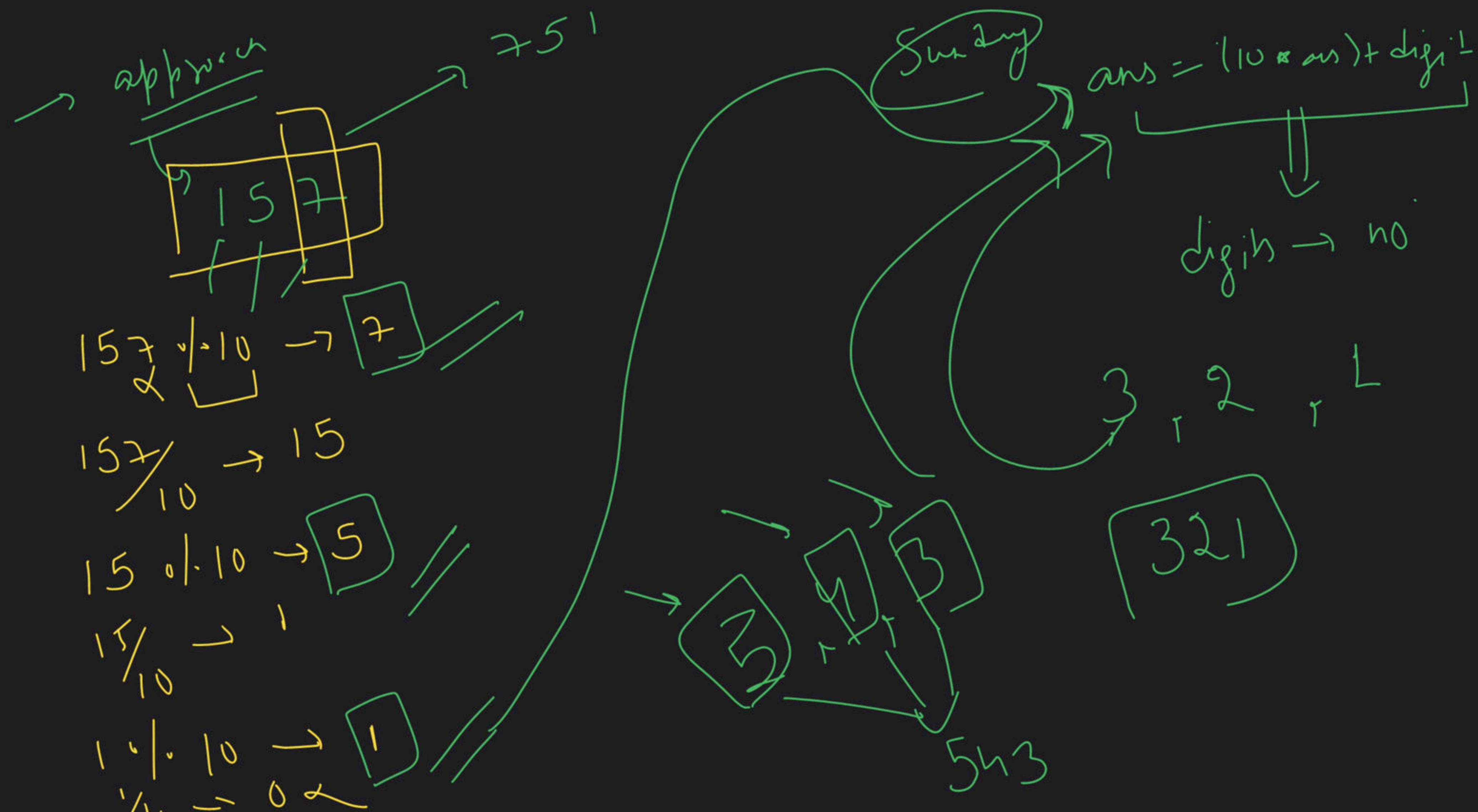
$n \rightarrow$  Yours

range number  $\rightarrow$

$n = 11243 \rightarrow$  us 3421

20060  $\rightarrow$  602

