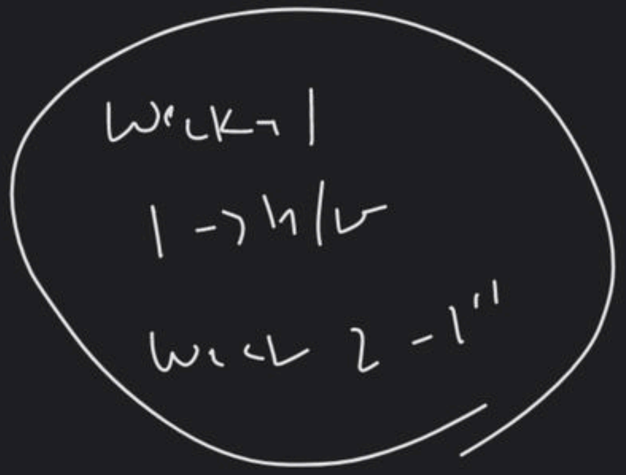
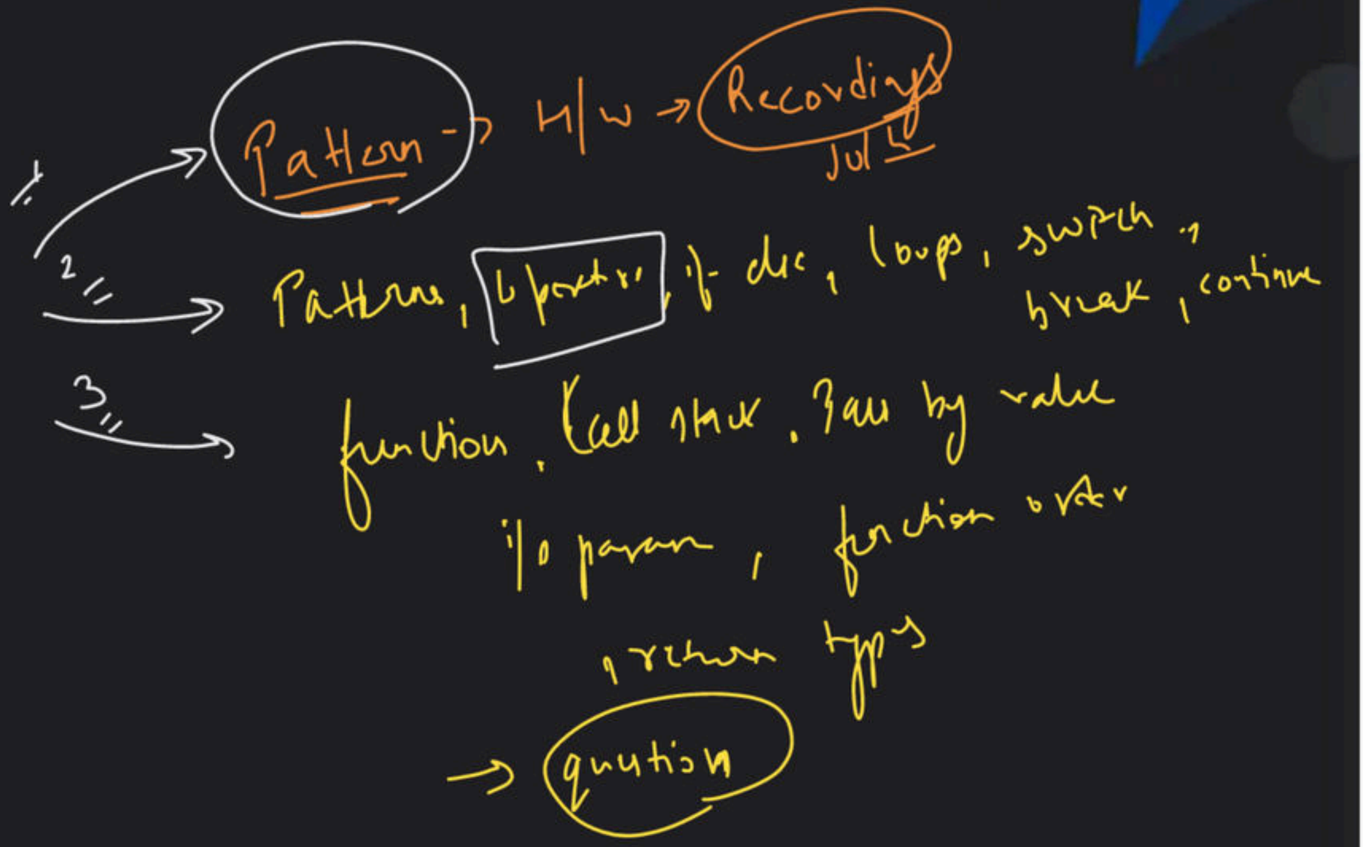
Week-2 [Connect]

Special class





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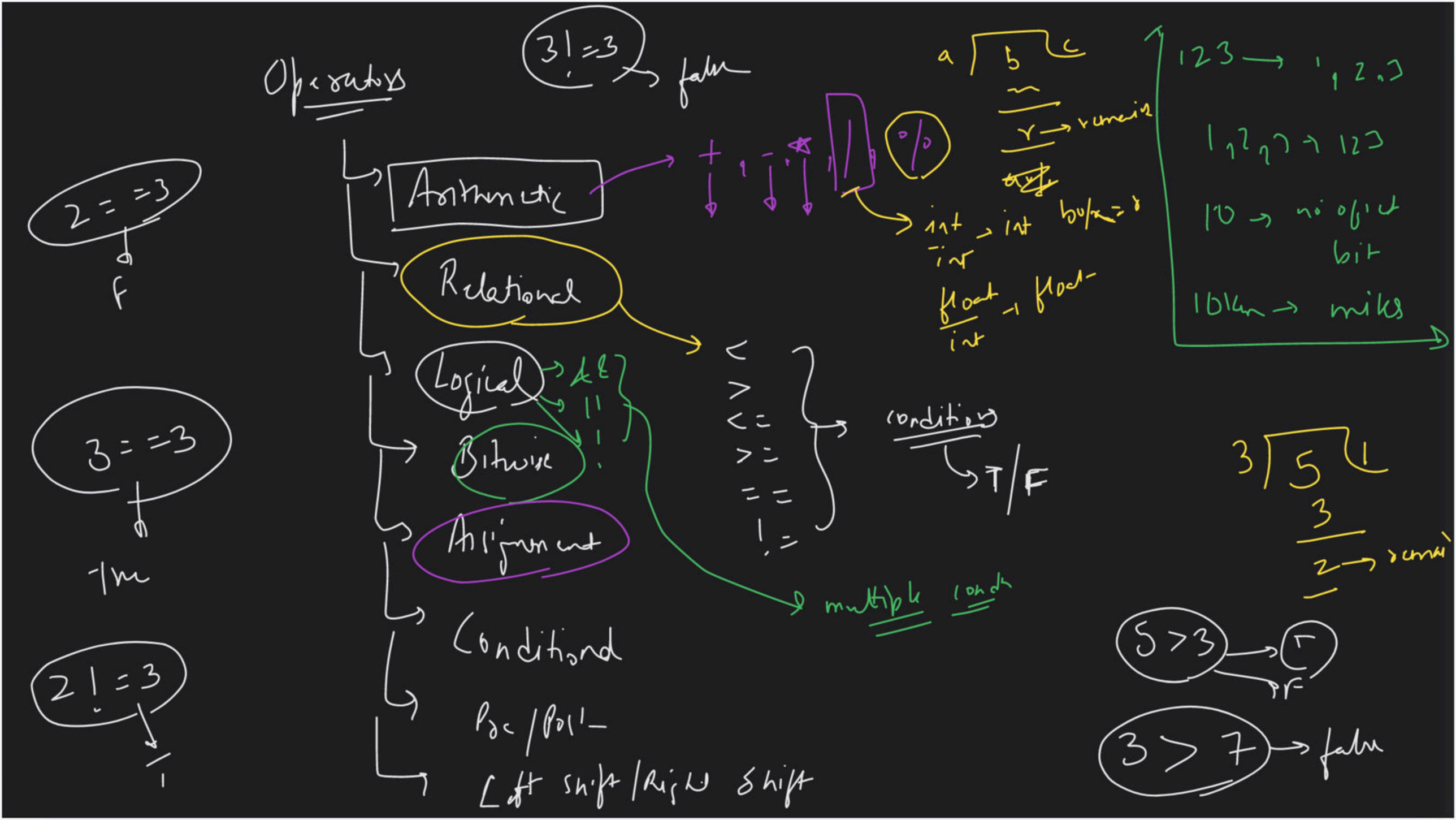


Operators

- Arithmetic → + , - , * , / , %
  - int / int → int bo/x = r
  - float / int → float
- Relational → < , > , <= , >= , == , != → conditions → T/F
  - multiple conds
- Logical → && , || , !
- Bitwise
- Assignment
- Conditional
- Pre / Post
- Left shift / Right shift

3 != 3 → false

2 == 3 → F

3 == 3 → True

2 != 3 → T

a) b (c

r → remain

123 → 1, 2, 3

1, 2, 3 → 123

10 → no of it bit

10km → miles

3) 5 (1

3

2 → remain

5 > 3 → T, F

3 > 7 → false

&& → all cond^n true → True

else → False

(a && b && c)

T/F

|| → any one is true → true

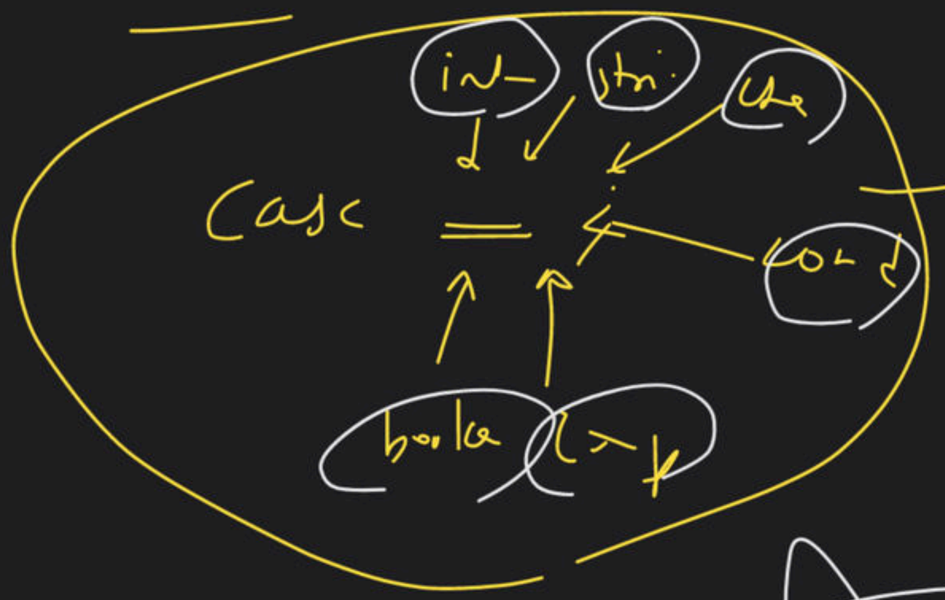
all false → false

! → ( )

