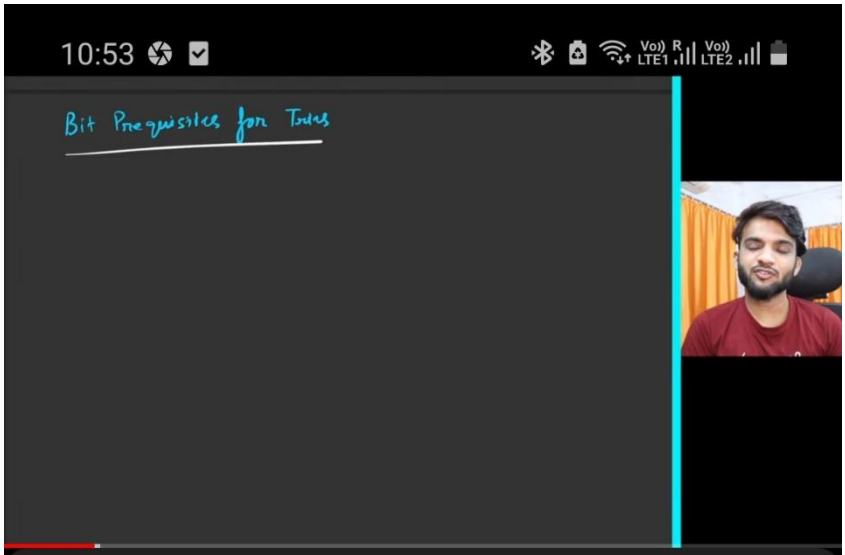

Description

L5. Bit PreRequisites for TRIE Problems

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Bit Prerequisites for Trees

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Bit Prerequisites for Trees

9 → 1001

0000...1001

32 bits | 64 bits

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Bit Prerequisites for Trees

9 → 1001

31 30 ... 3 2 1 0

0000...1001

32 bits | 64 bits

$1 \times 2^0 = 1$

$1 \times 2^3 = 8$

9

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Bit Prerequisites for Tutes

9 → 1001

31 30 ... 3 2 1 0

0 0 0 0 ... 1 0 0 1

32 bits | 64 bits

$1 \times 2^0 = 1$

$1 \times 2^3 = 8$

9

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XOR

TUF

XOR

1 | 0

$1 \wedge 0 = 1$

$0 \wedge 1 = 1$

$1 \wedge 1 = 0$

$0 \wedge 0 = 0$

TUF

XOR

1 ^ 0 = 1
0 ^ 1 = 1

1 ^ 1 = 0
0 ^ 0 = 0

1 / 0

even no. of 1s → 0
odd no of 1's → 1

TUF

Check if a bit is set or not

q → 0000 - - - - 1001

31 ↓ ↘ 0

TUF

Check if a bit is set or not

3rd bit → 1
??