200658  $\rightarrow$  85602



0 / 0 | 0

Ler + digt +

→ 546

$$\underline{546} \rightarrow 54$$

18

$$\begin{array}{r} 54 \\ \times 5 \\ \hline 270 \end{array}$$

5

5.0 / 10

100

$$\sqrt{v} \geq v -$$

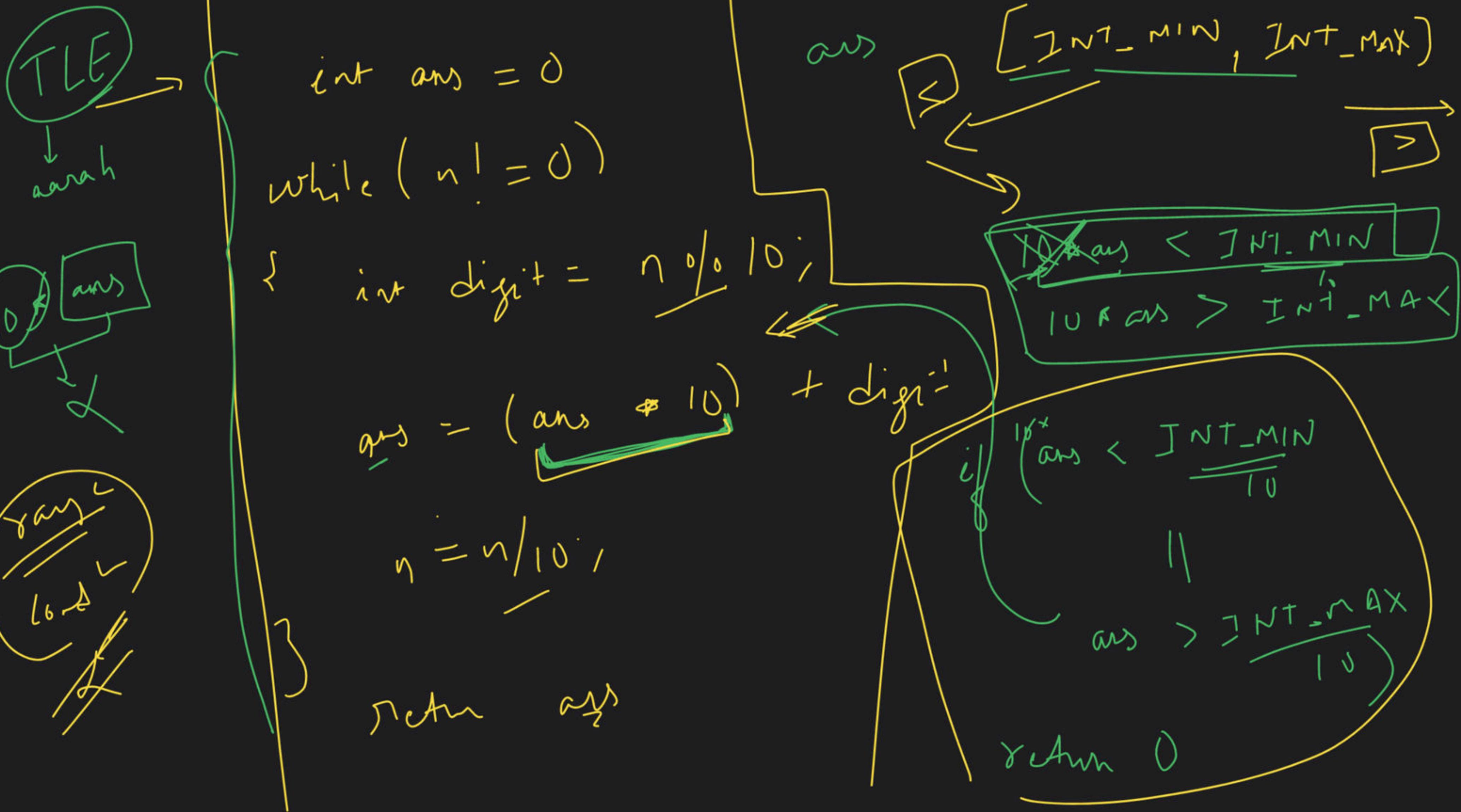
Li. 17

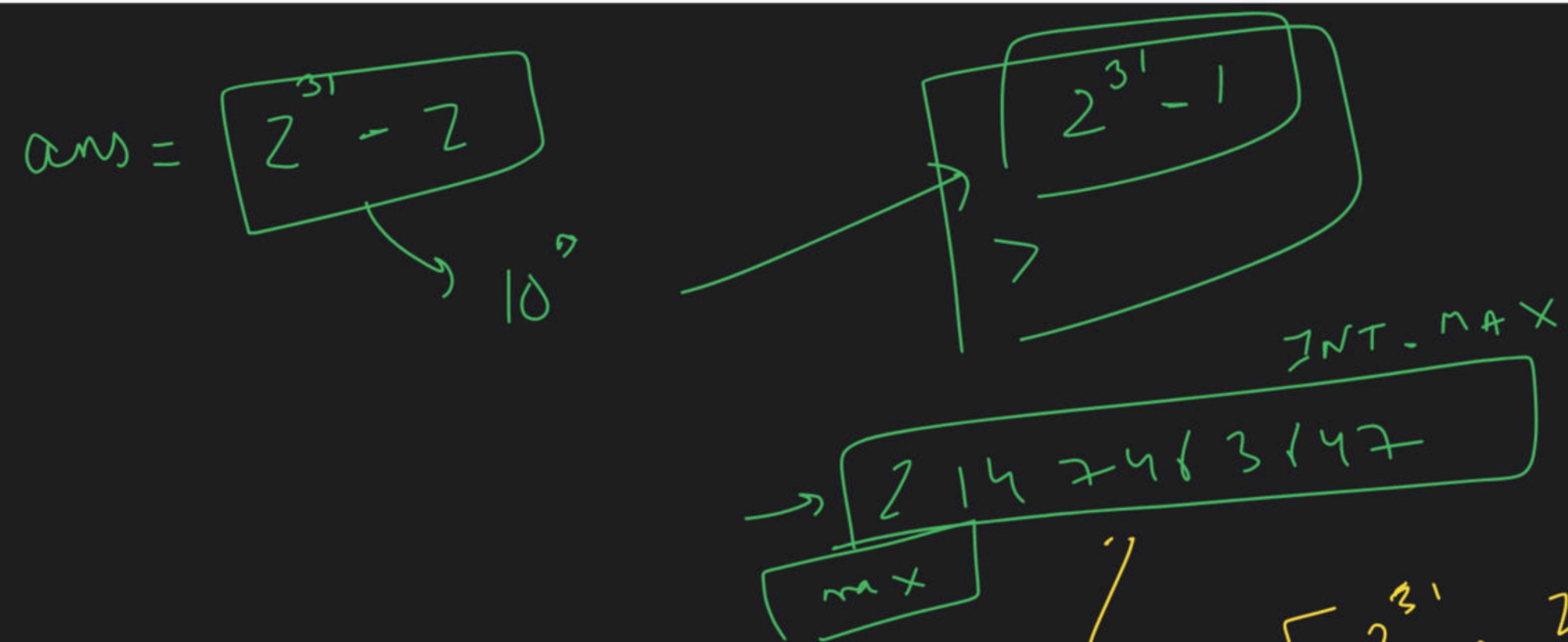
$$a_1 + a_2 \neq 0 \Rightarrow a_1 \neq -a_2$$

