Agenda

Thursday, May 11, 2023 8:13 AM

Comma operator
Bitwise operators
typedef
enum
switch .. case
loop

1. Multiple C Expressions can be separated using comma operator

When comma operator is in use with precedence following both rules will be applied:

1. Each expression which is separated comma to be evaluated from left to right
2. Result of right most expression will be associated at sequence point

printf("%d %d %d", a=10 , a=2, a); //here in function call comma is used to separate list of argument //here above rule are not applicable

++x , y++ , x=10, y=1; //in this expression we are using comma operator //here comma is not with precedence hence rule no. 2 is not applicable

(++x , y++ , x=10, y=1); //in this expression we are using comma operator //in this expression comma is used with precedence hence both rules are applicable

Bitwise and operator &

- Binary Operator

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		6	5	4	3	2	1	0
a=	0	0	0	0	0	1	1	1
&	7	6	5	4	3	2	1	0
b=	0	0	0	0	1	1	0	1
	7	6	5	4	3	2	1	0
c=	0	0	0	0	0	1	0	1

$2^2 + 2^0 = 5$

$4 + 1 = 5$

Bitwise and operator |

- Binary Operator

	7	6	5	4	3	2	1	0
a=	0	0	0	0	0	1	1	1
|	7	6	5	4	3	2	1	0
b=	0	0	0	0	1	1	0	1
	7	6	5	4	3	2	1	0
c=	0	0	0	0	1	1	1	1

$2^3 + 2^2 + 2^1 + 2^0$

$= 15$

Bitwise and operator ^

- Binary Operator

	7	6	5	4	3	2	1	0
a=	0	0	0	0	0	1	1	1
^	7	6	5	4	3	2	1	0
b=	0	0	0	0	1	1	0	1
	7	6	5	4	3	2	1	0
	0	0	0	0	1	0	1	0

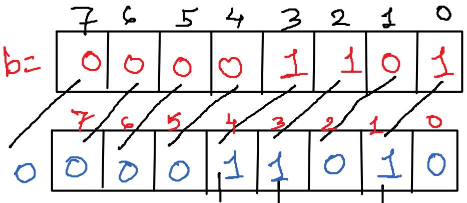
~ Operator - Unary Operator

b=13	0	0	0	0	1	1	0	1
	1	1	1	1	0	0	1	0

$\sim b = -(n+1)$ $\sim b = -(b+1)$

$= -14$

Left Shift Operator << - Binary Operator

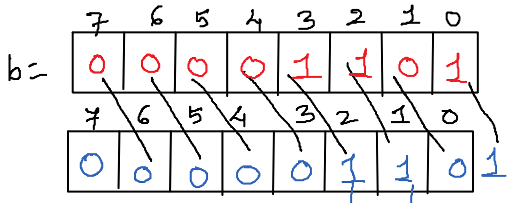


$2^4 + 2^3 + 2^1$

$= 26$

$13 * 2 = 26$

Right Shift Operator >> - Binary Operator



2^2 2^1

$4 + 2$

6

$13 / 2 = 6$

Steps to apply bitwise operation on negative number

1. Find binary of positive number
2. Apply 1's compliment i.e. invert/toggle each bit
3. Apply 2's compliment i.e. add 1 in specific binary
4. Process bitwise operation as per operator
5. Apply 1's compliment i.e. invert/toggle each bit
6. Apply 2's compliment i.e. add 1 in specific binary
7. Finally find decimal value of binary number which you have received after process and consider it as negative number