Announcements

• If you are getting errors for the extra credit, try downloading the wrapper program again; it had a bug in it, which I fixed on Wednesday
• Slides and such will be up on Canvas sometime today
• There will be a full, detailed exposition of ptrstew.c on Canvas in that upload
• This weekend, I will put up information about the midterm, which is on May 5 (two weeks from today)
Command-Line Arguments

• Command is loopy 5 9

• Declaration of main function:

\[
\text{int main(int argc, char *argv[])}
\]

• Sometimes written as:

\[
\text{int main(int argc, char **argv)}
\]

number of arguments (command is argument 0)

list of arguments (in array of char pointers)
Visually:

```
argv

argv[0]  l o o p y \0
argv[1]  5 \0
argv[2]  9 \0
argv[3]
```
Passing Strings as Arguments

• Function prototype:
  
  `strfunc(char *, char *)`

• Actual call (x, y are strings):
  
  `strfunc(x, y)`

• Function definition header:
  
  `strfunc(char *first, char *second){`
String Idioms

• These mean the same thing when used as function arguments:

    char *x
    char x[]
Common Ways to “Walk Down” Strings

```c
char c = "hello";
char *cp = &c;

while(*cp != '\0')
    printf("%c", *cp++);
printf("\n");
```
Another Idiom: Copy a String

char c = "hello";
char cd[100];
char *cp = &c;
char *cpd = & cd;

while(*cd++ = *c++)
    ;
But...

• It’s better to use `strcpy` or `strncpy`
  • Because these may be faster, using assembly language optimizations
  • Also they are easier to understand!
Types of Characters

#include <ctype.h>

isprint(ch)  check for printing characters
isspace(ch)  check for space (for example, space, ‘\n’, ‘\t’)
isalpha(ch)  check for (capital or small) letter
isdigit(ch)  check for a digit (‘0’ ... ‘9’)
isalnum(ch)  same as isalpha(ch) || isdigit(ch)

• Note: ch is a character (technically, EOF or unsigned char)
• Returns 0 if above check fails, non-zero if not
Converting Chars to Numbers

• Convert printing char to integer
  • \text{ch} – ‘0’

• Convert integer (between 0 and 9 inclusive) to printing char
  • \text{ch} + ‘0’

• Find out which number a letter of the alphabet is
  • \text{ch} – ‘a’ (for lower case), \text{ch} – ‘A’ (for upper case)

• Find out which letter of the alphabet a number between 0 and 25 inclusive) is
  • \text{ch} + ‘a’ (for lower case), \text{ch} + ‘A’ (for upper case)