CS 162
Intro to CS II

Review: Classes

Assignment #1

could also pass by ref (int **&a)

- Why does our del example have three splats?

  void del(int ***a);

*a = NULL; we need to set pointer back to NULL!

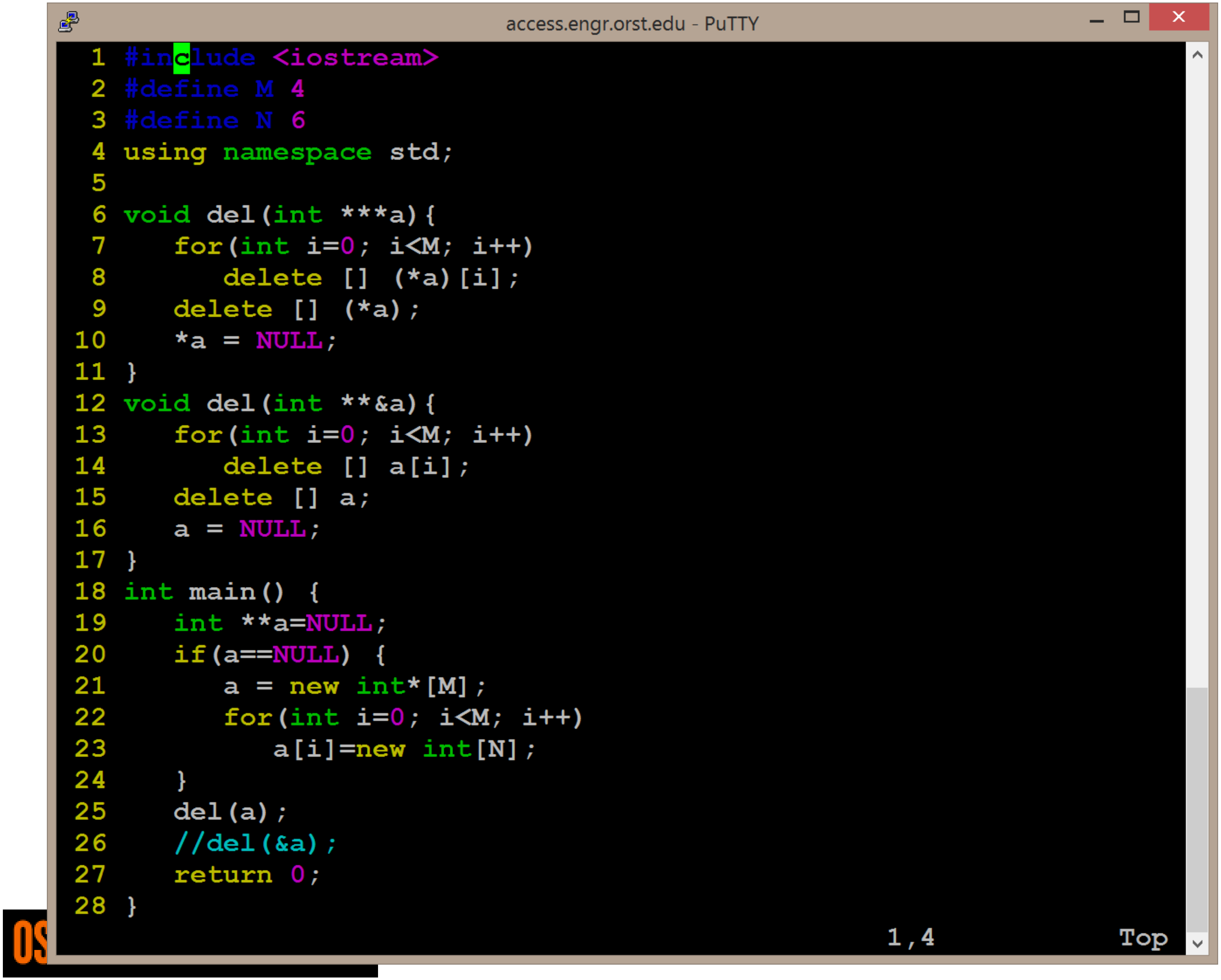
① check that it is NULL before creating

② set it back to NULL, after deleting/freeing

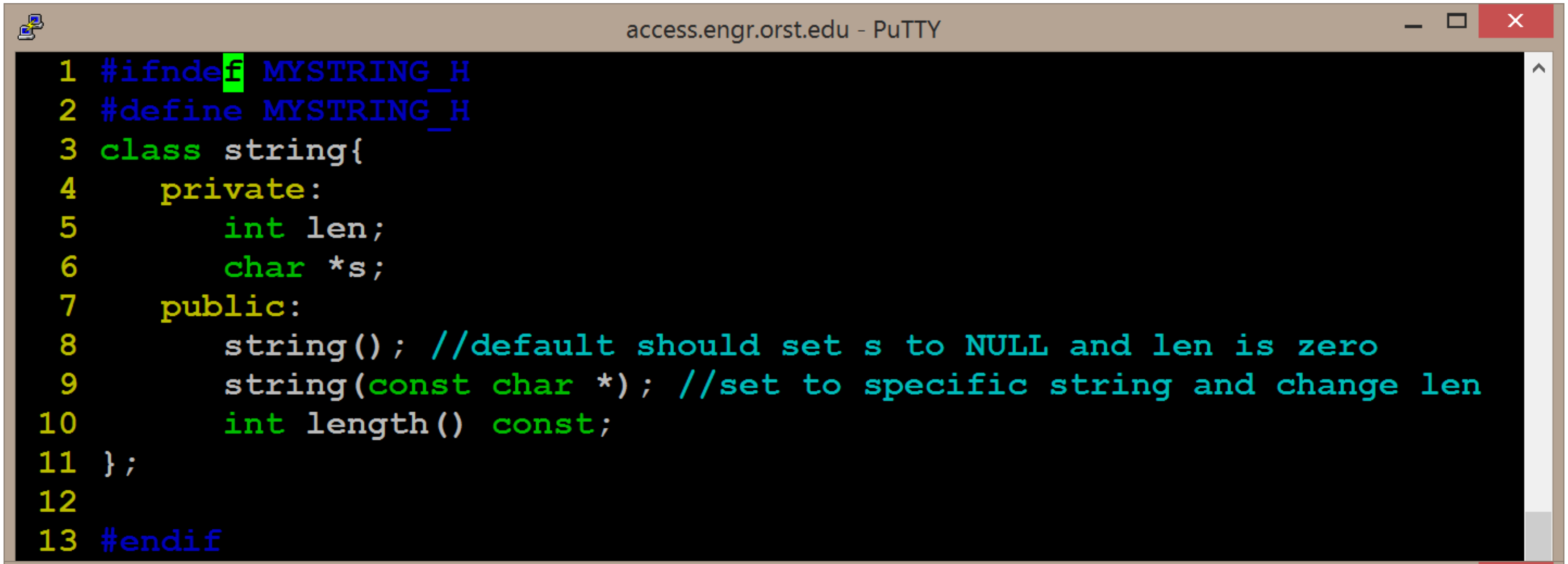
- Why does is_valid_arguments have char *info[]?

is_valid_arguments(argv);

