(Set or clear bits / writing) Masking operation:

Mask = 0b00001000;

To set 1 at 3rd position (count from 0) in X => X |= mask;

To clear 1 at 3rd position in X: X &= ~mask;

(Read bits)

Mask = 0b00001000;

Reading 3rd bit in X;

Msg = X & mask == "3rd bit is 1": "3rd bit is 0";

Invert specific bit / toggle specific bit;

Mask = 0b00001000;

Inverting 3rd bit in X: X ^= mask;

Masking function => **#define MASK(k) ((unsigned char) (1 << k))**

Read bit:

Let X = 00110010; (if 3rd bit is set (1) turn-on led otherwise do turn-off LED)

```
If (X & MASK(3)) {
        // turn-on LED
} else {
        // turn-off LED
}
```

Write bit:

Write, Set 4th bit of X = 0011 0010;

X |= MASK(4);

Output is => 0011 1010;

Clear 4th bit of X = 0011 1010;

X &= ~MASK(4);

Output is: 0011 0010;

Toggle bit:

Let X = 0011 0010;

Toggling 0th bit of X;

X ^= MASK(0)

Output is => 0011 0011;

Again doing same togging operation,

X ^= MASK(0);

Output is => 0011 0010;