

Bitwise Operator

By Prince Agarwal
[“ Hello World ”]

Bits wise operator



There are different bit wise operator in the bit manipulation

It is fast and Can be used In
optimising the time complexity

Bit wise operators are :—

NOT (~)

AND (&)

OR (|)

XOR (^)

Left shift (<<)

Right shift (>>)

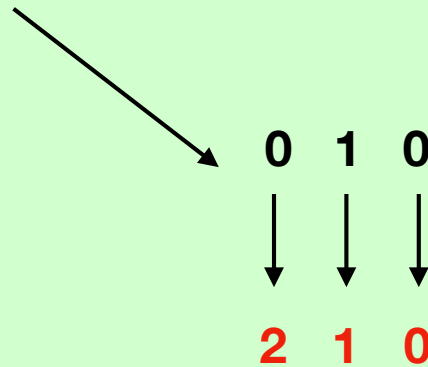
NOT (~) → It is a bitwise operator



It flips the bits of the numbers

$$N = 5 = (101)_2$$

$$\sim N = \sim 5 = \sim(101)_2 = (010)_2 = 2$$



$$\underline{0 * 2^2} + \underline{1 * 2^1} + \underline{0 * 2^0} = 2$$

AND (&) \longrightarrow It is a bitwise operator

\downarrow
It operates on operates
on two equal-length bit patterns

If both bits are 1 then \rightarrow result is 1
Otherwise \rightarrow 0

A = 5 = $(101)_2$

B = 3 = $(11)_2$

Transform \longrightarrow

B = 3 = $(011)_2$

3

2


No. Of bits



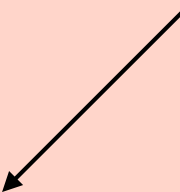
1 1
 \downarrow \downarrow

1 0

$$\underline{1 * 2^1} + \underline{1 * 2^0} = 3$$

0 1 1
