CS 261 Lab #2

In which we delve into pointers

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"Pointers" are just memory addresses

They "point" to some location in the computer's memory.

```
int foo;
int *bar;

// &foo is 1000
// &bar is 1004

foo = 10;
bar = &foo;

// bar == 1000
// *bar == 10

*bar = 20;
```

Memory address	Value
“foo” 1000	20
1001	?
1002	?
1003	?
“bar” 1004	1000

Debugging with breakpoints

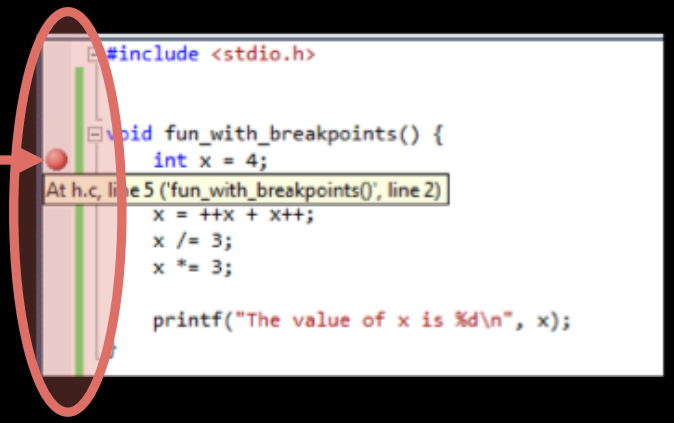
Breakpoints tell the computer to stop execution at specific points. You can **see variables' values** while your program is still running.

Execute one line at a time with the **step into** and **step over** commands.

Resume normal execution of your program with the **continue** command.

"gutter"

breakpoint



Debugging in Visual Studio

Insert breakpoints by **clicking in the gutter**.

Start debugging by pressing **F5**.

After a breakpoint is hit, step through the program with **F10** or **F11**. F11 **steps into** functions; F10 **steps over** them.

Hover over a variable to see its value (but only **after** the line has executed).

Two exercises

Download from http://dropline.net/cs261/lab2

1. pointers.c — Create pointers, point them at existing variables, and print their contents.

2. swap.c — Debug a program that uses pointers to swap variable values.

When you're finished, you can start working on Assignment #1 with your partner.