

Operators & for loop

Bitwise Operator

AND $\rightarrow \&$

OR $\rightarrow |$

NOT $\rightarrow \sim$

XOR $\rightarrow \wedge$

AND $\rightarrow 2 \Rightarrow a=2, b=3$
 $a \& b \rightarrow$ $2 \rightarrow 10$
 $3 \rightarrow 11$

(2)

x	y		o/p
0	0		0
0	1		0
1	0		0
1	1		1

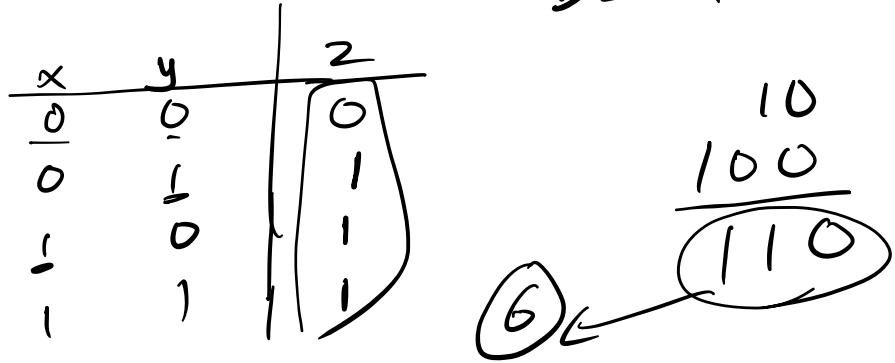
$$a=5 \rightarrow 101$$

$$b=7 \rightarrow 111$$

101
↓
5

$\rightarrow \text{OR} \rightarrow |$

$$a = 2 \\ b = 4$$



$$a = 3 \\ b = 6$$

$$\begin{array}{r} 11 \\ 100 \\ \hline 111 \end{array} \rightarrow 7$$

NOT $\rightarrow \sim$

x	z
0	1
1	0

$$a = 2$$

int = 4 bytes
32 bit

$$0000\ldots0010$$

$$\sim a$$

$$01111\ldots1101$$

$$is 0000000010 + 1$$

$$2^3 \quad \overline{000\ 000} \quad 11$$

$$a = 2 \\ \sim a = -3$$

print

$$\sim a = -3$$

XOR $\rightarrow \wedge$

x	y	z
0	0	0
0	1	1
1	0	1
1	1	0

$$a = 2 \rightarrow 010$$

$$b = 4 \rightarrow \begin{array}{l} 100 \\ \textcircled{110} \end{array}$$

$$a = 5 \rightarrow 101$$

$$b = 7 \rightarrow \begin{array}{l} 111 \\ \textcircled{010} \\ \downarrow \\ 2 \end{array}$$