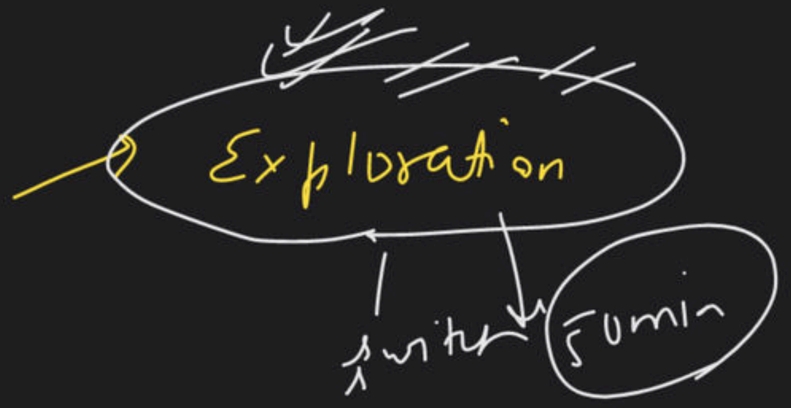
T → F

F → T

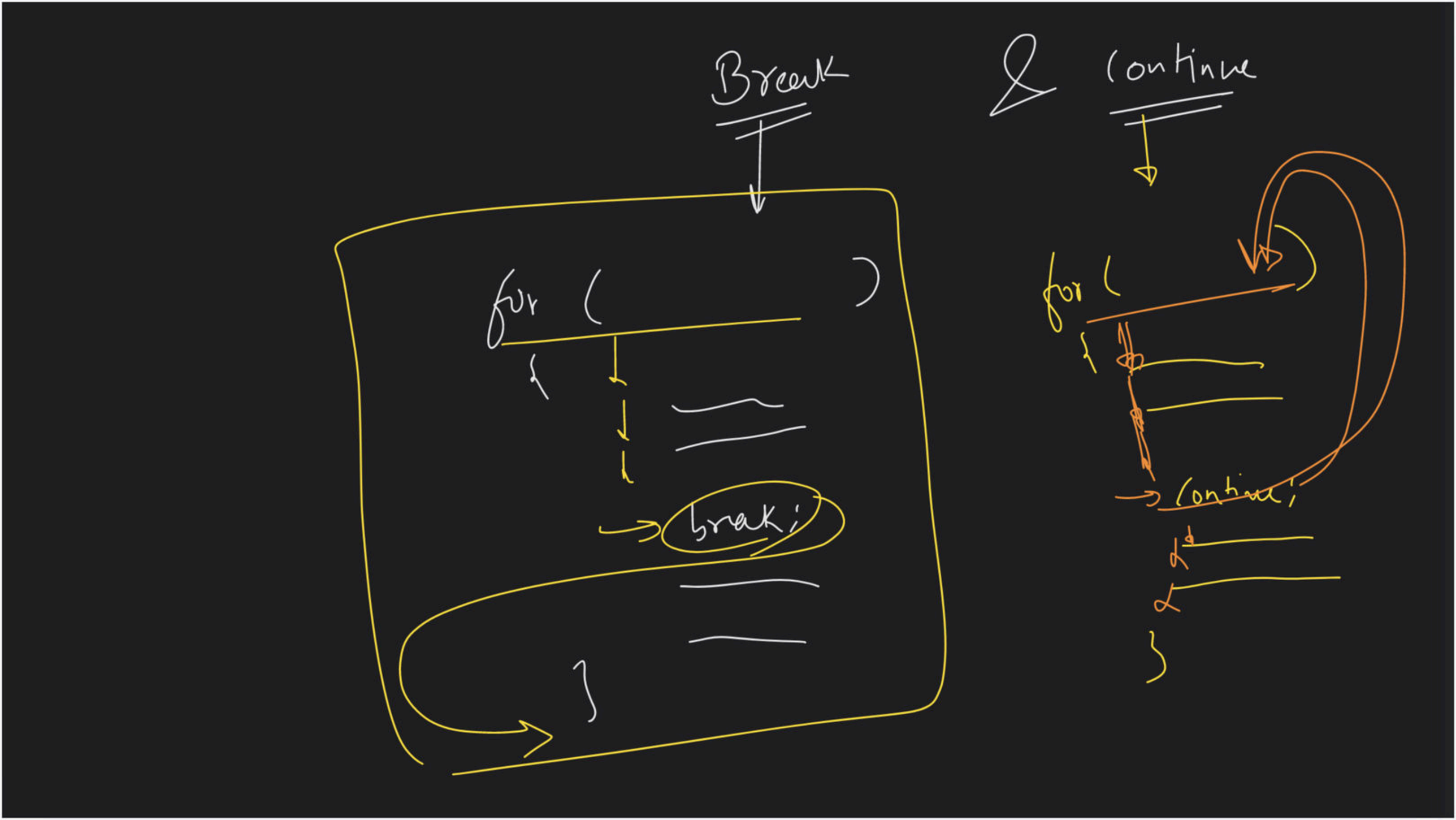
Switch case:-



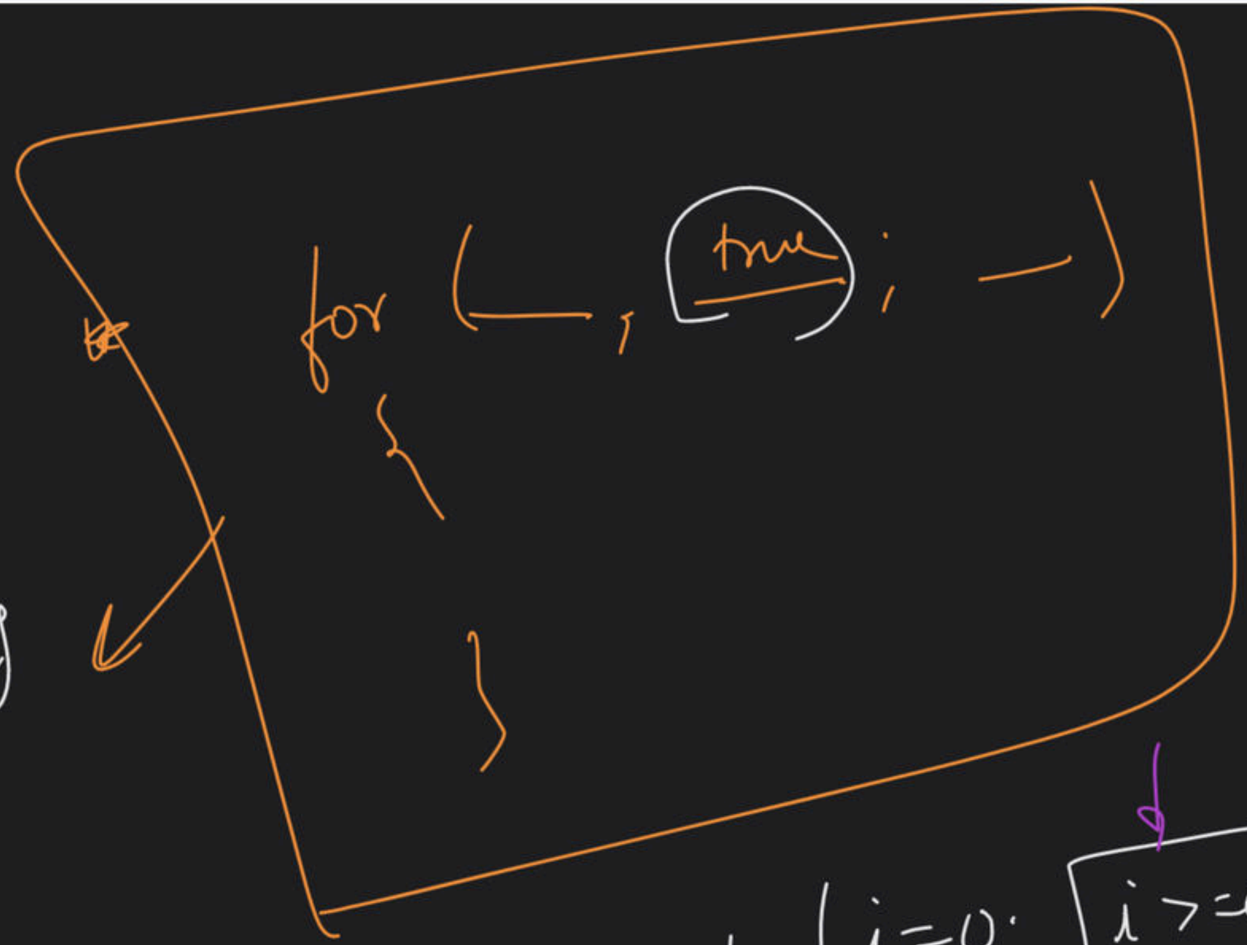
→ experiment ?



→ Spoon feeding


Break
for ( )
{
break;
}
&
continue
for (
{
continue;
}

```
for (__, true; __)
{
}
```



never ending loop

or

Infinite loop

```
for(i=0; i>=0; i++)
{
}
```

i=0
i=1
i=2
3
4
5
1 . . . . . .

