Lab 4
Preview

12 September 2023

This week the lab will focus on experimenting with C++ pointers and understanding how they work. Before you come to lab, you should copy and write the code described below, and answer the questions analysing that code (in your notebook is fine).

Cards to play with

We've been using the example of a playing card class, and in the lab we'll continue with it. To get us started, I've put an upgraded version of that class in `/home/shared/162/lab4/` to save you some typing. Copy those files into the directory you create for this lab.

Look at the files, but don't modify them. (From vim, if you haven't changed anything and type `:q`, this quits without saving. If you accidentally make changes inside vim, and still want to exit without saving, you can type `:q!` to indicate that you really mean to quit without saving.) Read the parts of the code that are new, and make notes of anything you want to ask about (there will be time for this at the start of lab, and there are definitely at least a couple techniques and C++ features that are probably new to you).

Constructing

Create a new file that you will call `cardmain.cpp`, and set it up to have a `main` function in the usual way (with `#include` lines and so on). In addition, be sure to `#include <memory>`. Type this in as the body of `main`:

```cpp
Card* a = new Card (7, Card::SPADE);
shared_ptr<Card> b = make_shared<Card> (7, Card::SPADE);

cout << a->toString() << endl;
cout << b->toString() << endl;
```

Compile the program (remember that you'll need to compile it together with `Card.cpp`) and run it. You should see

```
7S
7S
```

If not, check carefully that you typed what I wrote above, and do your best to remove the error.

Now, look back at those lines above. Identify the three places that this code uses a syntactic feature we've not really seen before this week's readings, and in your notebook, write down what each of them means or does. (You'll probably want to refer back to your book or notes for this.)