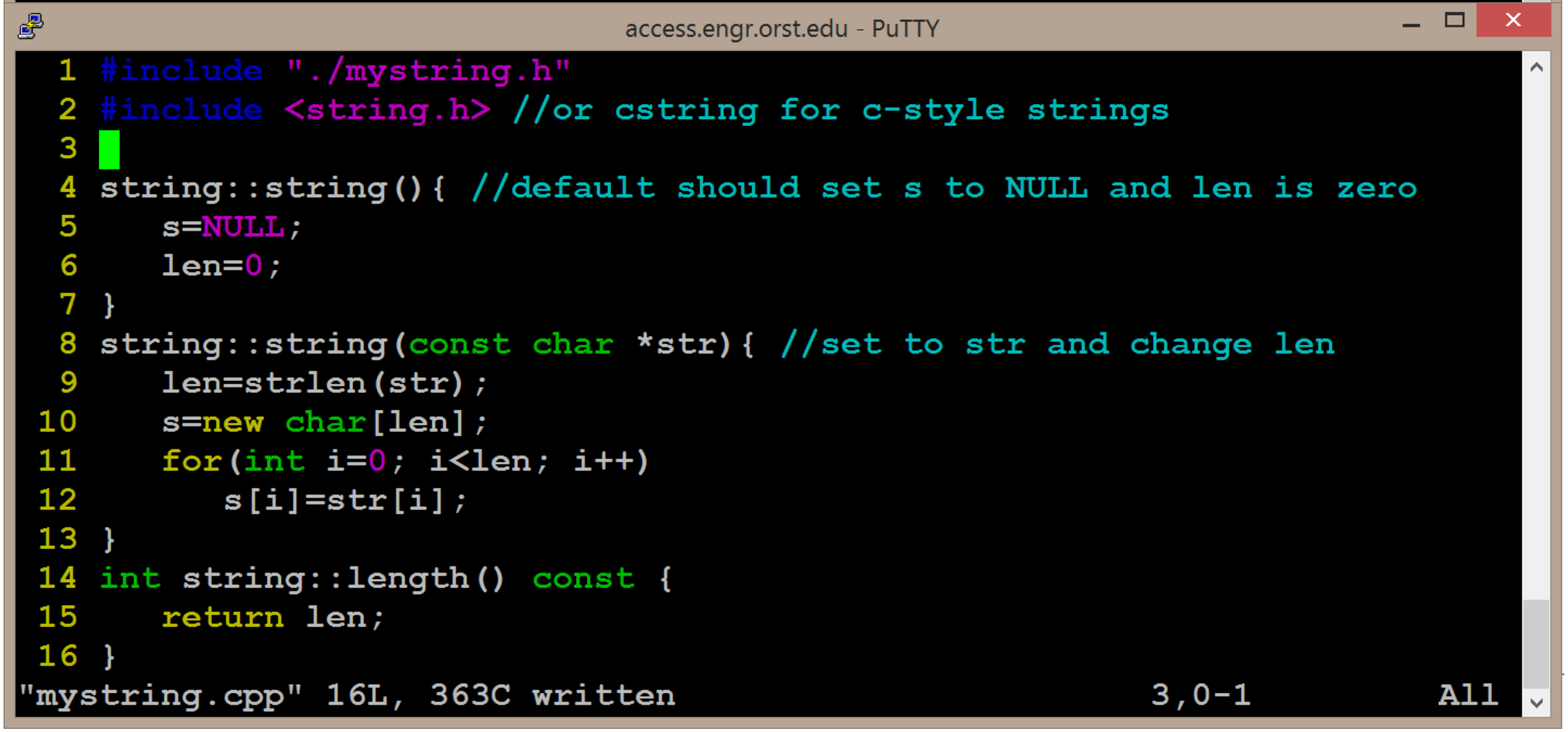
~~&argv~~



```
#include <iostream>
#define M 4
#define N 6
using namespace std;

void del(int ***a){
   for(int i=0; i<M; i++)
      delete [] (*a)[i];
   delete [] (*a);
   *a = NULL;
}
void del(int **&a){
   for(int i=0; i<M; i++)
      delete [] a[i];
   delete [] a;
   a = NULL;
}
int main() {
   int **a=NULL;
   if(a==NULL) {
      a = new int*[M];
      for(int i=0; i<M; i++)
         a[i]=new int[N];
   }
   del(a);
   //del(&a);
   return 0;
}
                                                  1,4           Top
```