→ function:-

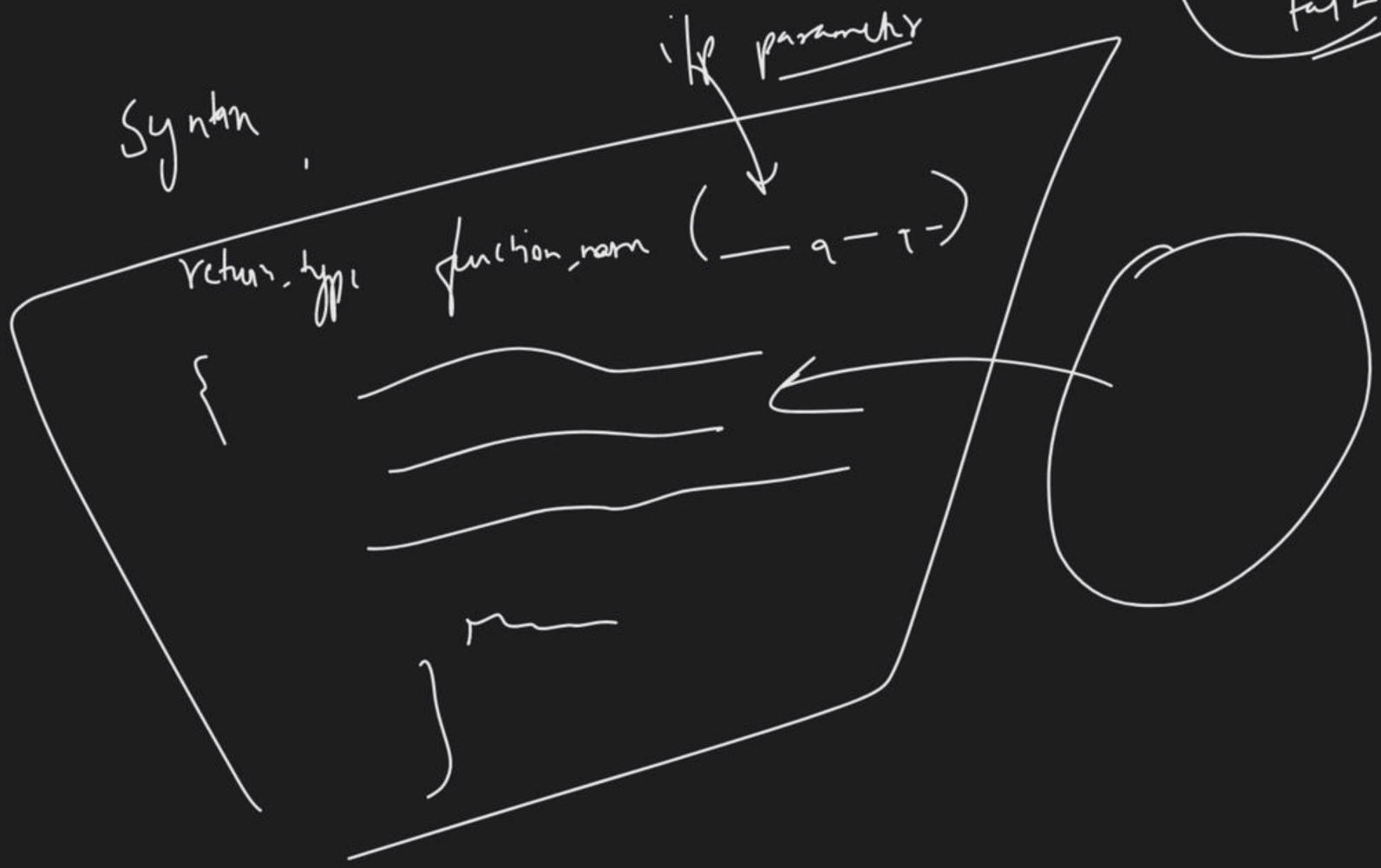
pg | sub-pg

→ linked → well-defined task

i/p parameter

Syntax

return_type function_name (— a — a —)



{

}

1 → True
0 → false

Bitwise → (bit level)

- &
- |
- ^
- ~

		o/p
0	0	0
0	1	0
1	0	0
1	1	1

0	0	0
0	1	+
1	0	T
1	1	T

		XOR o/p
0	0	0
0	1	1
1	0	1
1	1	0

2 & 3 → (2)

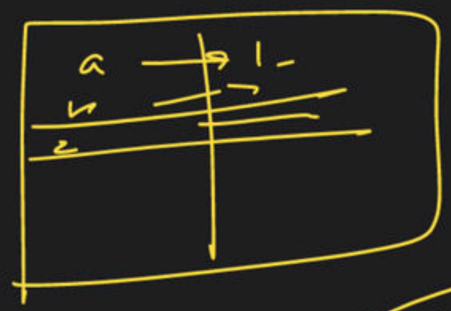
00000010 → 2

00000011 → 3

00000010 → 2

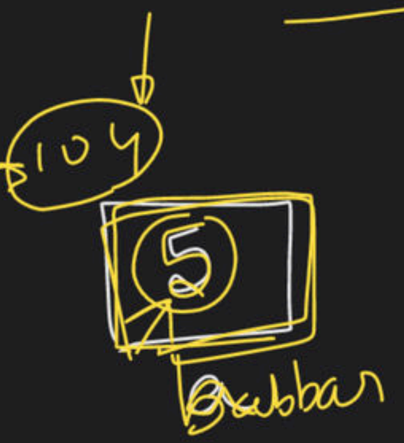
0 → T
1 → 0

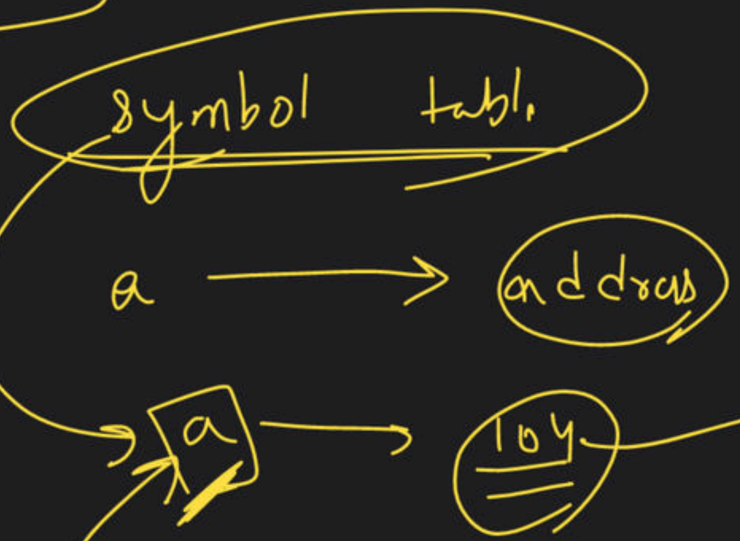
Assignment



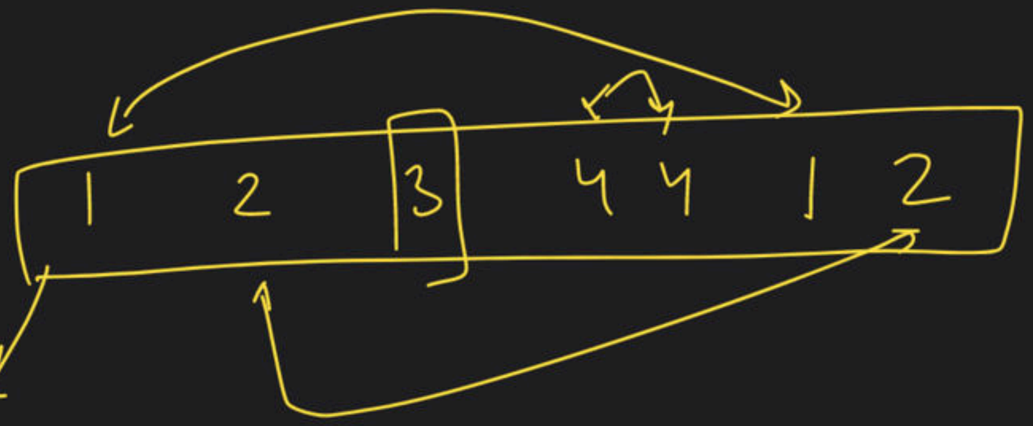
int a = 5;

Memory allocated





cout << a;



Unify

↓

single time

exit

$1 \wedge 2 \wedge 3 \wedge 4 \wedge 4 \wedge 1 \wedge 2 = 3$

$x = x * 5$

$x *= 5$

$x = x + 3i$

$x += 3$

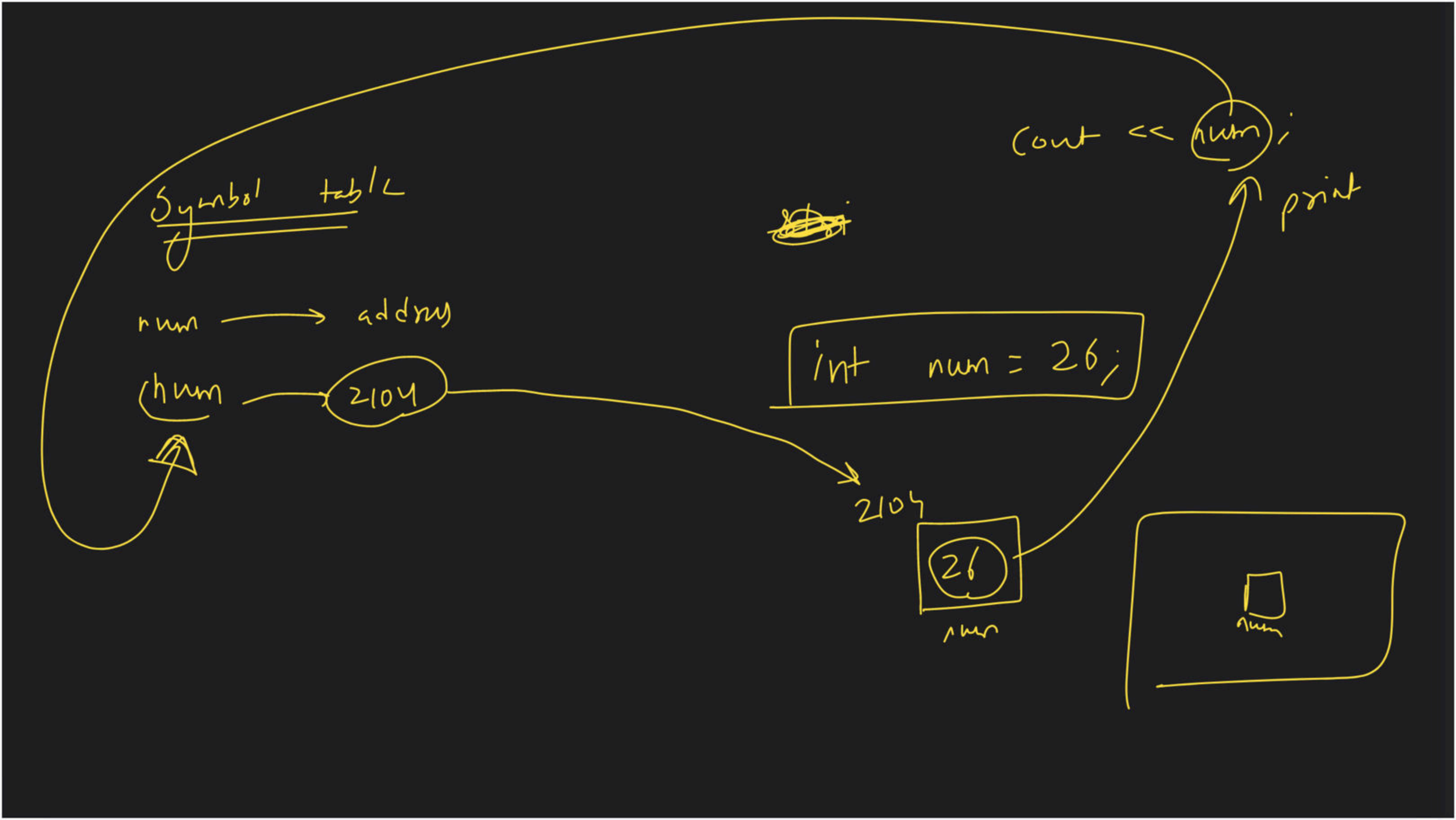
$x = x / 8$

$x /= 8$

$i = i + 1$

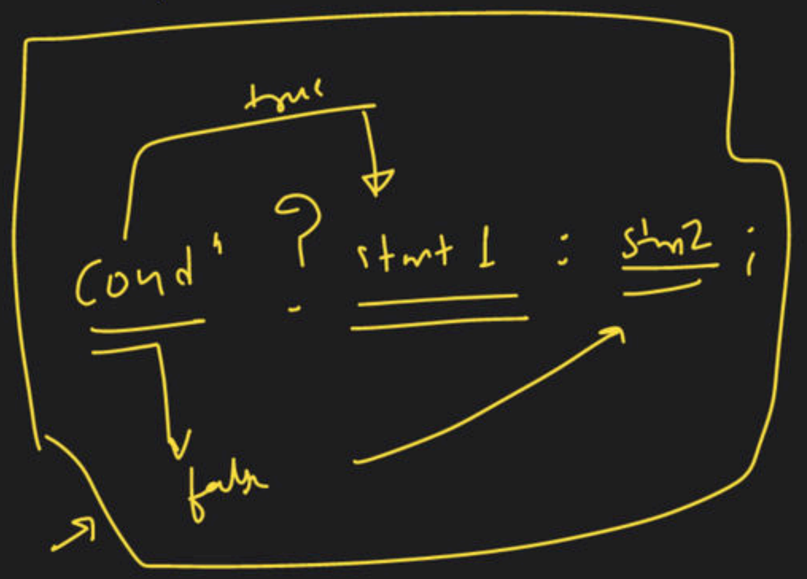
$i++$

$i += 1$

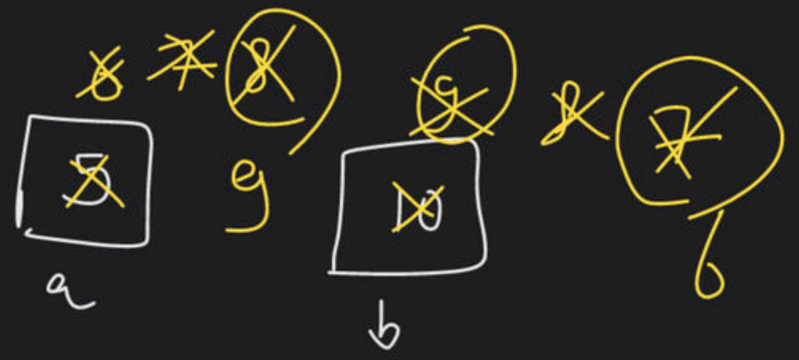

Symbol table
num → addrss
num
2104
int num = 26;
2104
26
num
cout << num;
print
num

