Notes

Review:

- •scanf()
- SAFE string functions
- file I/O, structs
- *.h files and *.c files
- Makefiles

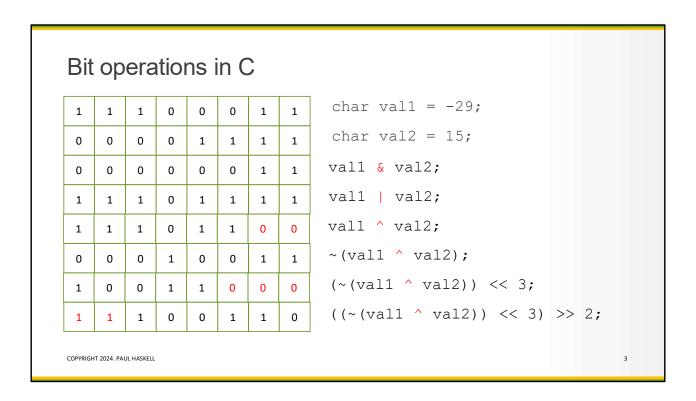
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Review recent quizzes!



One of the Key Skills everyone must learn in this class is how to do BIT OPERATIONS. Today I'll do some demos, we'll do a contest, and you'll do a Quiz. Then time for the project.

LOOK AT chars.c



The right-shift example is only for a SIGNED data type like 'char'

How about longer data types?

```
int x = value();
int y = x & (1 << 31);
x = x << 1 | ((y >> 31) & 1);
```

What does this do?

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By avoiding using if(), this code can be parallelized to do this on lots of ints at the same time.



BitOps showdown...

char: 10 << 4

unsigned char: 10 << 4

12 & 13

15 | 20

-128 >> 7

-128 >> 6

-128 << 6

160 & 48

160 | 96

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3 & -3

3 ^ -3

-16 ^ 12

(3 << 2) & 3

47 & 48

-99 | -9