$$\sin(\omega t)$$

1

$$-(n-1) = 0$$





ans = 2147483645

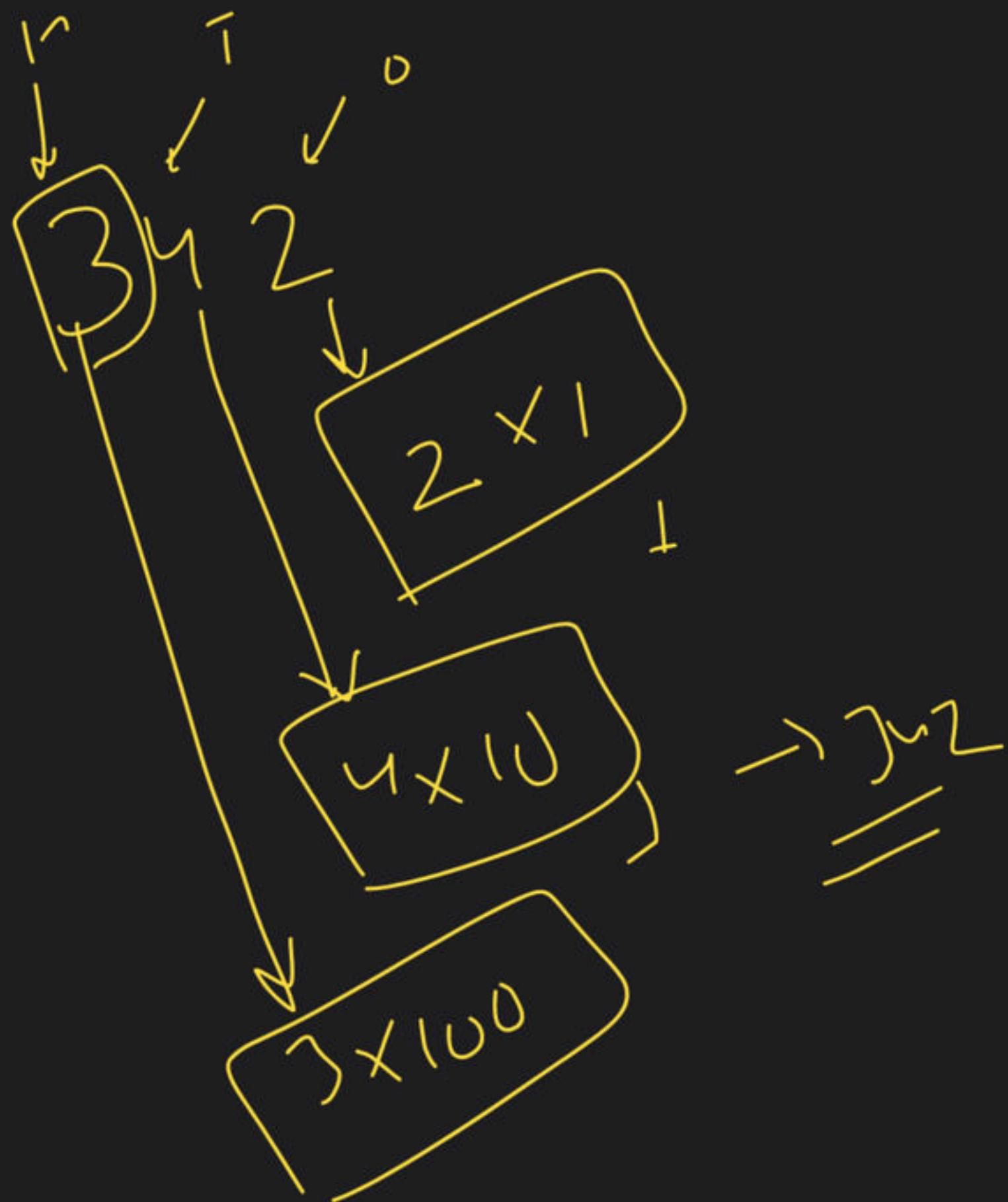
$10 * \text{ans} \rightarrow 2147483640$