Conditional / Ternary Operator

```
if (age >= 18)
    cout << "Can Vote";
else
    cout << "Cannot Vote";
```




```
String str = age >= 18 ? "Can Vote" : "Cannot Vote";
cout << str;
```



int a=5;

int b=10;

int ans1 = (++a) * (--b) → ? → 6 * 9 → 54

int ans2 = (++a) * (b--) → ? → 7 * 9 → 63

int ans3 = (a++) * (--b) → ? → 7 * 7 → 49

int ans4 = (++a) * (b--) → ? → 8 * 7 → 56

Left shift | Right Shift

① Print digits of a number

i/p → n = 623

o/p → 6, 2, 3

623 % 10 → 3

10 | 623 | 62
620
3

623 % 10 → 3
10
62 % 10 → 2
10
6 % 10 → 6

a % b = a

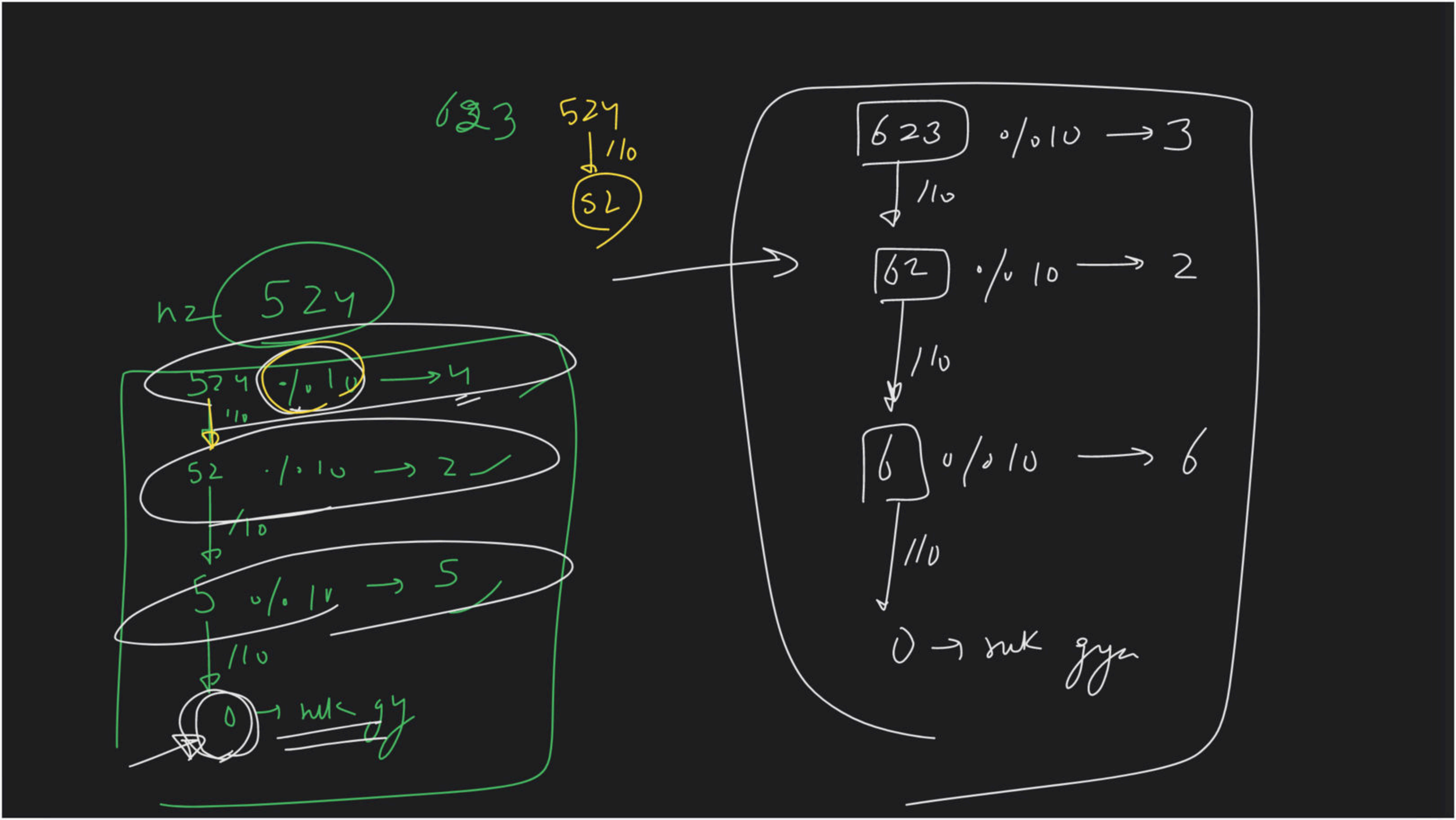
a < b

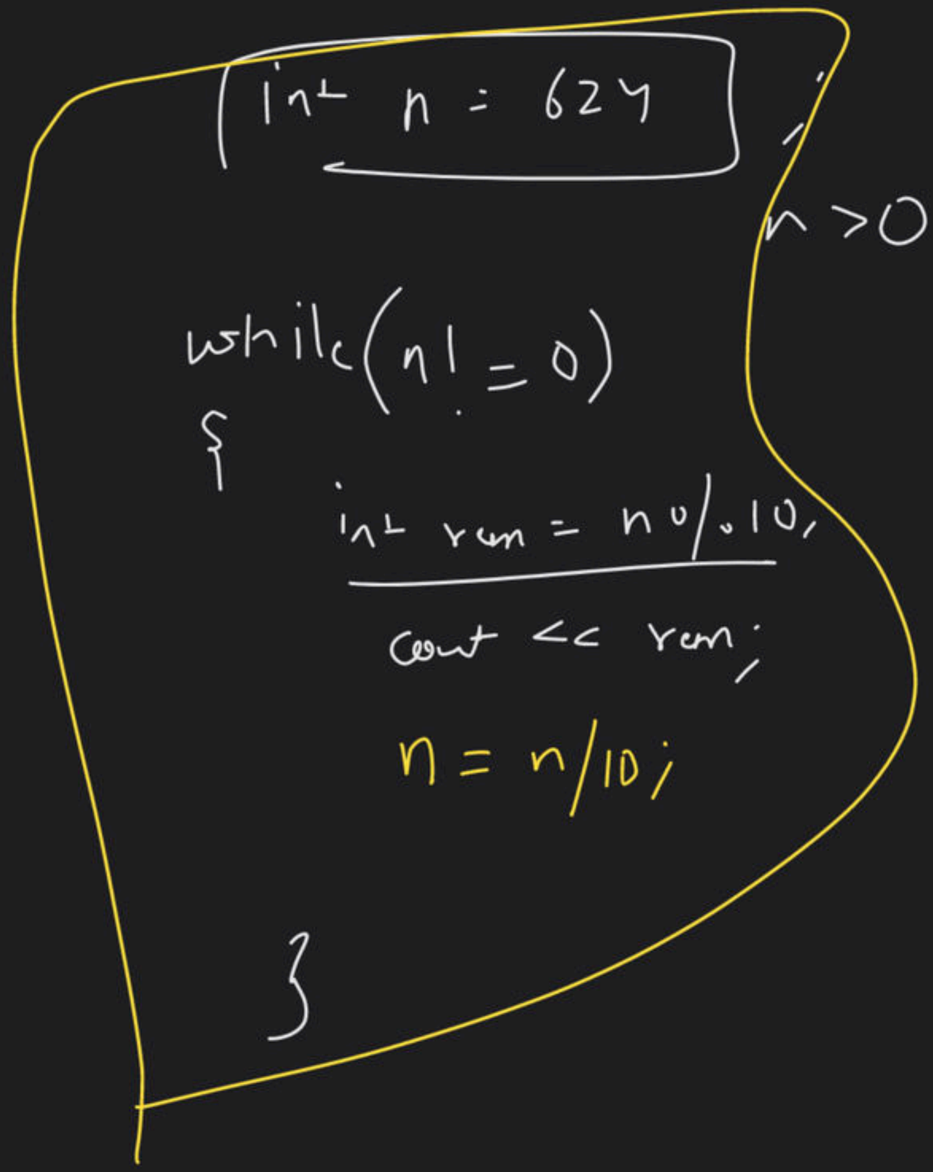
int / int → int

623 / 10 = 62

62 % 10 → 2

10 | 62 | 6
60
2


623
524
1/0
52
623
0/010 → 3
1/0
62
0/010 → 2
1/0
6
0/010 → 6
1/0
0 → suk gya
h2
524
524
0/010 → 4
1/0
52
0/010 → 2
1/0
5
0/010 → 5
1/0
0 → suk gy



