Signed vs Unsigned

Bits	Signed		Unsigned
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	-7		9
1010	-6		10
1011	-5	+/- 16	11
1100	-4		12
1101	-3		13
1110	-2		14
1111	-1		15

Project 1 Preview

- **sign(x)**: Given an int **x**, return 1 if x is positive, 0 if x is zero, and -1 if x is negative.
- No loops or conditionals!
- Allowed operators: ! ~ & ^ | + << >>
- **Hint**: First consider how to get -1 if x is negative and 0 otherwise. Then extend for 1 if positive.

Unsigned Bugs…

```
float sum_elements(float a[], unsigned length) {

    int i;
    float result = 0;

    for (i = 0; i <= length - 1; i++) {
        result += a[i];
    }

    return result;
}
```