

CS368 Lecture 7

Wednesday 15 October 2014

Reminders:

- P2 due Tuesday October 21

Last class:

- Classes
- Header Files
- More preprocessor commands

Today:

- Constructors
 - Initializer Lists
 - Default Values
- Multi-file compilation
- More on shallow copy and delete

Note about Default Constructors

Constructor Delegation in C++11

Avoiding constructors calling other constructors in older C++ versions:

- Default values (below)
- (Private) Helper functions

Initializer Lists

Shorthand way of initializing class members

```
AddressBook::AddressBook() :  
    bookName("Unnamed"), numContacts(0),  
    head(NULL), tail(NULL)  
    {}
```

```
AddressBook::AddressBook(string name) : AddressBook()  
    { bookName = name; } // only in C++11
```

Avoiding creation of extra memory space for *formal* parameters.

Default Values

Fewer constructors

Primitives or constants only

Only at the end of the parameter list

Header: `Fraction(int numer = 0, int denom = 1);`

Source: `Fraction::Fraction (int n, int d) : numer(n), denom(d) {}`

Multi-File Compilation

Header files are *included*, not “compiled.”

Can compile all source files independently and then link, or compile everything together.

```
g++ -c AddressBook.cpp
g++ -c main.cpp
g++ main.o AddressBook.o -o AddressBookExecutable
./AddressBookExecutable
```

Shallow Copy and Delete

On Your Own

- Try initializer lists
- Try constructor delegation
- Try assigning default values