Recitation 1:
C Primer #1

Thursday, January 22nd, 2015

Administrative (1/4)

- Class Website
  - All class information
- Class Moodle Site
  - Forum
  - Submission

Administrative (2/4)

- CSE Lab account
  - Use your X500 username and password
  - Contact operator@cselabs.umn.edu for any problems

Administrative (3/4)

- Accessing CSE machines
  - Windows: use Putty, or …
  - Unix(linux + Mac): regular terminal
  - GUI: X-forwarding (usually slow)
- More information
  - http://help.cs.umn.edu/offsite/ssh
  - http://cselabs.umn.edu/labs/unix_machines

Administrative (4/4)

- SSH (Secure Shell)
  - ssh <username>@<machine_name>
    - *ssh randy@kh2170-01.cselabs.umn.edu*
    - *ssh -X randy@kh2170-01.cselabs.umn.edu*
- SCP (inter-domain copying)
  - Preferably small files.
  - *e.g. scp main.c randy@kh2170-01.cselabs.umn.edu:~/main.c*

    (copy main.c from current local directory TO remote account's home directory)

Other Useful Linux Commands

- cd : change directory
- ls : list files in the directory
- mkdir : create a new directory
- mv : rename a file or a directory
- rm –rf : delete a file or a directory
- grep : find a given string in file(s)

Writing a C program (1/7)

1. Write the program using a text editor (not word processor) of your choice (emacs, vim, vi, pico, gedit, etc…)

2. Save your file with a .c extension.
e.g. helloworld.c

3. Compile your program:

```
% gcc -Wall -o helloworld helloworld.c
```

4. Run your program and see if it works:

```
% ./helloworld
```

Writing a C program (2/7)

- if conditional

```
int i;
if (i == 0) {
  printf("hello, school\n");
} else {
  printf("Hello, Class\n");
}
```

```
int i;
if (i == 0) {
  printf("hello, school\n");
} else if (i == 1) {
  printf("Hello, Class\n");
} else {
  printf("Hello, World")
```

Beware: if (i == 0)… is different than if (i = 0)…;
One is a comparison while the other is an assignment.

Writing a C program (3/7)

- If Statement Tips:
  - If (*expression*) equals to if (*expression != 0*)
  - Use braces to avoid ambiguity

```
if(cond1)
        if (cond2) {…}
else
{…}
```

```
if(cond1){
        if (cond2) {…}
        else{…}
}
```

Writing a C program (4/7)

- for loop

```
int i;
for (i = 0; i < 3; i++) {
    printf("hello testing\n");
}
```

Prints “hello testing” 3 times.

Writing a C program (5/7)

- while loop

```
int i = 0;
while (i < 3) {
    printf("hello testing\n");
    i++;
}
```

Prints “hello testing” 3 times.

Writing a C program (6/7)

- do…while loop

```
int i = 0;
do {
    printf("hello testing\n");
    i++;
} while (i < 3);
```

Prints "hello testing" 3 times.
Note that it **will** print **at least once**

Writing a C program (7/7)

- switch statement

```
switch(i) {
    case 0:
      printf("Hello, School\n");
      break;
    case 1:
      printf("Hello, Class\n");
      break;
    default:
      printf("Hello, World\n");
      break;
  }
```

Datatypes

C Datatype	Size 32 bit Machine	Size: 64 bit Machine
char	1 byte	1 byte
short int	2 bytes	2 bytes
int	4 bytes	4 bytes
long	4 bytes	8 bytes
long long	8 bytes	8 bytes
float	4 bytes	4 bytes
double	8 bytes	8 bytes
long double	12 bytes	16 bytes

code: **datatype.c**

Datatype – Format Strings

Datatype	Format String
char	%c
int	%i, %d
unsigned int	%u
unsigned int (hex)	%x
unsigned int (octal)	%o
double (also for float)	%f
double (always scientific)	%e
double (sometimes scientific)	%g
string (null-terminated)	%s
pointer (hex)	%p

Boolean?

***code:* datatype.c**

lab0: Following Instructions + Submission

- Write a short *C program that prints* your ***full name*** and ***major,*** *each on a newline as follows:*

```
% ./aboutme
Emery Mizero
Computer Science
```

- name this program aboutme.c
- Create a text file "readme.txt" and provide your full name and your x500 (Reminder: use text editor, NOT word processor)
- Using the assignment link (Lab0) on Moodle, submit the two files individually by Monday, January 26th at 11:55pm
- Successful submissions will earn 1 extra credit point towards labs – that is 1% of one lab's total.
- All electronic submissions for this course will be made through moodle.

Next Week

- Pointers