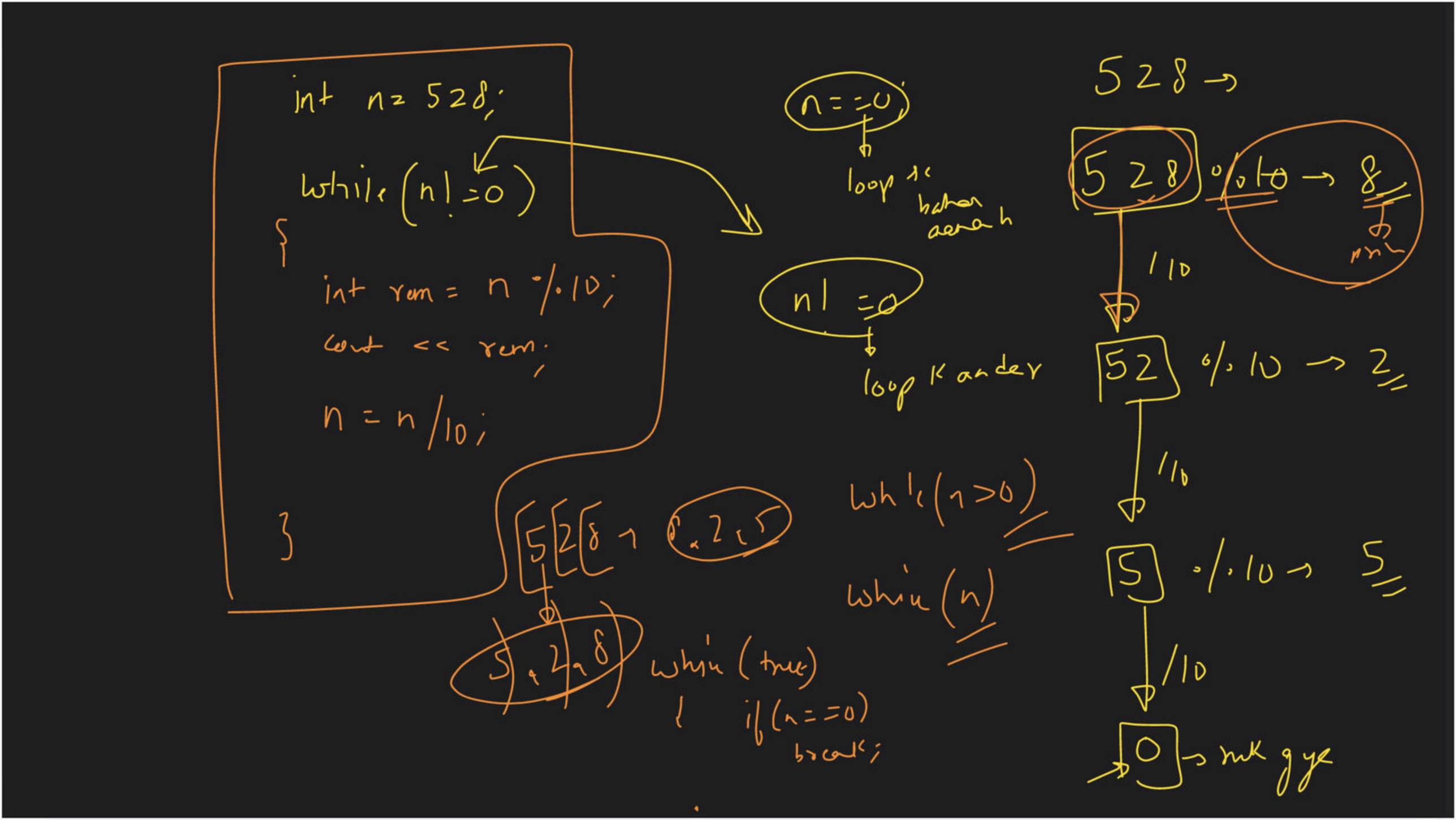
```
int n = 624;

while(n != 0)
{
    int rem = n%10;
    cout << rem;
    n = n/10;
}
```

$n > 0$

$n == 0 \rightarrow$ loop bahar

$n != 0 \rightarrow$ loop k andar



```
int n = 528;

while (n != 0)
{
    int rem = n % 10;
    cout << rem;
    n = n / 10;
}
```

n == 0 → loop se bahar aenah

n != 0 → loop kander

528 →

528 % 10 → 8 → prin

/10

52 % 10 → 2

/10

5 % 10 → 5

/10

0 → ruk gye

while (n > 0)

while (n)

5 2 8 → 8, 2, 5

5, 2, 8

while (true)
{
if (n == 0)
break;

