Nibble makes computation faster and debugging easier .Lets suppose the bit representation of num is abcdwxyz and we want to extract abcd as higher nibble and wxyz as lower nibble.

To extract the lower nibble we just mask the higher nibble by bitwise anding the number with 0x0F:

a b c d w x y z

&

0 0 0 0 1 1 1 1

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0 0 0 0 w x y z = lower nibble.

To extract the higher nibble we first mask the lower nibble by bitwise anding with 0xF0 as:

a b c d w x y z

&

1 1 1 1 0 0 0 0

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a b c d 0 0 0 0

and then we bitwise right- shift the result right 4 times to get rid of the trailing zeros.

So the basic formula to convert byte into 2 nibbles :

var num = str.charCodeAt(0);

var higher\_nibble = (num & 0xF0) >> 4;

var `lower\_nibble = num & 0x0F;