$\mathcal{L}_1 \mid + \cup +^1$

$$a = 4 \rightarrow 100$$

$$b = 6 \rightarrow \begin{array}{l} 110 \\ \textcircled{100} \end{array}$$

$$100$$

$$110$$

$\mathcal{L}_1 \cap =$

6

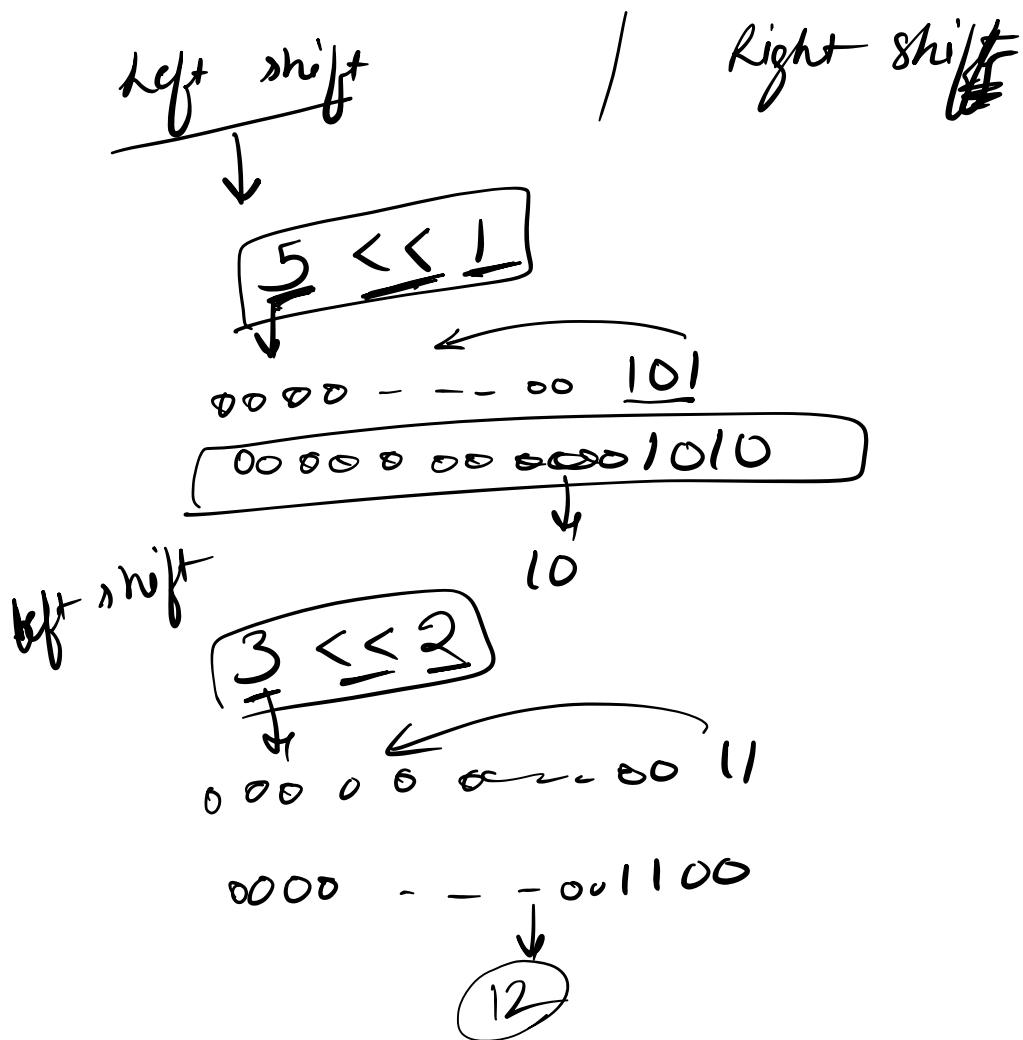
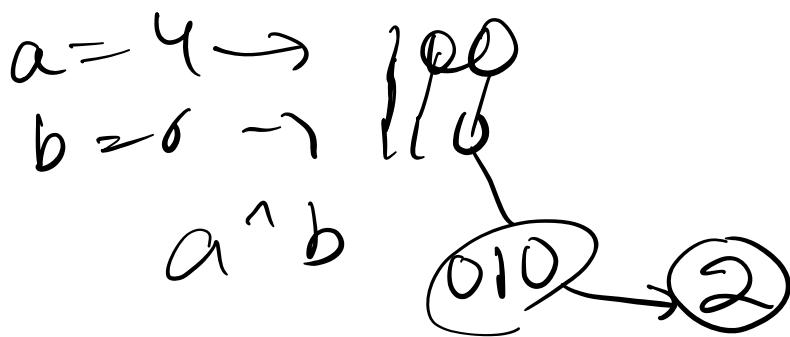
$$a = 4 \rightarrow 100 \rightarrow 0000 - \underline{-000100}$$

$$\textcircled{1a} \rightarrow \text{point} \cdot \begin{array}{l} 111111 - \underline{-111011} \\ \textcircled{-ve} \end{array}$$

-5

$$11 \rightarrow 000 - \underline{-00100} + 1$$

$$2^3 \quad \begin{array}{l} 000 - \underline{-00101} \\ \textcircled{+5} \end{array}$$



Right shift

$$\boxed{15 \geq 1}$$

$$\boxed{5 >> 2}$$

00000000 - - - 00101
↓
0000 - - - 0001

~~822221~~

$$5 >> 1 \rightarrow \frac{5}{2}$$

$$5 >> 2 = \frac{5}{2 \times 2}$$

\ll, \gg tree
↓
padding with 0

-vc → padding → compiler dependent - ?