5, 2, 8 → 528

6234

6 , 2 , 3 , 4

10^3 10^2 10^1 $\times 10^0$

6000 + 200 + 30 + 4

= 6234

formula

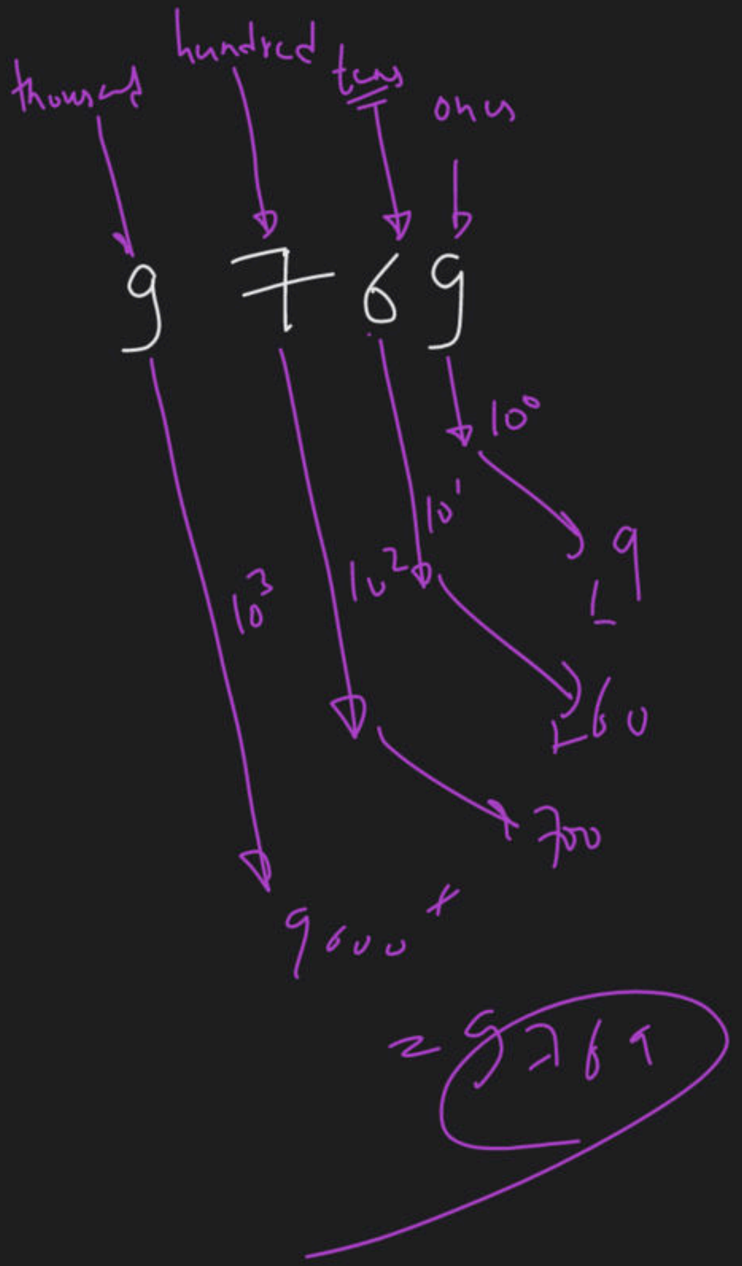
hundreds tens ones

5 2 8

$5\times10^2 + 2\times10^1 + 8\times10^0$

500 + 20 + 8

= 528



$9 \times 10^0 \rightarrow 9 \times 1 = 9$

$6 \times 10^1 \rightarrow 6 \times 10 \rightarrow 60$

$7 \times 10^2 \rightarrow 7 \times 100 = 700$

$9 \times 10^3 \rightarrow 9 \times 1000$

$= 9000$

10
10
10
40
51
60
1 = 10^0
10 = 10^1
100 = 10^2
1000 = 10^3

ans = 0

5 , 2 , 4

0 x 10 + 5

= 5 x 10 + 2

= 52 x 10 + 4

= 524

ans = 0

6 7 4

0 x 10 + 6

= 6 x 10 + 7

= 67 x 10 + 4

= 674

9 , 7 , 6 , 9

9 x 10

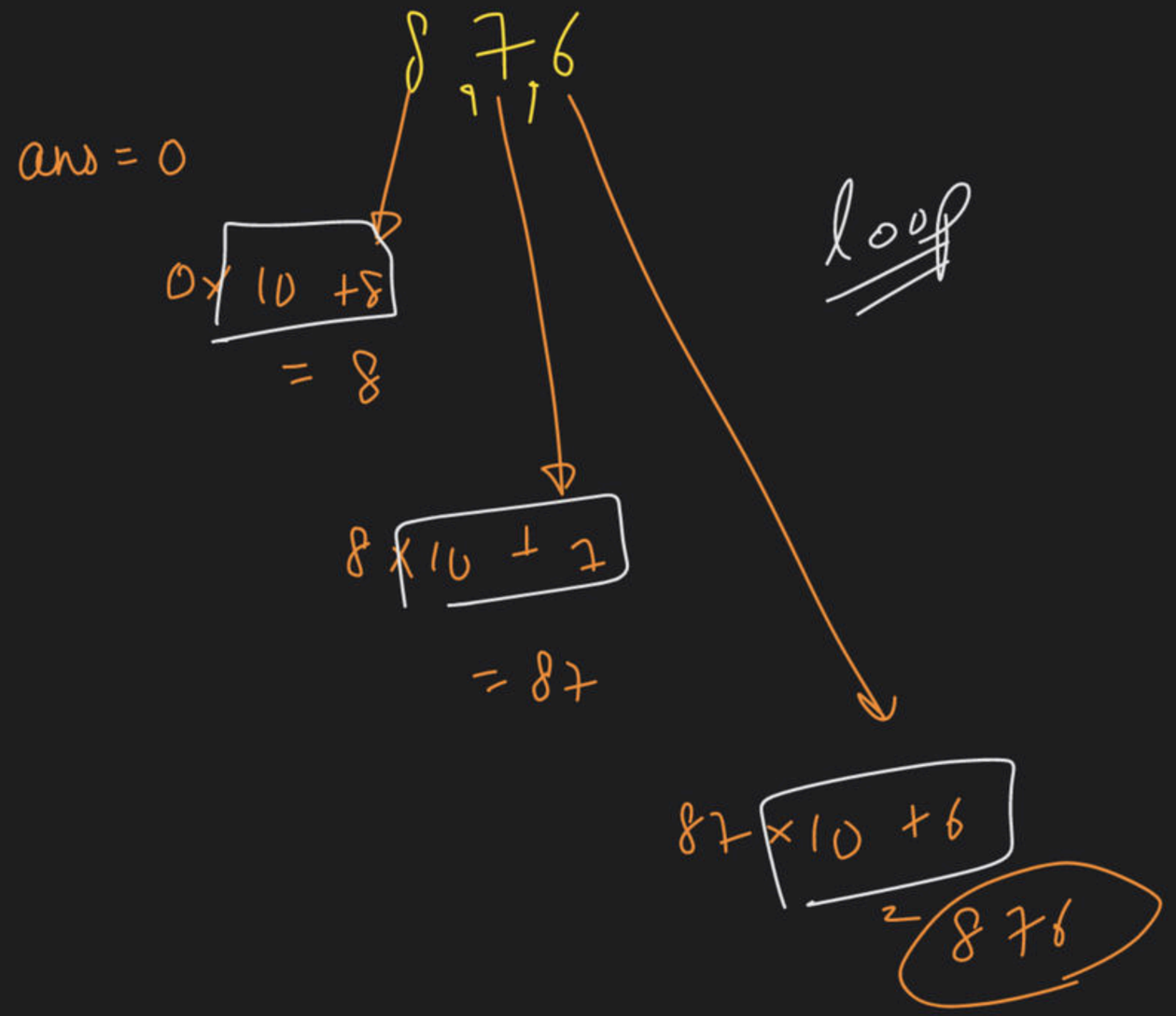
= 90 + 7

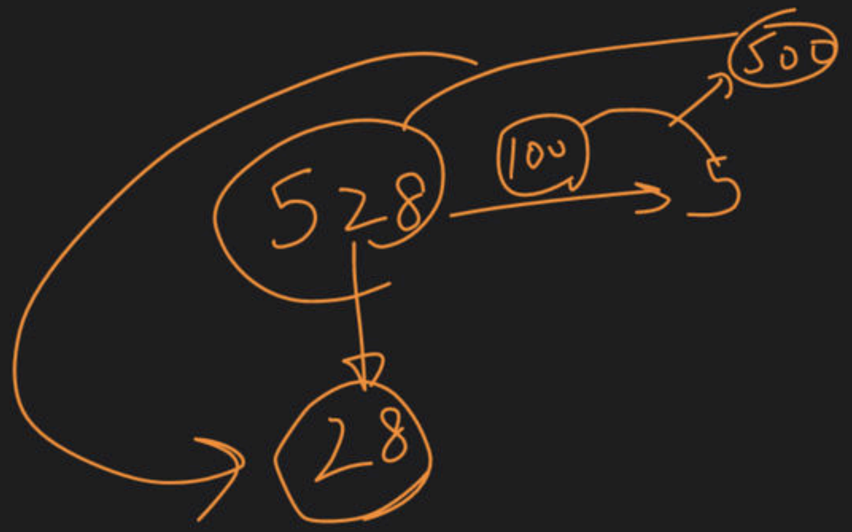
= 97 x 10

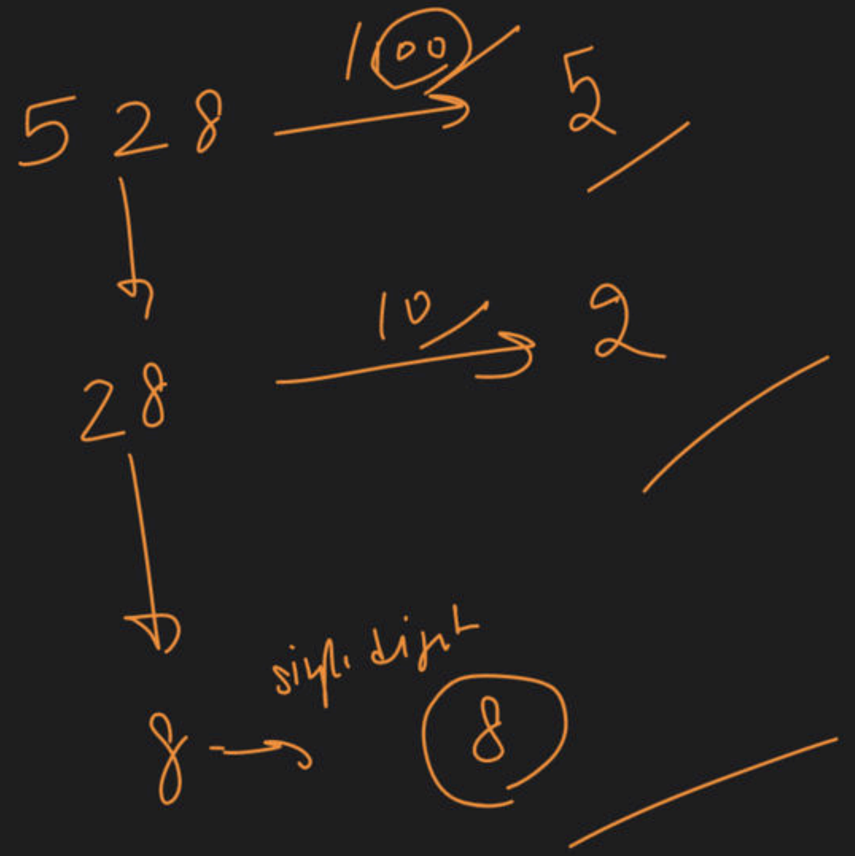
= 976 x 10

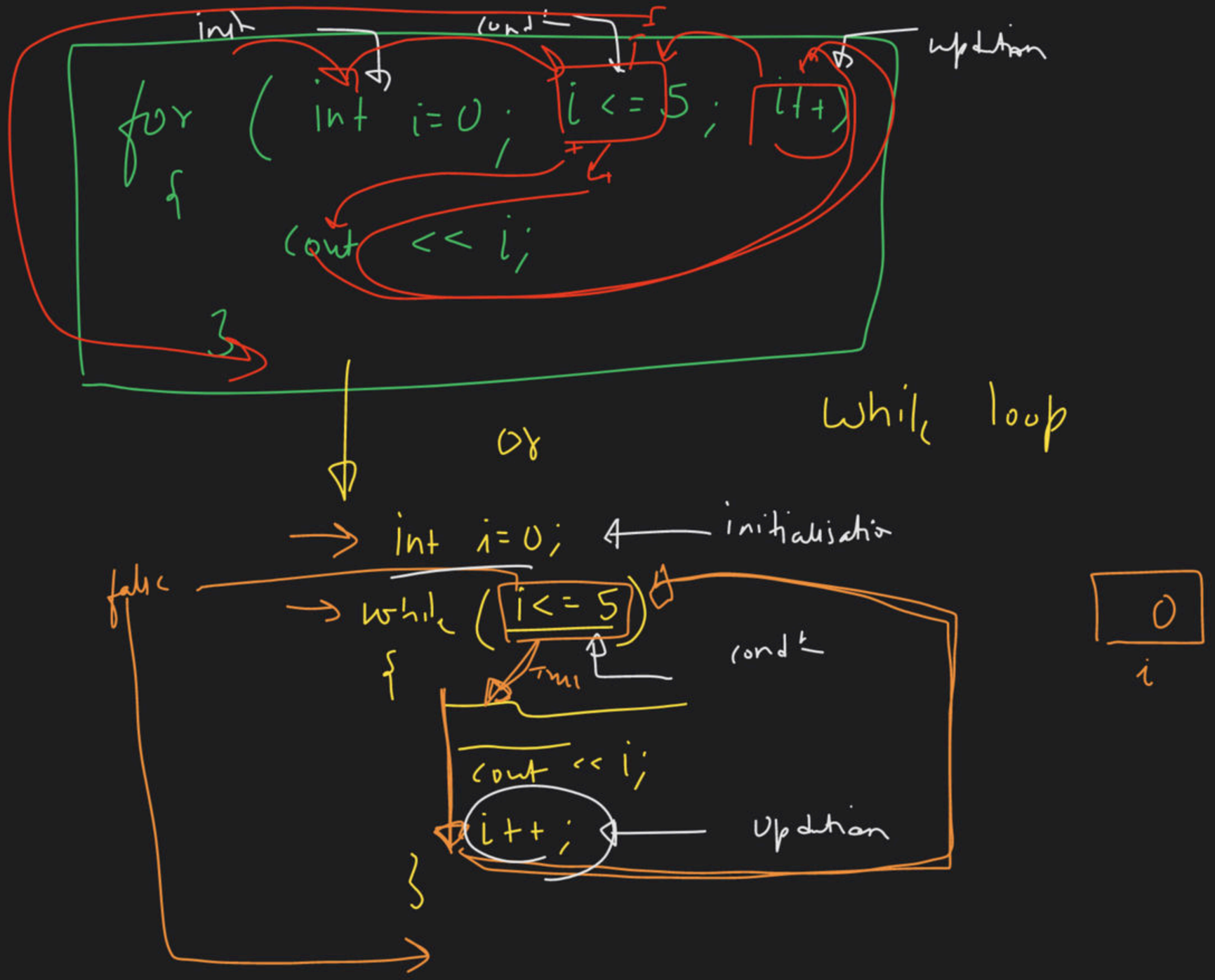
= 9760 + 9

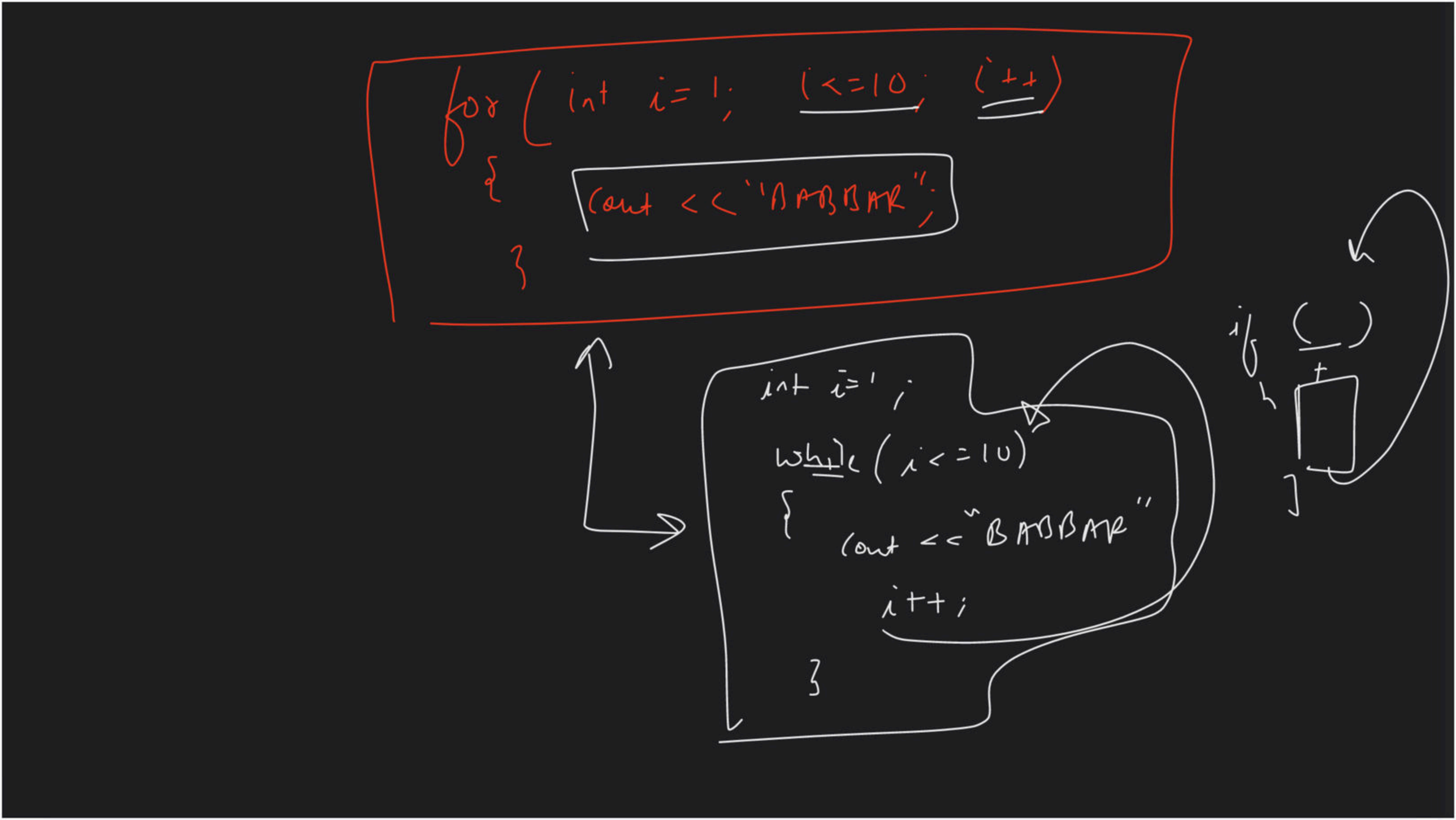
= 9769


8 7 6
ans = 0
0 × 10 + 8
= 8
8 × 10 + 7
= 87
87 × 10 + 6
= 876
loop


500
528
100
5
28


528
100
5
28
10
2
8
single digit
8


init
cond
updation
for (int i=0 ; i <= 5 ; i++)
{
cout << i;
}
or
while loop
int i=0;
initialisation
false
while (i<=5)
{
cond
true
cout << i;
i++;
updation
}
0
i