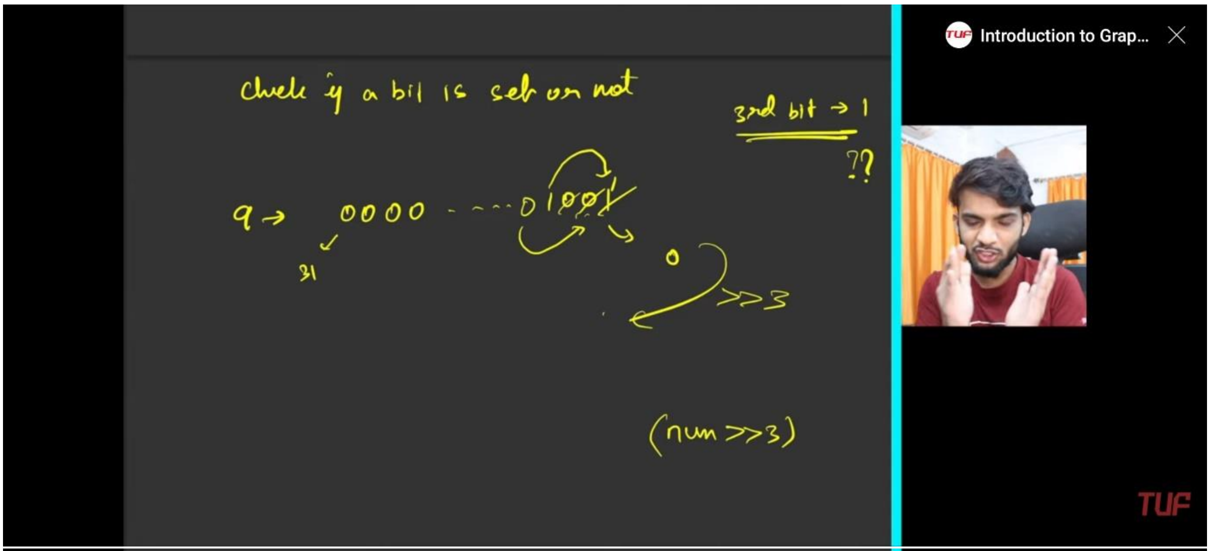
q → 0000 - - - - 1001

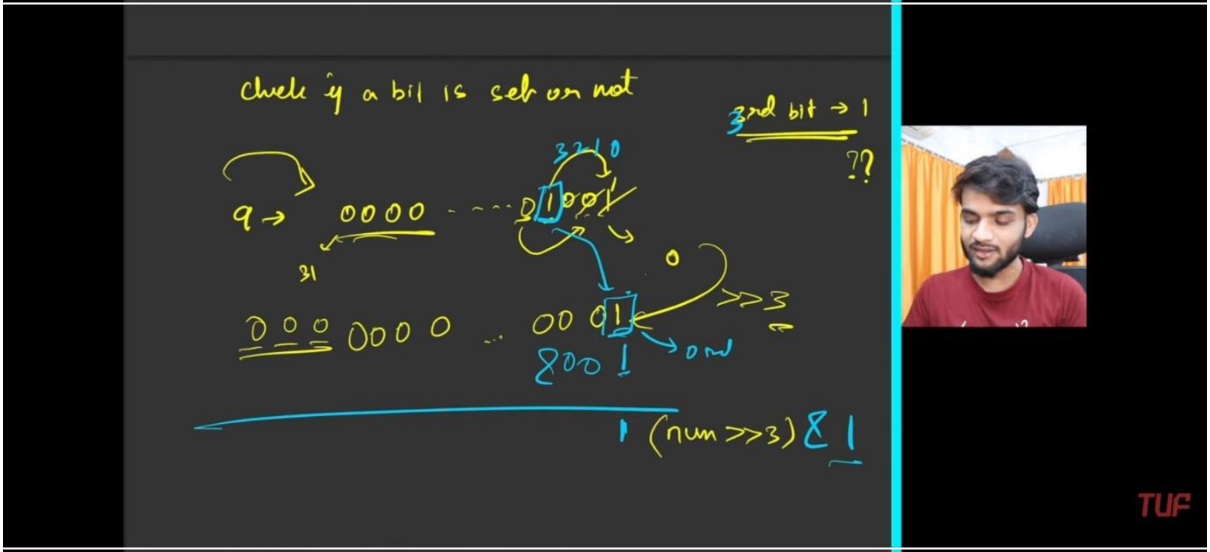