$i > 21 \rightarrow 8$

$i > 22 \rightarrow 4$

$19 \ll 1 \rightarrow 38$

$21 \ll 2 \rightarrow 84$

a → while ($i < n$)

$sum = sum + b$
 $sum += b$
 $i++ = 1$
 $i- = 1$

Inc / Dec operator

$i = i + 1$

$i++$ → post-increment
 $++i$ → pre-increment
 $i--$ → post-decrement
 $--i$ → pre-decrement

post-increment

$i++$

int $i = 4;$

int $a = \underline{i++}$

$a - ?$ a = 4
 $i - ?$ i = 5

int $i = \underline{3}$, $a = \underline{2} i$

$$\text{sum} = \underline{a + (\underline{i++})};$$

$$\text{sum} = 2 + 3 = \underline{5}$$

$$i = \underline{4}$$

pre-increment

int $i = 11$

int $a = \underline{++i};$

$$i = \underline{12}$$

$$a = \underline{12}$$

$a = 2, i = 3$

$$\text{sum} = a + (\underline{++i});$$

$$= 2 + (\underline{4})$$

$$= \underline{6}$$

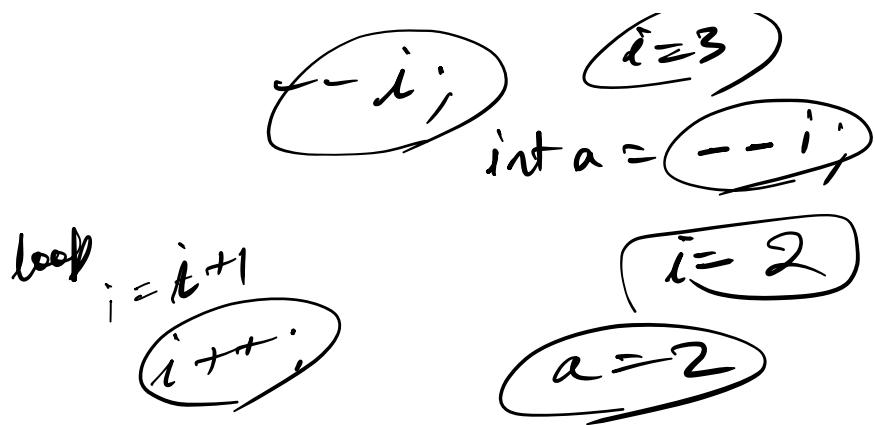
$$i = \underline{4}$$

$\underline{i--};$

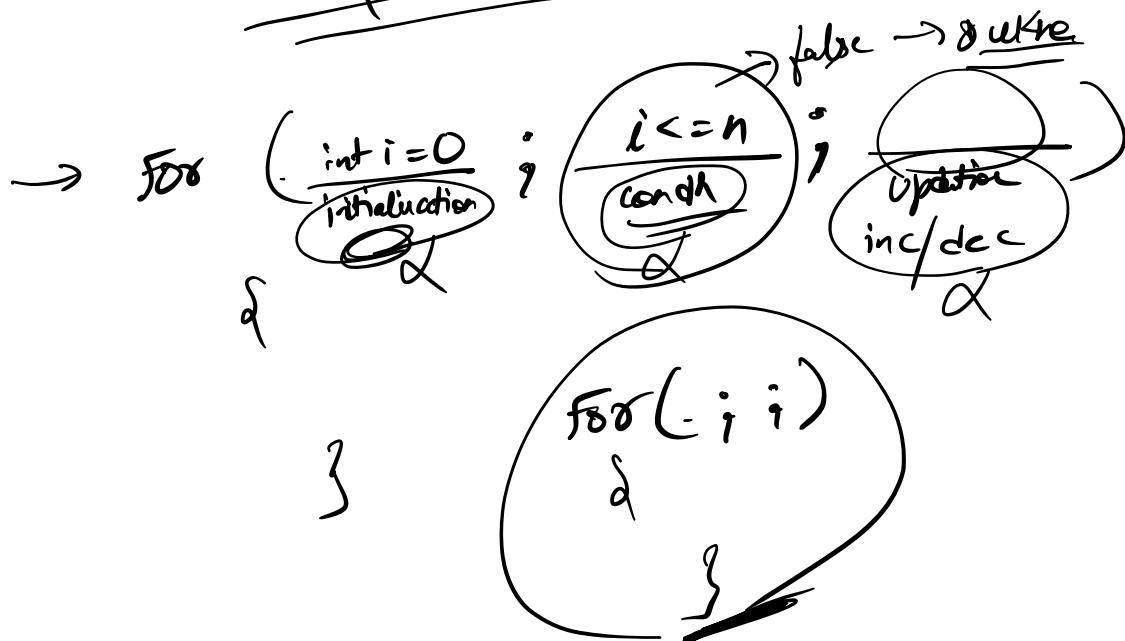
$\hat{i} = \underline{3}$

int $a = \underline{i--};$

$$a = \underline{3}, i = \underline{2}$$

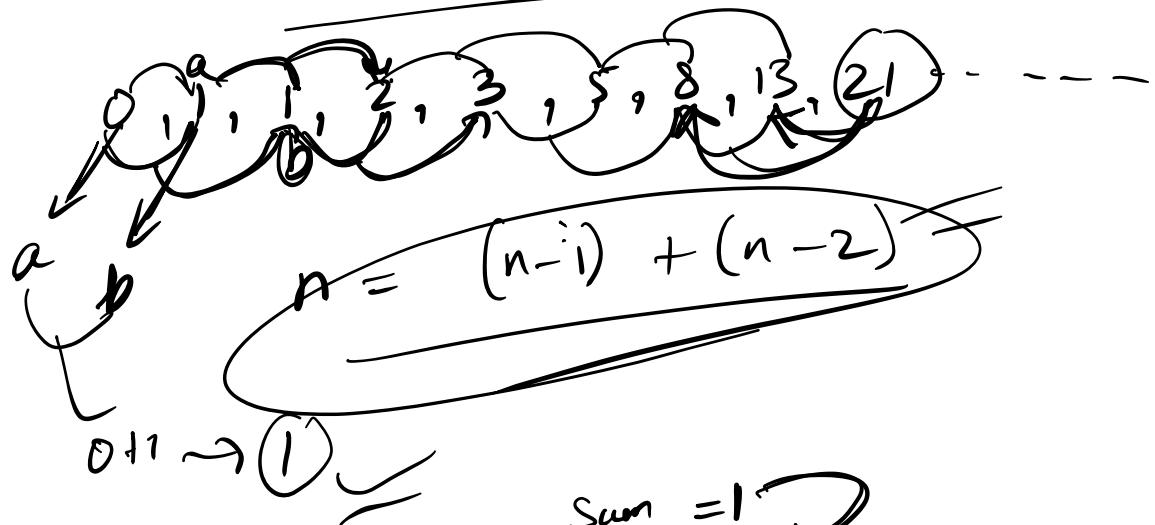


