CSCI 2270 Lecture Notes

1/28/19

* Dynamic Memory
  + Have to manually allocate and deallocate memory in order to use it
    - int \*p1 = new int [n];
  + When finished with dynamic variable, you must deallocate
    - delete [] p1; //de-allocates memory, does not delete the pointer
    - at this point you can now reuse the pointer p1
* Array Doubling
  + Because dynamic memory is allocated at runtime, an array can be “grown” as needed
  + We can’t request contiguous memory space
  + We can grab a new chunk of memory elsewhere on the heap
  + Have to preform a copy operation from old array to new array
  + Deallocate memory for the first array
  + Then we make old array pointer point to the new array’s address
  + Finally, set the temp pointer to NULL
* Class Review
  + Very similar to a struct but with many more features
  + e.g

class Time{

private:

int hour;

int min;

public:

Time(int h, int m){

hour = h; 🡨 constructor function to initialize values

minute = m;

}

\**member functions\**

}

* Multiple File Compilation
  + Usually, you end up with at least 3 files
  + Header File
    - class definition
      * only prototypes
    - extension is .h or .hpp
  + Implementation File
    - all member function definitions
    - gets extension .cpp
    - no main function
    - need to #include “headerfile.h”
  + Driver File
    - main() goes here
    - need to include header file
* Completion
  + g++ -c Time12.cpp
    - -c means only compile, not link
    - result in object file
    - .o extension
  + To link
    - g++ Time12.o Time12Driver.o