 \downarrow \downarrow \downarrow
2 1 0

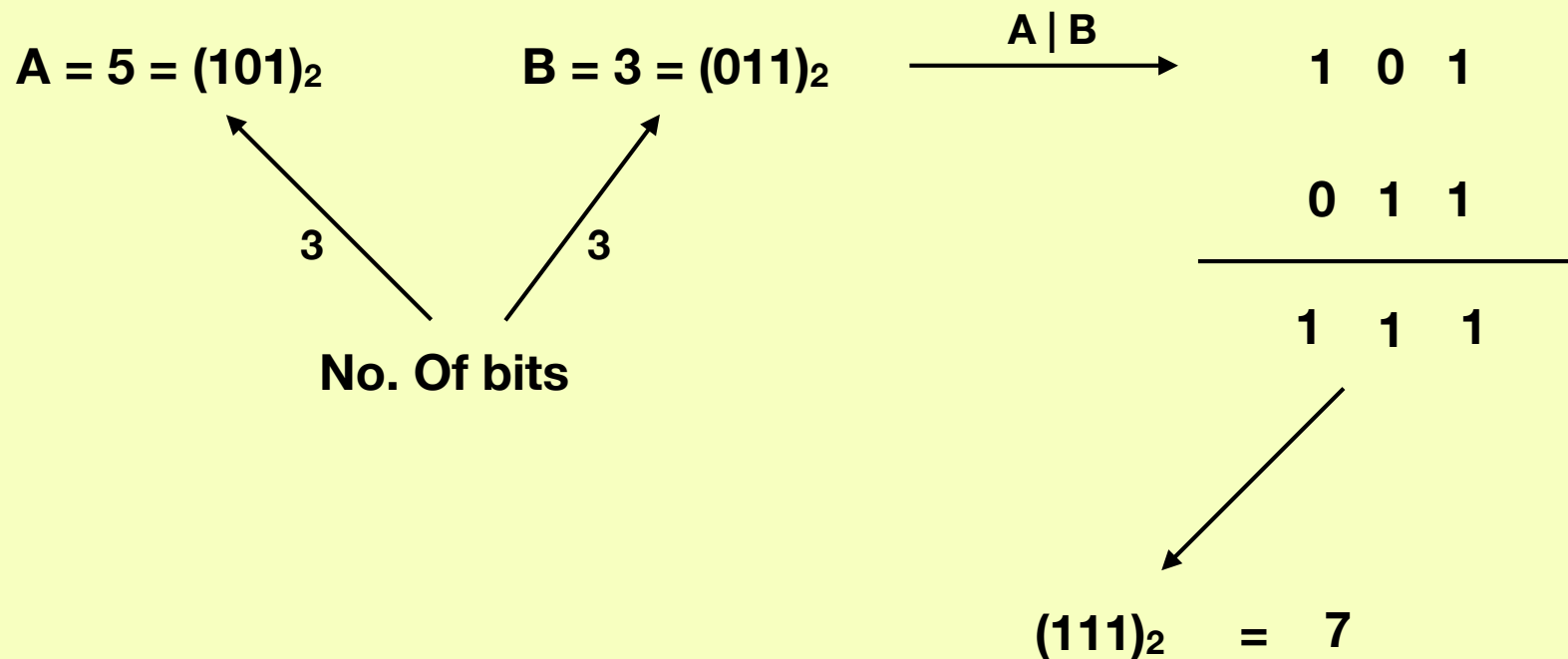
AND (&)  It is a bitwise operator

$A = 5 = (101)_2$		1 0 1
	&	
$B = 3 = (011)_2$		0 1 1
		<hr/>
		0 0 1
		
		$(001)_2 = 1$

OR (|) → It is a bitwise operator

It operates on operates
on two equal-length bit patterns

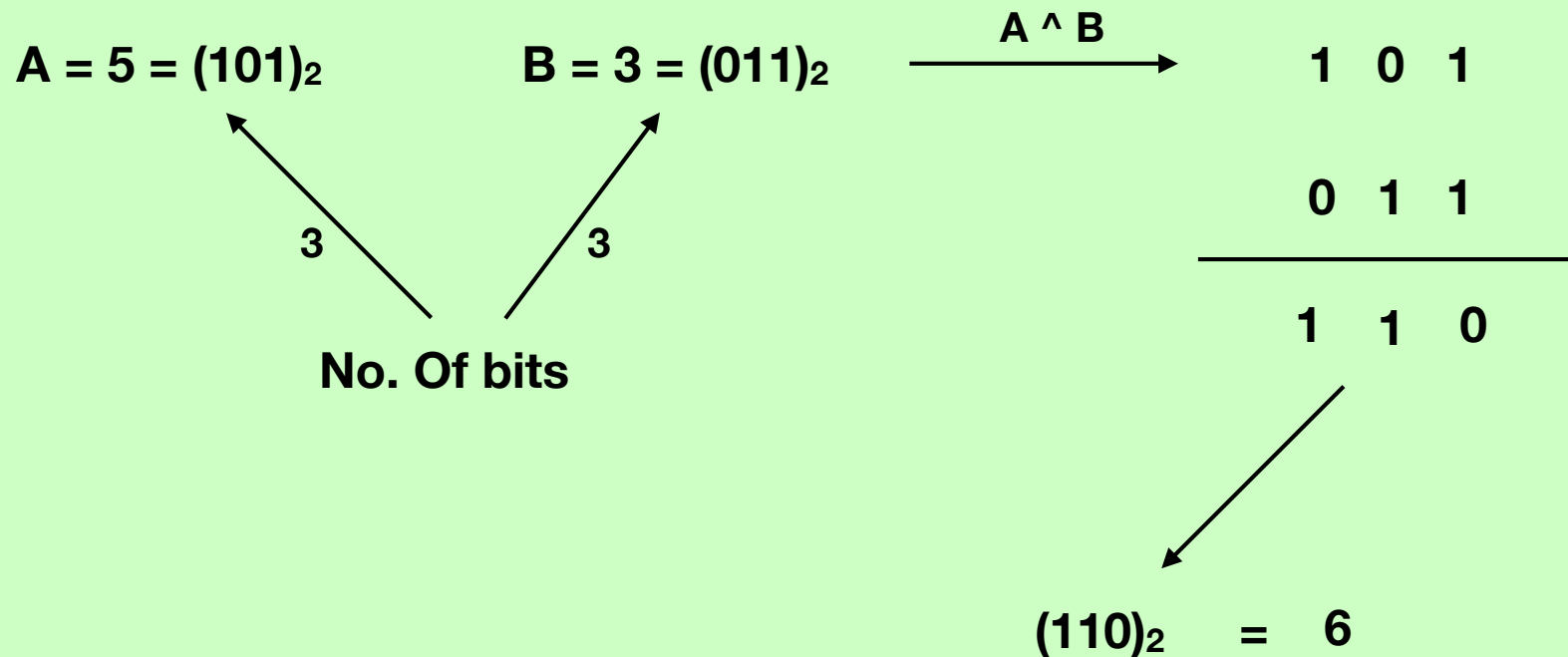
If any bits of both, are 1 then → result is 1
Otherwise → 0



XOR (^) → It is a bitwise operator

↓
It operates on operates
on two equal-length bit patterns

If both bits on compared position is **same** → 0
Otherwise → 1



Short Chart

NOT	1 -> 0 0 -> 1
AND	If compared bits are —> Both bits are 1 —> 1 Else —> 0
OR	If compared bits are —> Any one of bits is 1 —> 1 Else —> 0
XOR	If compared bits are —> Both bits are same —> 0 Else —> 1

Bits wise operation

X	Y	X&Y	X Y	X^Y	~(X)
0	0	0	0	0	1
0	1	0	1	1	1
1	0	0	1	1	0
1	1	1	1	0	0

Subscribe, Like & Share



Hello World

*“ If you feel any problem then comments in my video
I will reply as soon as possible “*

- Prince Agarwal