for (int i=1; i<=10; i++)
{
cout << "BABBAR";
}
int i=1;
while (i<=10)
{
cout << "BABBAR"
i++;
}
if ( )
{
}

digit → 8 , 2 , 3 , 7

8237

int ans = 0

0 × 10 + 8

0 + 8 = 8

ans

8 × 10 + 2

80 + 2 = 82

ans

82 × 10 + 3

820 + 3

= 823

ans

823 × 10 + 7

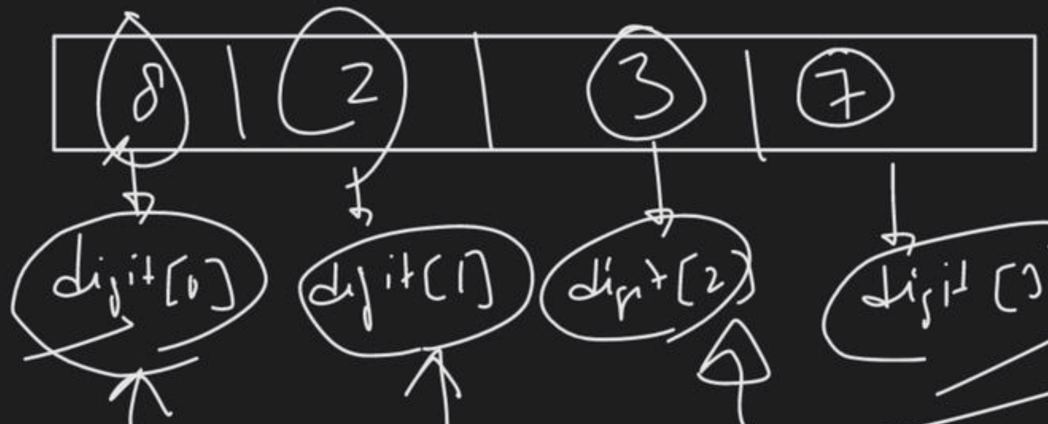
= 8230 + 7

= 8237

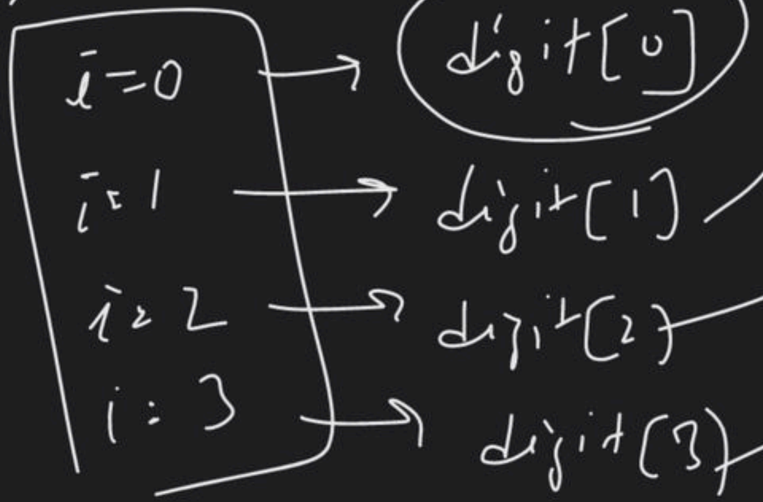
Tripti

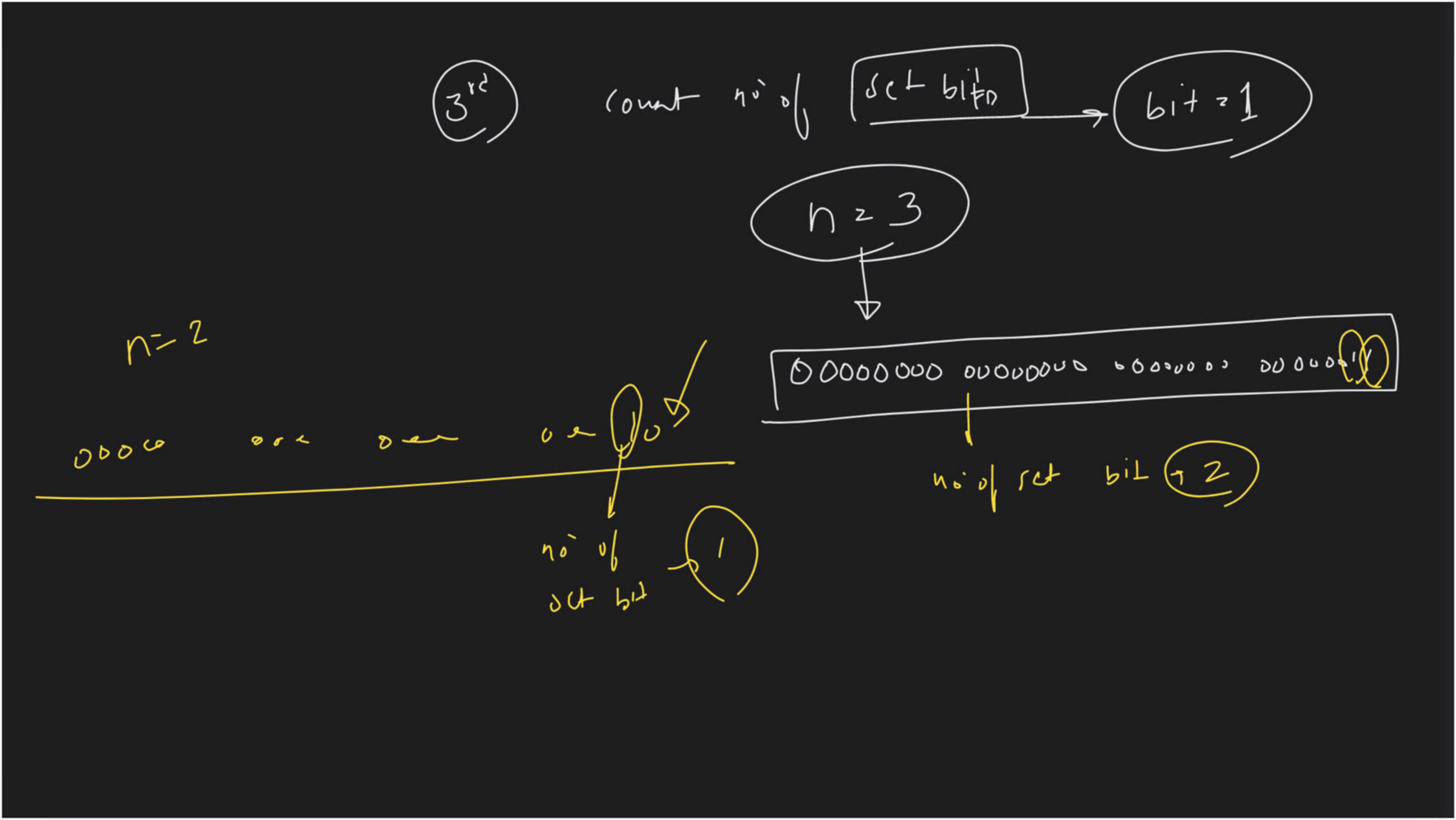
ans × 10 + digit

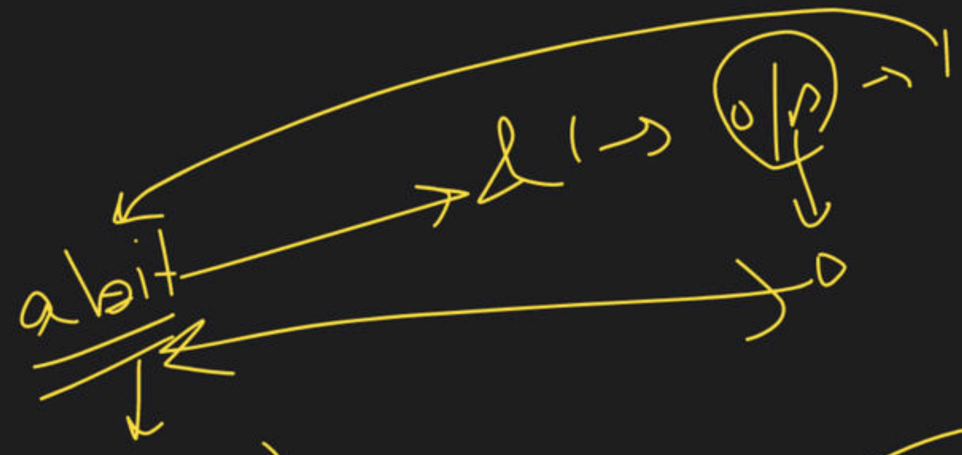
pow(a, b)



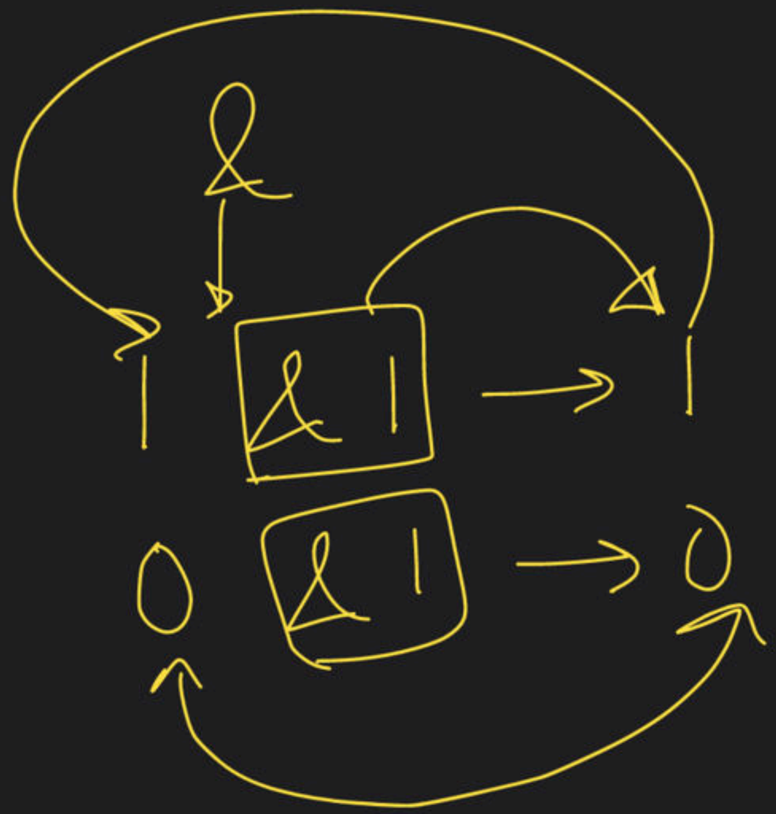

```
for (i=0; i<4; i+1)
{
    ans = ans * 10 + digit[i]
}
```