5 Questions



$\rightarrow \text{break}$
 $\rightarrow \text{gets you out of current loop}$

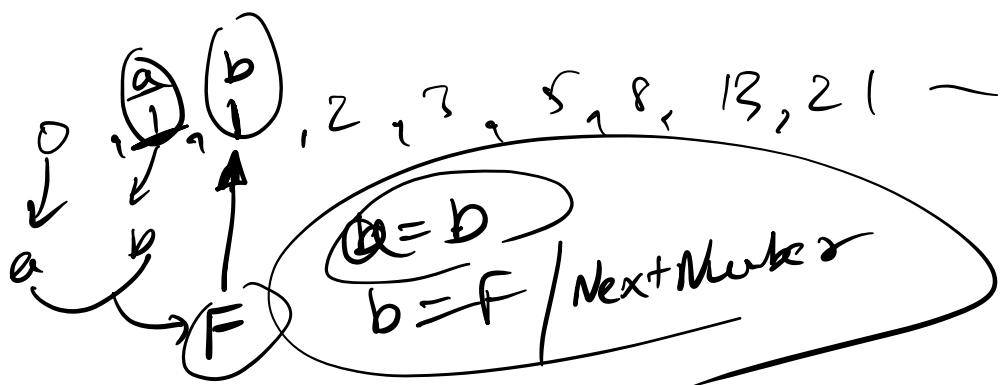
→ Fibonacci series



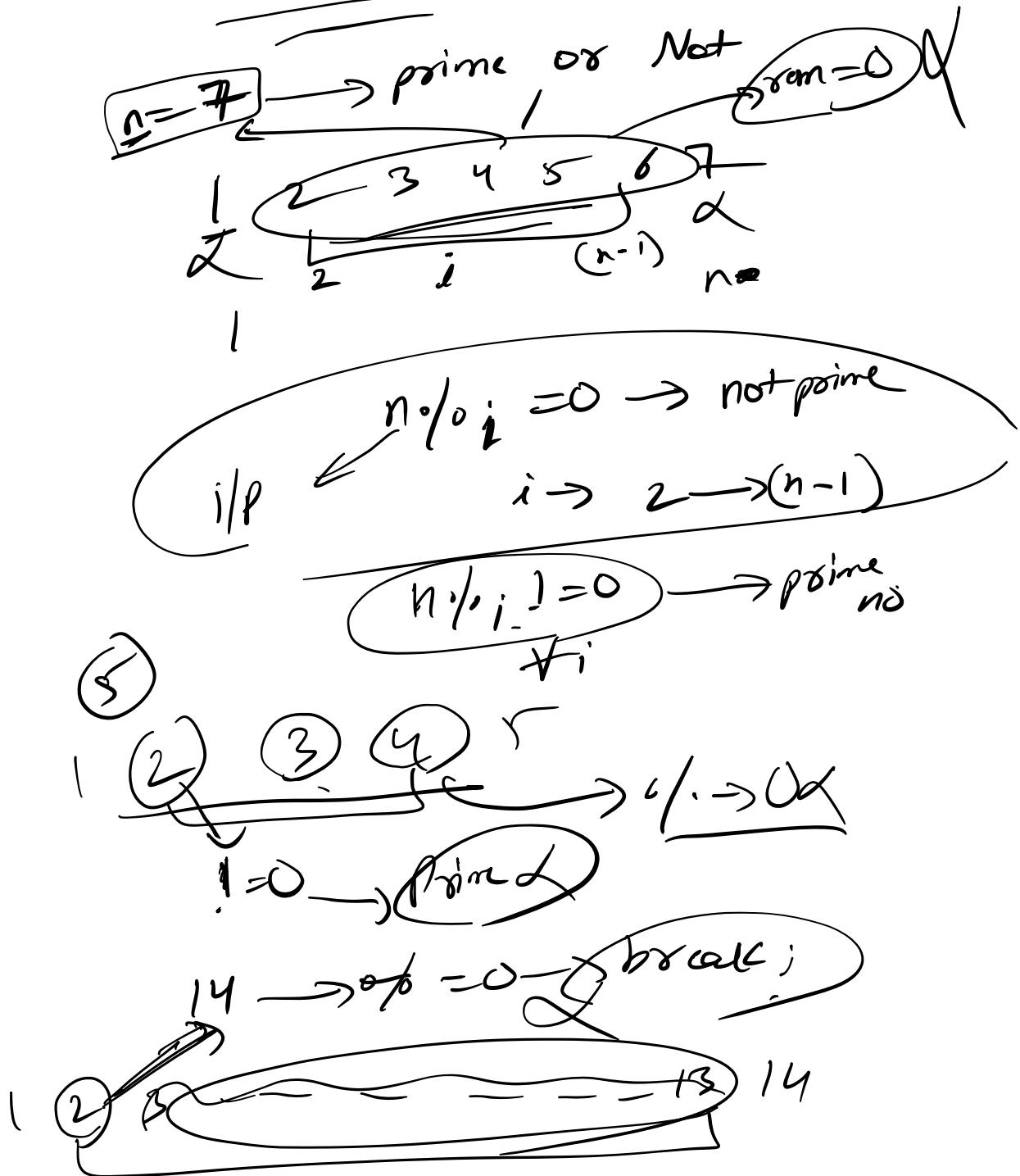
nextNumber or $\text{sum} = a+b$

$b=2$
 $a=0$

$\text{sum} = 1$
 $b = 1$
 $a = 0$



Prime Number



~~Continue:~~ → skip iteration

for (int $i=0$; $i < 5$; $i++$)

2

3

$i=0 \rightarrow I$
 $i=1 \rightarrow II$
 $2 \rightarrow III$

3

4

5

→ 6th iteration

for (int $i=0$; $i < 5$; $i++$)

2 cout << "Hi";