31 ↓ ↘ 0

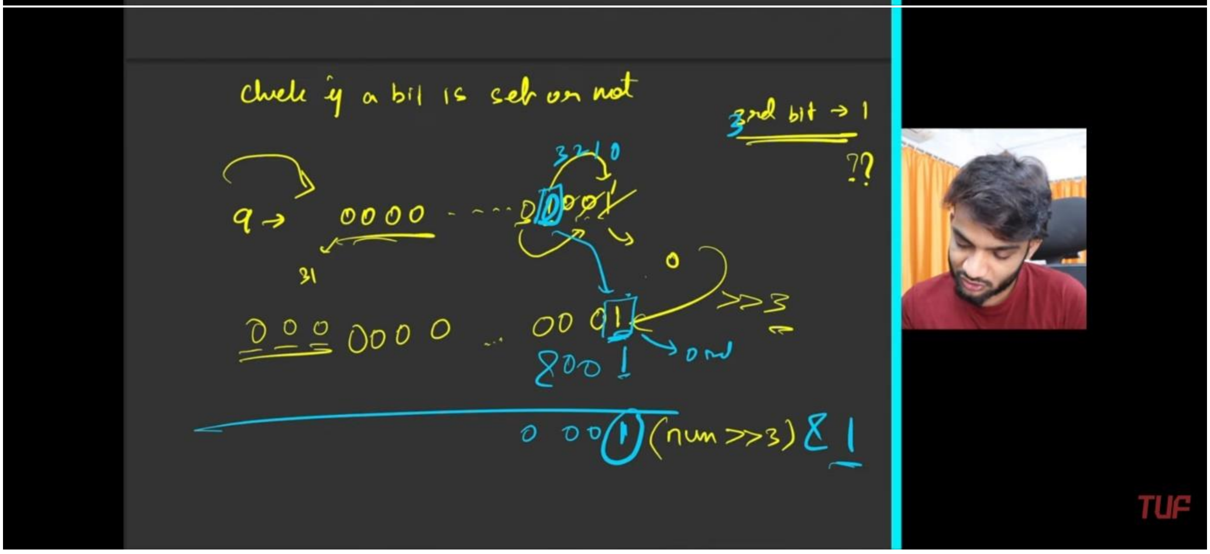
>>3

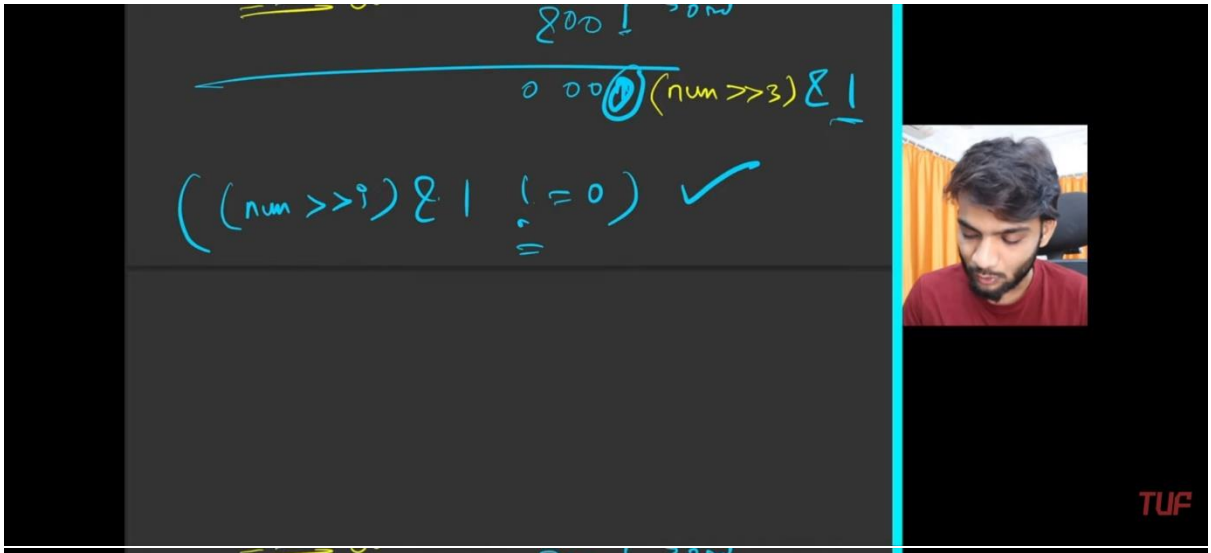
(num >>3)