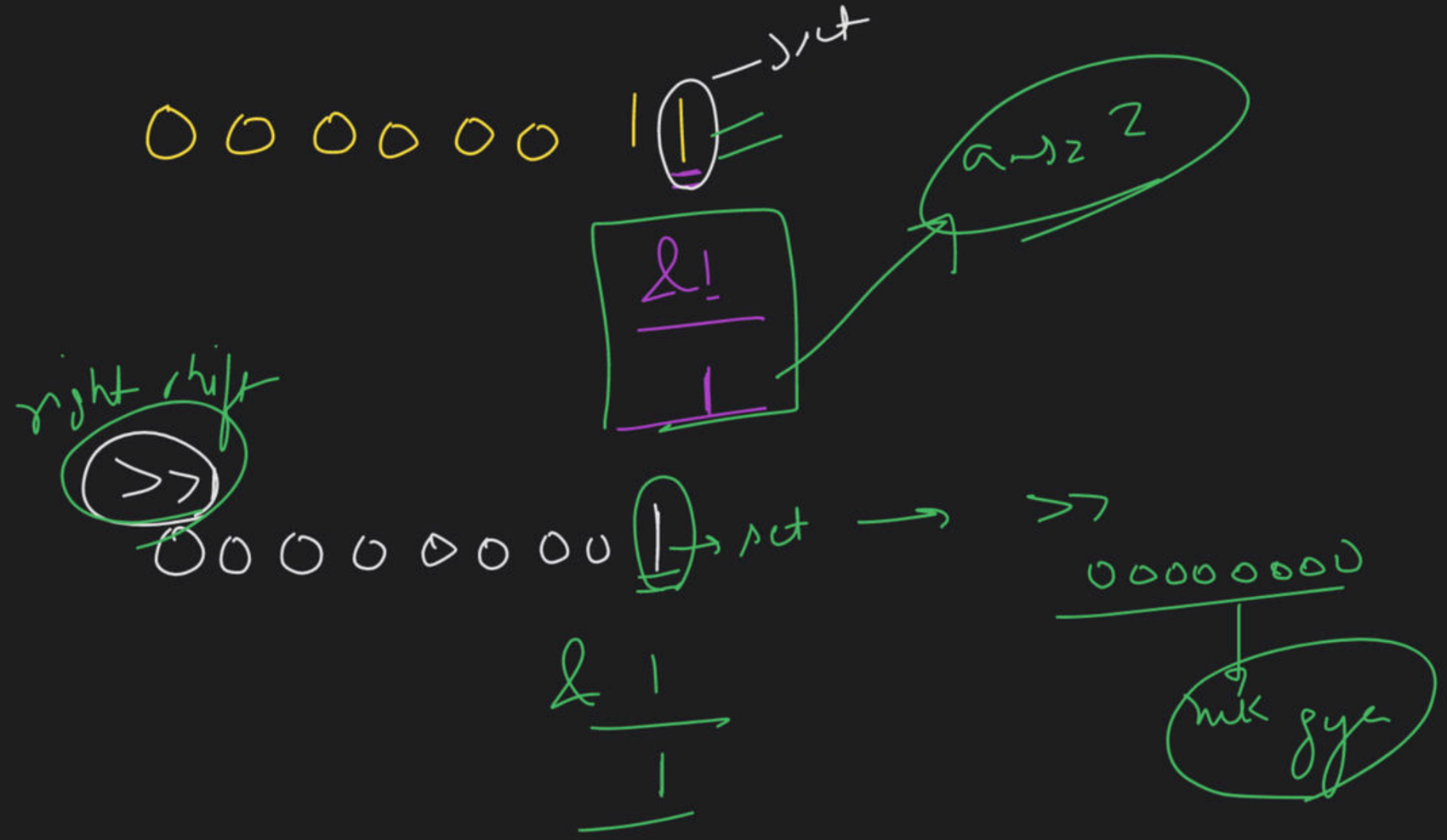

3rd
count no of set bits
bit = 1
n = 3
n = 2
no of set bit = 2
no of set bit = 1



bit → 1 ya or no



1 Δ 1 → 1
0 Δ 1 → 0



0 0 0 0 0 0 1 1 → set

& 1

1

a → 2

right shift

>>

0 0 0 0 0 0 0 0 1 → set → >>

0 0 0 0 0 0 0 0

& 1

1

mk gye

11 →

00001011 → set

& 1

1

→

00000 10 1 → set bit

& 1

1

→ → 00000010

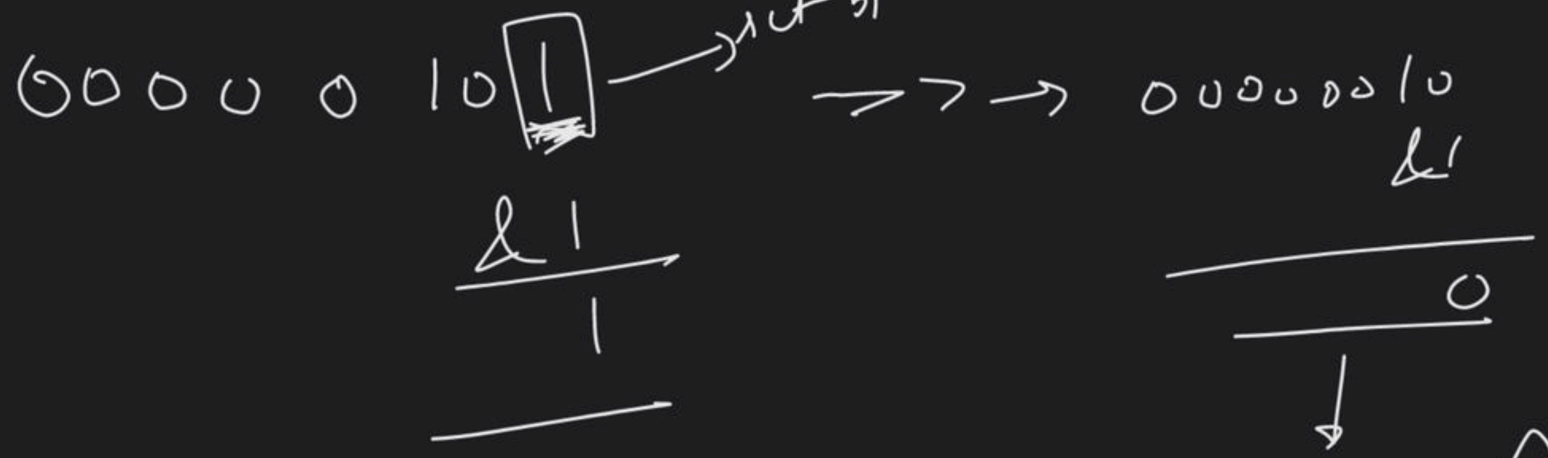
& 1

0

00000000 1 set

& 1

1



$1\,km = \frac{1}{1.6}\,mile$

Convert km into miles

$1\,km =$

$a = b \star c$

$\frac{a}{b} = c$

or

$\frac{a}{c} = b$

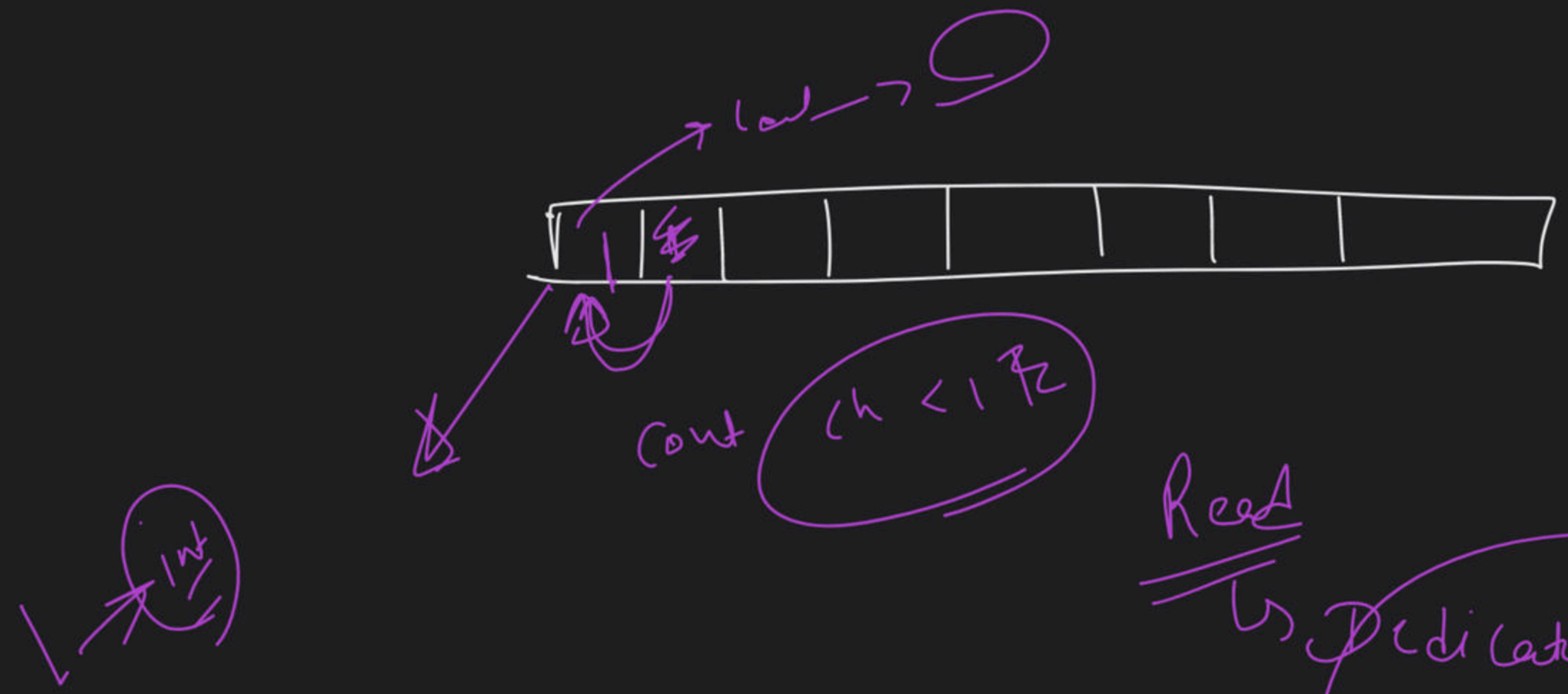
$1\,mile = 1.6\,km$

$1\,km = \frac{1}{1.6}\,mile$

~~$1\,km =$~~

$1\,mile = 1.6\,km$

$\frac{1}{1.6}\,mile = 1\,km$



Read

↳ Dedicated Video