

Review Qs:

(decimal)

1. What is the signed + unsigned interpretation of 10000001?

$$-128 + 0 + 0 + 0 + 0 + 0 + 0 + 1 = -127$$

$$128 + 0 + 0 + 0 + 0 + 0 + 0 + 1 = 129$$

2. How many code points are encoded by this UTF-8 sequence?

11010101

10111111

11101011

10110110

10000001

2 code points

3. char s[] = { 0b01100001, 'a', 'c', '\0' };
97

printf("%s", s); // What does this print? abc

José ate yummy  at beach
0 1 2 3 5 6 7 8 9 10 11 12 13 14 15 16 20

byte_index

Bitwise Operators

Hexadecimal

Bitwise Operators

$\&$
 (and)

$$\begin{array}{r} 0011 \\ \& 1010 \\ \hline 0010 \end{array}$$

$|$
 (or)

$$\begin{array}{r} 0011 \\ | 1010 \\ \hline 1011 \end{array}$$

\wedge
 (xor)

$$\begin{array}{r} 0011 \\ \wedge 1010 \\ \hline 1001 \end{array}$$

\sim
 (not)
 ~ 1010
 $= 0101$

char c1 = 0b0110 0001;
 char c2 = 0b1100 1100;
 char c3 = 0b1110 1001;
 char c4 = 0b1110 110;

c1 & mask_3 = 0110 0000
 c2 & mask_3 = 1100 0000
 c3 & mask_3 = 1110 0000
 c4 & mask_3 = 1110 0000

char mask_3 = 0b1111 0000;

```

int8_t is_3byte_utf8(char c) {
  return (c & mask_3) == 0b11100000;
}
  
```

0000	0	0
0001	1	1
0010	2	2
0011	3	3
0100	4	4
0101	5	5
0110	6	6
0111	7	7
1000	8	8
1001	9	9
1010	10	A
1011	11	B
1100	12	C
1101	13	D
1110	14	E
1111	15	F

16's 1's
 0xA7
 $A * 16 + 7 * 1$
 $160 + 7$
 167

0xA7
 / \
 0b1010 0111