Overflow | Underflow

numoy m aare vahi hoy  
32 bits

My DC base h

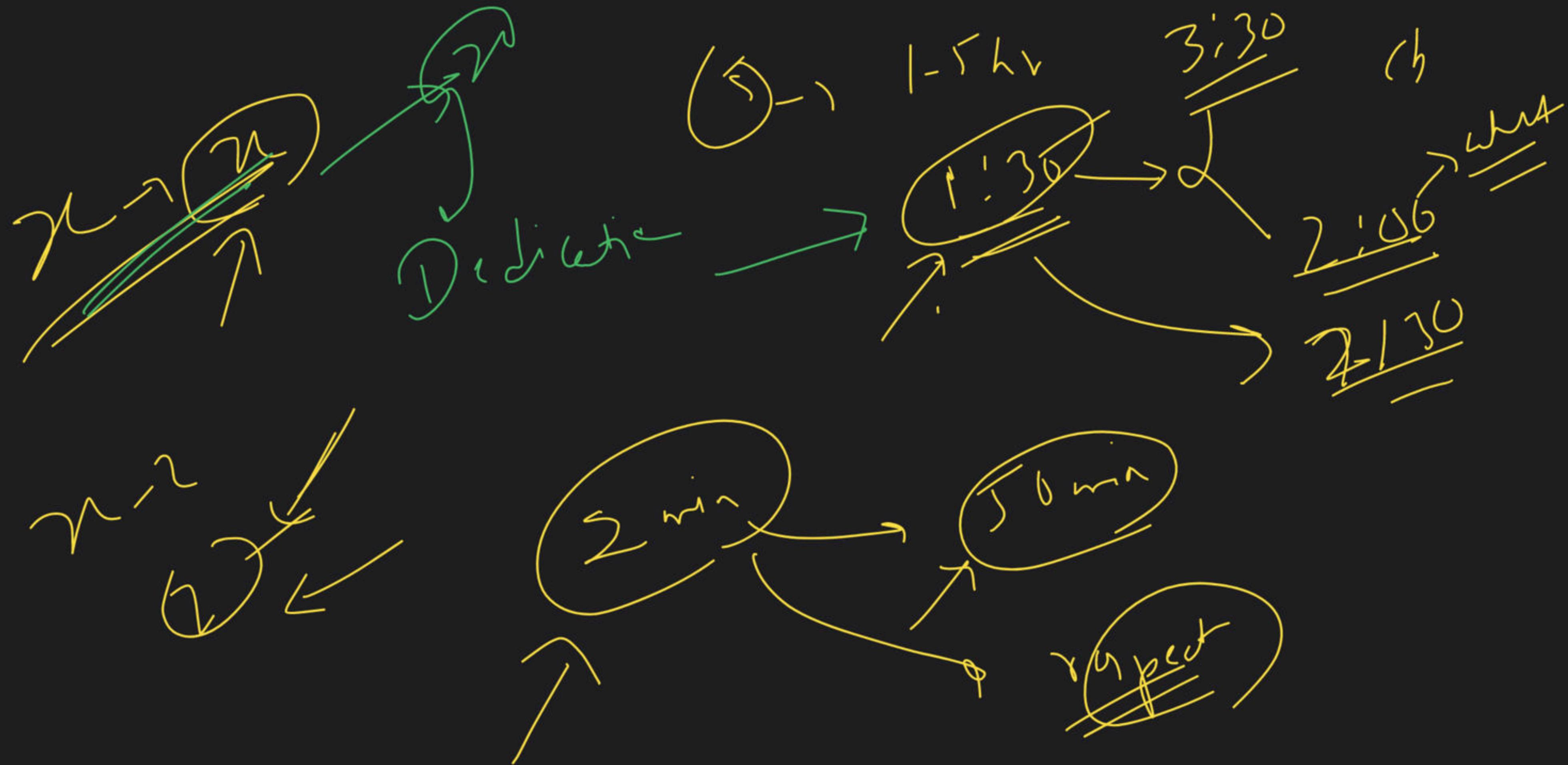
$\text{ans} := (\text{ans} \times 10) + \text{digit}$  → derivation → Summary



$$\text{ans} := (0 \times 10) + 3 = \boxed{3}$$

$$\text{ans} := (3 \times 10) + 4 = \boxed{34}$$

$$\text{ans} := (34 \times 10) + 2 = \boxed{342}$$



→

→

functions

arrays

→ feedback (wrt)  
except

→ NLP Path  
code

in Sunday session

help@unacademy.com

