Day 14

C we have skipped:
for loops, auto increment, conditionals

Admin

- GSI review session 7-8:30pm on Tuesday (here)
- See website for grades
- Exam rooms (also on the website)

SID	Room
0-12999999	EECS 1001
13000000-28999999	EECS 1500
29000000-49999999	Dow 1013
50000000-68999999	GG Brown 1504
69000000-99999999	Chrysler Aud

Today

- "C we have skipped"
  - for loops
  - i++;
  - i=i+2;
  - Evaluating truth
  - Using -Wall

Increment, assignment, etc.

- i++;
  - Increments i by 1.
  - Can use in a line of code
    - b=i++;
    - But don't do this. (lots of reasons, mainly order of operations is a pain!)
- i--;
  - Subtracts one.

More cool ways to make code unreadable

- i+=2; // same as i=i+2;
- i*=2; // i=i*2;

- Actually, I use the i+=2 thing a lot. I think it actually makes things clearer.
  - Other operations (like * and /) should, IMO, be used rarely.

Evaluating truth

- **The truth is rarely pure and never simple.**
  -Oscar Wilde
  - In C++ "truth" is fairly simple. "0" is false, everything else is true.
    - So if(x) evaluates x as true iff x isn't zero.
  - !x means the logical opposite of x. So if x were 10104, !x would be zero. !0 is always '1'.

More truth

- && is logical "and". The statement is only true iff both arguments are true.
  - if(x && y)
    - Only true if x and y are true
- || is logical "or". The statement is true iff one or both arguments are true.
  - while(x || y)

Problem!

- You have a function "int f(int x)". For the numbers 1 to 30 (in that order) you are to print the number (call it x) then a ":" then f(x) then a new line. So the output might look like this:

  1:4

  2:8

  3:1
- However, if the value of f(x) is negative you shouldn't print that line. And if f(x) is zero you should print that line, but not print the remainder of the values.

for loops

```
for(i=0;i<10;i++)
```

- A **for** loop has 3 parts
  - Initialization (done before the loop starts)
  - A check (if true continue)
  - A change (done at the end of the loop body)

```
i=0;
while(i<10)
{
    …
    …
    i++;
}
```

Example

```
for(i=0;i<20;i++)
    sum+=A[i];
```

General coding guidelines and for loops

- In general, it is really bad style to change the LCV (loop control variable, "i" in this case) anywhere other than in the for loop.
- Also in general, you should only use a for loop when you are using a loop control variable.

```
for(;x;)
for(x=0;(x<40)&& bob;x++)
```

- Both of the above are legal but ***bad*** style.
  - The 2nd one is debatable, but I'd much prefer to see a while loop there.

-Wall

- Code not working? Have some kind of weird error you just **know** can't be right?
  - Try turning on all warnings when you compile.
  - Just add "-Wall" (Warnings all).
  - You may get warnings you don't care about (but in general they indicate bad coding style) but your problem might show up.

Exam

- As it stands (may change)
  - ½ multiple choice/short answer
  - ½ coding
- Will **not** include file I/O
  - Will include everything else
    - While, if, doubles, ints, chars, strings, arrays, structs, etc.
    - Stuff you've done in lab and on homework.

Wednesday's lecture

- For an evening exam I cancel the corresponding class.
  - So no formal class on Wednesday.
  - I will be there, with no lecture prepared, just to answer questions.
    - Some students find this useful, others don't.