

CS:APP - 2

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# How to represent data?

How to interpret bit pattern into various forms			
00000000000001001100100110001011 -> 0x0004C98B			
Integer	Real(IEEE-754)	Character(ASCII)	Colour(ARGB)
313739	4.39642E-40	NULL EQT É ¨	

# Word

- Natural unit of data - instruction
- Fixed-size data

# Bitwise operation

a	b	a & b	a   b	a ^ b
0	0	0	0	0
1	0	0	1	1
0	1	0	1	1
1	1	1	1	0

a	!a
0	1
1	0

# Bitwise operation

- Bit field / Masking
- Linux file permission ( umask / chmod )
- Etc...

# Bitwise left/right shift

- Left shift

- Ex)  $00010110 \ll 1 == 00101100$  ( $22 \times 2 = 44$ )

- Arithmetic right shift

- Ex)  $11001100 \gg 2 == 11110011$  ( $-52 \div 2^2 = -13$ )

- Logical right shift

- Ex)  $11001100 \gg 3 == 00011001$