Chapter 5 Bit Manipulation

0110 + 0110 == 0110 \* 2 == 0110 << 1

0100 \* 0011 == 4 \* 0011 == 0011 << 2

x ^ 0s = x x & 0s = 0 x | 0s = x

x ^ 1s = ~x x & 1s = x x | 1s = 1s

x ^ x = 0 x & x = x x | x = x

these operations occur bit by bit, with what’s happening on one bit never impacting the other bits. Fit one bit, fit a sequence of bits.

Logical right shift put a 0 in the most significant bit.

Arithmetic right shift put the signal bit in the most significant bit. Same as divide by rwo.

Get bit

Boolean getBit(int num, int i){

Return((num & (1<<i)) != 0);

}

Set bit

Int setBit(int num, int i){

Return num | (1<<i);

}

Clear bit

Int clearBit(int num, int i){

Int mask = ~(1 << i);

Return num & mask;

}

int clearBit(int num, int i){

int mask = (1<<i) – 1;

return num & mask;

}

int clearBit(int num, int i){

int mask = (-1 << (i + 1))

}

update bit

in updateBit(int num, int I, Boolean bitis1){

int value = bitis1 ? 1 : 0;

int mask ~(1 << i);

return (num & mask) | (value << i);

}