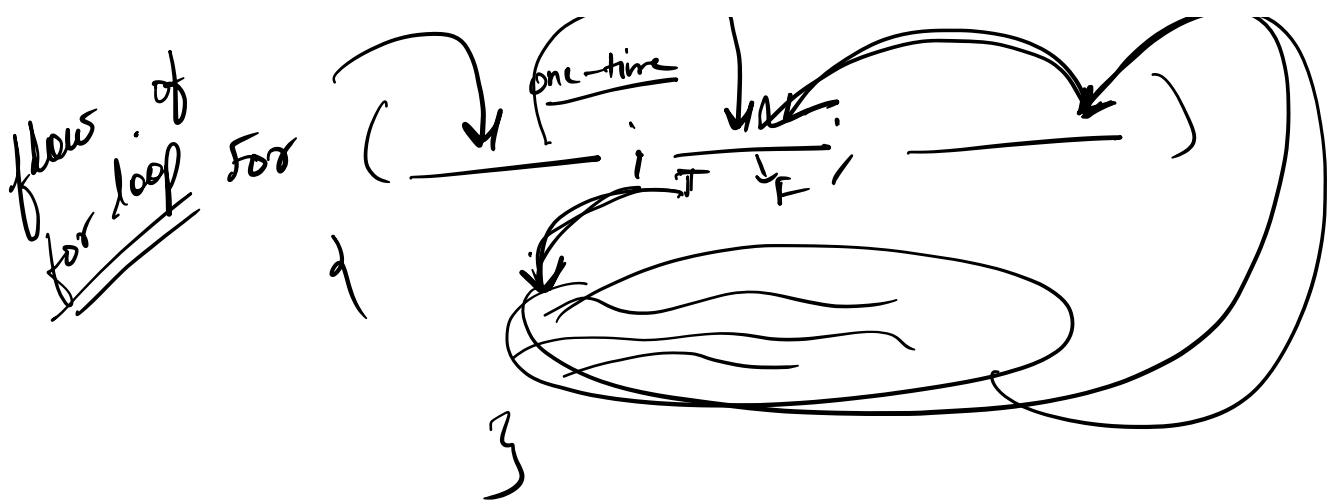
3 cout << "Hey";

4 continue;

5 Unreachable

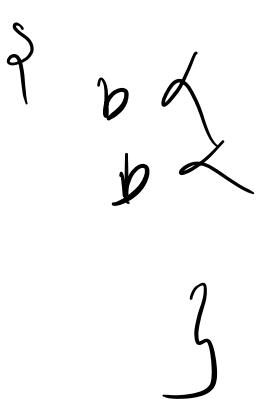
6 cout << "Reply to Kode";

7



5-5 Questions

→ Variable Scopes



Operator precedence

$$op = \underline{2 * 3 / 4} + 5$$

int/int
int

$$\begin{array}{l} 6/4 + 5 \\ | \\ 1 + 5 \\ | \\ 1 \end{array} \quad \begin{array}{l} 2 * 0 + 5 \\ = (5) \end{array}$$

$$\left(\frac{3}{1} \right) * 0 = 0$$

table

bracket

bracket

$$op = \underline{(2 * 3) / 4} + 5$$

→ Bitwise op



Question - ?

