Details of Pointers

10-24-2006

Opening Discussion

- What did we talk about last class?
- Do you have any questions about the reading?
- Do you have any questions about the assignment?
- Our input function to scan in values for gas price calculation.

Pointers to Pointers

- We have mentioned that you can make pointers to pointer, pointer to pointers to pointers, etc., but what use do such a constructs have?
- A pointer to a pointer is typically called a handle and we pass them around if we feel there might be a need to change what the pointer points to.
- These constructs can also function in a similar way to multidimensional arrays, but we'll see how that works later.

Command Line Arguments

- Earlier I considered telling you how to pass extra information into your program through command line parameters.
- To make this work you must list two input arguments for main. One is an int. The other is a char**. The int tells you how many arguments you have. The char** is basically an array of strings holding the arguments.
- Let's put this into code.

Types of Pointers

- When you assign one pointer to another, they types have to match (with one exception).
- This is a good thing because you would hate to accidentally make something that points to a double into a pointer that things it points to ints. The result would be garbage.

The void* Type

- The one exception to pointer types having to match is the void pointer. Any pointer can be assigned to a void*.
- A void* doesn't know the size of what it points to, it only knows that it stores an address. As such, pointer arithmetic on a void* is undefined.
- Using void* is how one emulates polymorphism in C. We won't really worry about that in this course, but it is worth knowing if you go on to PAD2.

Typecasts of Pointer

- The interesting thing about C is that it isn't really completely type-safe. It won't let you store a pointer to a double in a pointer to an int, unless you force it to.
- You can do type-casting of pointers and this will allow you to convert any pointer to whatever type you want.
- Let's play with this some. It can actually let us explore the way the numeric values are laid out in memory on these machines.

Minute Essay

- Do you feel that you understand pointer? If not, what types of things are foggy?
- Remember that assignment #5 is due on Thursday.