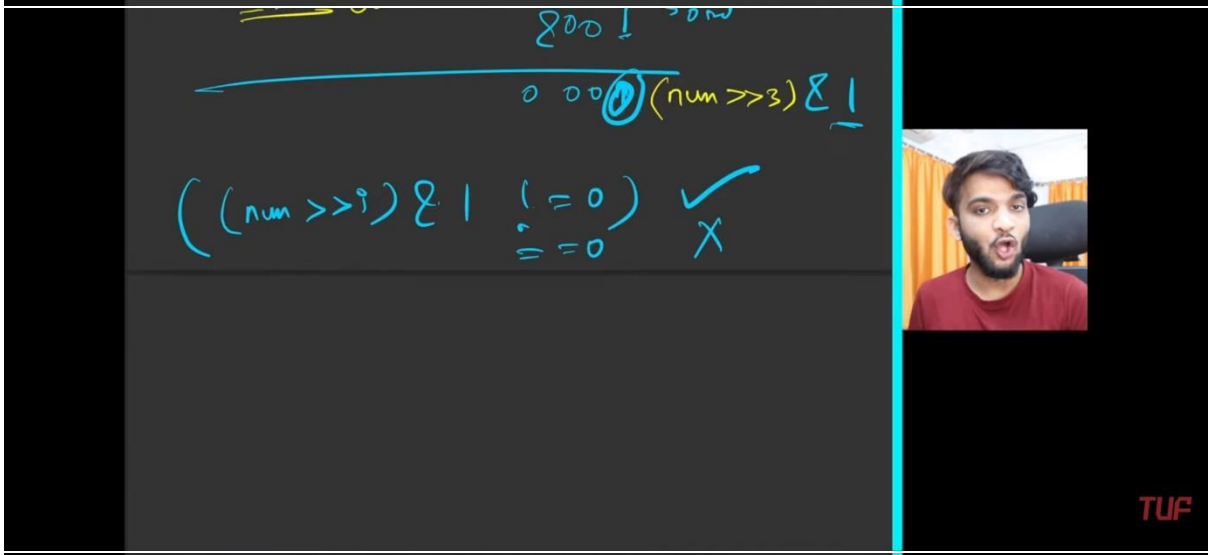
TUF

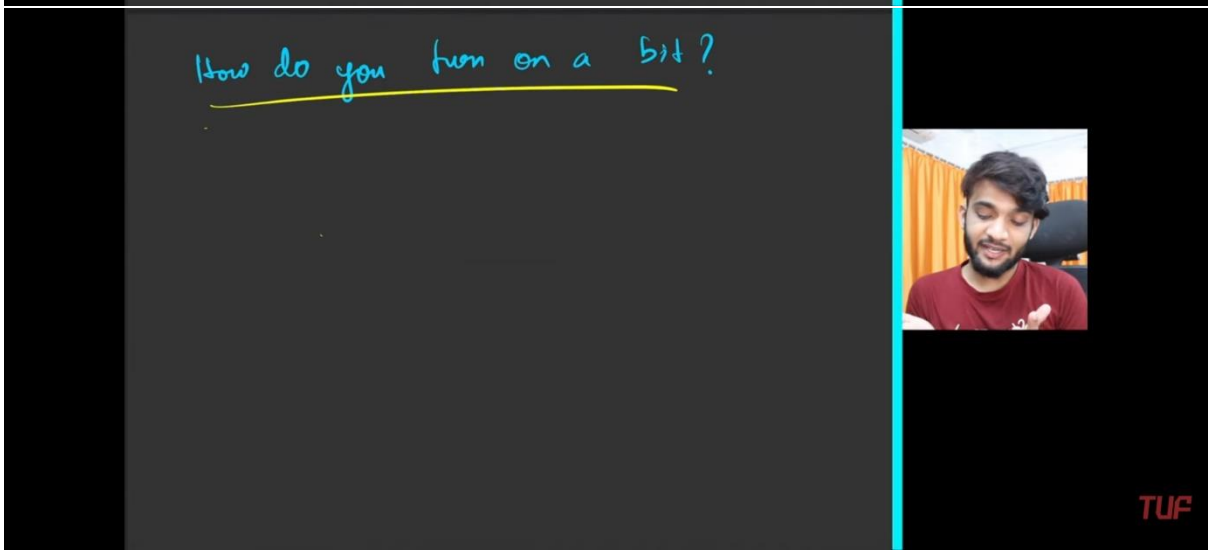

Introduction to Grap...
Check if a bit is set or not
3rd bit → 1
??
9 → 0000 ----01001
31
>>3
(num >>3)
TUF


Check if a bit is set or not
3rd bit → 1
??
3210
9 → 0000 ----01001
31
>>3
000 0000 .. 0001
& 0 0 1
and
(num >>3) & 1
TUF


Check if a bit is set or not
3rd bit → 1
??
3210
9 → 0000 ----01001
31
>>3
000 0000 .. 0001
& 0 0 1
and
0 0 0 1 (num >>3) & 1
TUF


(num >>3) & 1
((num >>i) & 1 != 0)
TUF


(num >>3) & 1
((num >>i) & 1 != 0)
== 0
X
TUF


How do you turn on a bit?
TUF

How do you turn on a bit?

q → 0 0 0 ... 1 0 0 1

i = 2

How do you turn on a bit?

2 1 0

q → 0 0 0 ... 1 0 0 1

i = 2

(1 << 2)

How do you turn on a bit?

2 1 0

q → 0 0 0 ... 1 0 0 1

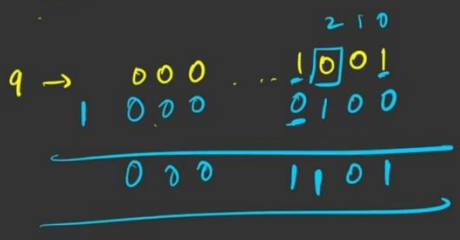
1 0 0 0 ... 0 1 0 0

1 1 0 1

i = 2

(1 << 2)

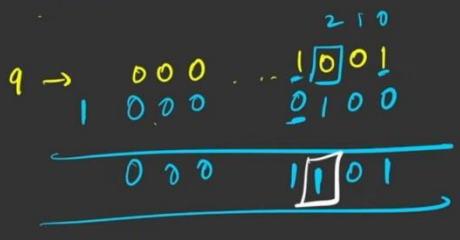
How do you turn on a bit?



(1 << 2)

TUF

How do you turn on a bit?



num | (1 << i)

TUF