

15-123: Effective Programming in C and Unix

With Hunter Pitelka

Calculator Lab, Pointers, & GDB

Recitation 6
Wednesday October 1st, 2008

Happy October!!!

Calculator Lab

- Due Tomorrow, Thursday October 2nd @ 11:59pm
- We want your library and your test driver
- Quick Example!

Pointers (those * thingies)

- Pointers are a type of variable that instead of storing an actual value, they store the memory location of an actual value.
- You use pointers to
 - Pass variables by reference (versus by value)
 - Create arrays
 - Tie “objects” together
 - obfuscate your code

Pointer Examples

- `int *p` → pointer to an int
- `int *p[13]` → array of 13 pointers to ints
- `int *(p[13])` → array of 13 pointers to ints
- `int **p` → pointer to a pointer to an int
- `int (*p)[13]` → pointer to an array of 13 ints

`int ((*x[3])())[5]`

Strings in C

- There are no “String”s in C. We have `char*` 's.
- They are basically array's of characters.

```
char* string = "hello world";
```

```
h is at memory 0xbfcd0c8c
e is at memory 0xbfcd0c8d
l is at memory 0xbfcd0c8e
l is at memory 0xbfcd0c8f
o is at memory 0xbfcd0c90
  is at memory 0xbfcd0c91
w is at memory 0xbfcd0c92
o is at memory 0xbfcd0c93
r is at memory 0xbfcd0c94
l is at memory 0xbfcd0c95
d is at memory 0xbfcd0c96
```

GDB

- Gnu DeBugger
- Your Friend and Lover.
- Allows you to step through programs and watch all the commands execute and figure out exactly where your error is. (lets look at segfault.c)
- Let's play around in GDB and learn how to use it

Thanks for coming!

- Calculator Lab due Thursday October 2nd @ 11:59pm
- Extra Labs are due Friday October 3rd @ 11:59pm
- Retake Exam: Friday October 10th @ 6:30pm
- Office Hours, every M-Th 7-10pm in WeH 5419D
- Have a great day!

kthxbai