8/31/2009

Recitation 0

15-213/18-243
Course Web Site

- http://www.cs.cmu.edu/~213
- Everything is here.
- Bookmark it.
- Best first source of information.
- Email staff at 15-213-staff@cs.cmu.edu
Office Hours

- Mon 1:00-2:00, Ganger, CIC 2208
- Mon 4:30-5:30, Harbuck, GHC 4122 or 4126
- Tue 3:00-4:00, Tuttle, WW Cluster
- Tue 4:00-5:00, Tessa Eng, GHC 4122 or 4126
- Wed 1:00-2:00, Pitelka, WeH 5205
- Wed 3:30-4:30, Dannenberg, GHC 7003
- Wed 4:30-5:30, Stangl, WeH 5205
- Thu 5:30-6:30, Martin, WEH 5419A
- Fri 4:00-5:00, Primero, WW Cluster
Questions?
Get an account.

https://autolab.cs.cmu.edu/15213-fog/autolab.pl

Message Board

Class Status Page
Fish Machines

- Logging in:
  - /afs/cs/academic/class/15213-f09/bin/checkin

  - ssh -x -l andrewid@ANDREW.CMU.EDU fish.ics.cs.cmu.edu
    - Capitalization is important.

- These machines are 64 bit machines. This means sizeof(void*) = 8 bytes.
# Sizes of C Objects (in Bytes)

<table>
<thead>
<tr>
<th>C Data Type</th>
<th>Typical 32-bit</th>
<th>Intel IA32</th>
<th>x86-64</th>
</tr>
</thead>
<tbody>
<tr>
<td>unsigned [int]</td>
<td>4</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>int</td>
<td>4</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>long int</td>
<td>4</td>
<td>4</td>
<td>8</td>
</tr>
<tr>
<td>char</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>short</td>
<td>2</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>float</td>
<td>4</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>double</td>
<td>8</td>
<td>8</td>
<td>8</td>
</tr>
<tr>
<td>long double</td>
<td>-</td>
<td>10/12</td>
<td>10/12</td>
</tr>
<tr>
<td>char*</td>
<td>4</td>
<td>4</td>
<td>8</td>
</tr>
</tbody>
</table>
Questions about Lecture

- Two’s Complement representation of -1
- \((-1) \times 0011 =\)
- What is Tmax? Binary representation:
- What is Tmin? Binary representation:
- Shifts: Right/Left, Arithmetic/Logical
Questions about the Lab

- Unzip in unix.
  - `tar xvf datalab-handout.tar`
- Bang returns 0 if x is not equal to zero, 1 if x is equal to zero.
- Any other questions about the puzzles?
Masking

- Have 8 bit number \( x = 45: \) 0010 1101
- Only care about bits 4 5 6.
- \( y = x \& 56 \) (What is the bit pattern of 56?)
- \( y \) has only the 4\(^{\text{th}}\) 5\(^{\text{th}}\) and 6\(^{\text{th}}\) bits of \( x \). Rest are set to zero.
- How could you mask to get only the 7\(^{\text{th}}\) bit?
Sample Puzzle

/* * bitParity - returns 1 if x contains an odd number of 0's
* Examples: bitParity(5) = 0, bitParity(7) = 1
* Legal ops: ! ~ & ^ | + << >>
* Max ops: 20
* Rating: 4
*/
Ideas for debugging Datalab

- Using an if statement to select only the interesting case to print out.
- Commands offered
  - btest –f
  - fshow
  - ishow
- `printf("\%x", intvar); /*Prints out the value of the number stored in intvar in hexadecimal.*/`
Final Questions?
GO START THE LAB!