$n \rightarrow 234$

$$\text{Prod} \rightarrow \underline{\underline{2 \times 3 \times 4}} = 24$$

$$\text{Sum} \rightarrow \underline{\underline{2 + 3 + 4}} = 9$$

$$24 - 9 = 15$$

$$n = \underline{\overline{234}}$$

$n \% 10 \rightarrow 4$

$$n = \underline{\overline{23}} \cancel{4}$$

$$n/10 = \frac{\underline{\overline{234}}}{10} \rightarrow \cancel{23}$$

$\underline{\overline{234}} / 10 \rightarrow$

$n = \underline{\overline{234}}$

$n \% 10 \rightarrow 4$

$n/10 = \cancel{\underline{\overline{23}}} \rightarrow 23, 2, 0$

$n/10 \rightarrow 23, 2, 0$

$n = 0 \rightarrow \text{suk ja bhai!}$

loop

$$\underline{\overline{456}}$$

$$4 \overline{)56}$$

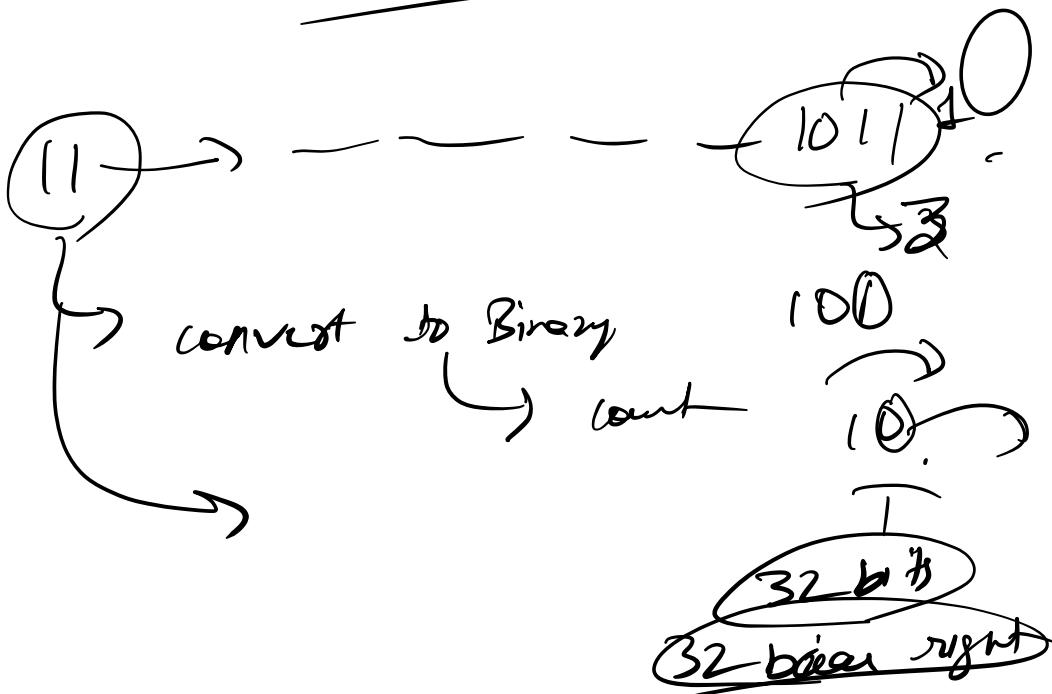
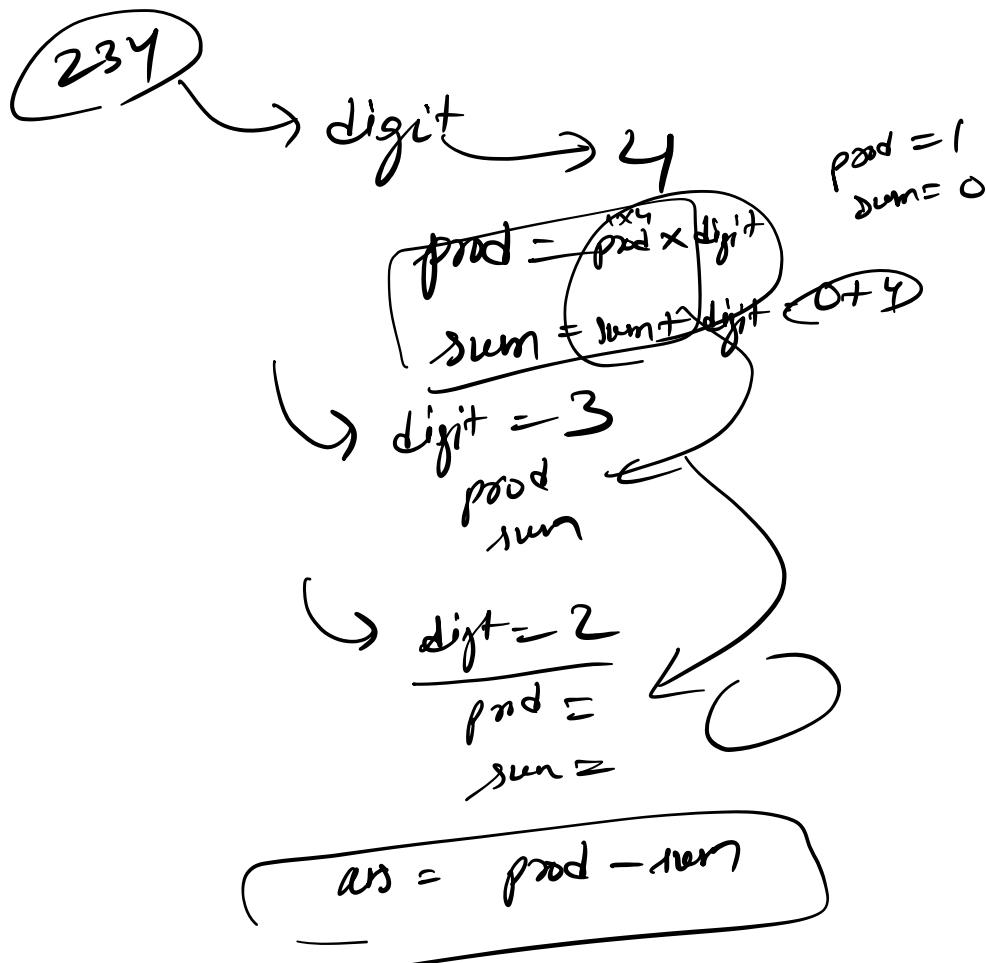
$0 \% 10$

$$10 \overline{)456} \quad \begin{matrix} 45 \\ 450 \end{matrix}$$

$(\cancel{6}) \rightarrow \text{rem}$

$$\underline{\overline{456}} / 10 \rightarrow 6$$

$$456 / 10 = \cancel{45}$$



$n \oplus 0_2 = 0 \rightarrow \text{even}$

heavy operation

if ($n \& 1$) $\rightarrow \text{true} \rightarrow \text{Odd}$

else $\rightarrow \text{even}$

$n \& 1$ 3 $\rightarrow 11$
 $00 \quad \quad \quad 00 \quad |$
 $| \quad \quad \quad | \quad \quad \quad | \quad \quad \quad |$
 $1 \rightarrow \text{true}$

00 - - - 0 1?

00 - - - 0 1
 $n! = 0$
 $| \rightarrow \text{true}$

00 - - - 00 110 $\rightarrow 0x$
 $000 - - - 011 \rightarrow 1 - \cancel{\text{cont+1}}$
 $000 - - - 001 \rightarrow 1 - \cancel{\text{cont+1}}$
 $00 - - - 00 \rightarrow 0x$

Op
for \rightarrow
pol - variable
 \rightarrow 2 quantities

↳ Question → Next Video