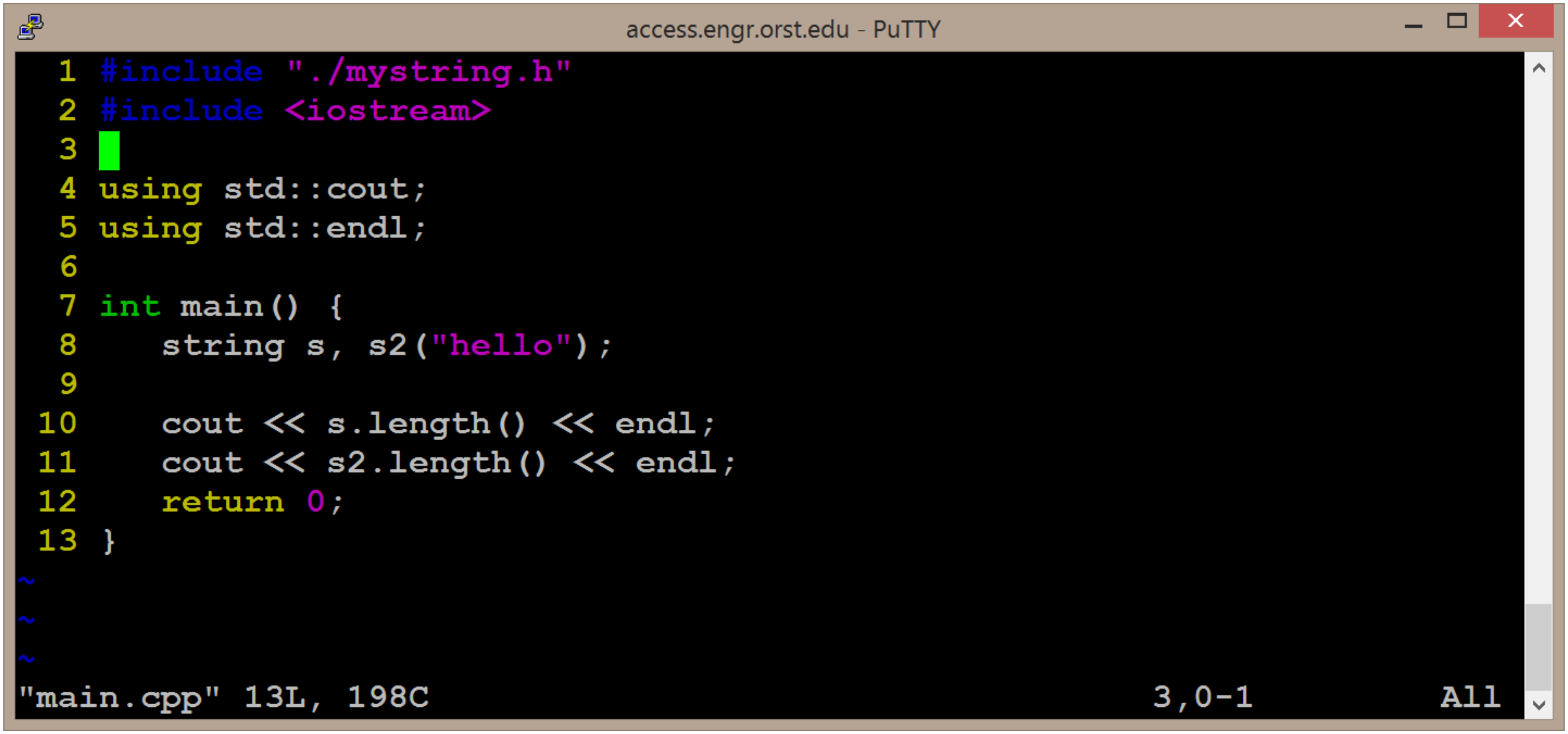


```
#ifndef MYSTRING_H
#define MYSTRING_H
class string{
   private:
      int len;
      char *s;
   public:
      string(); //default should set s to NULL and len is zero
      string(const char *); //set to specific string and change len
      int length() const;
};

#endif
```



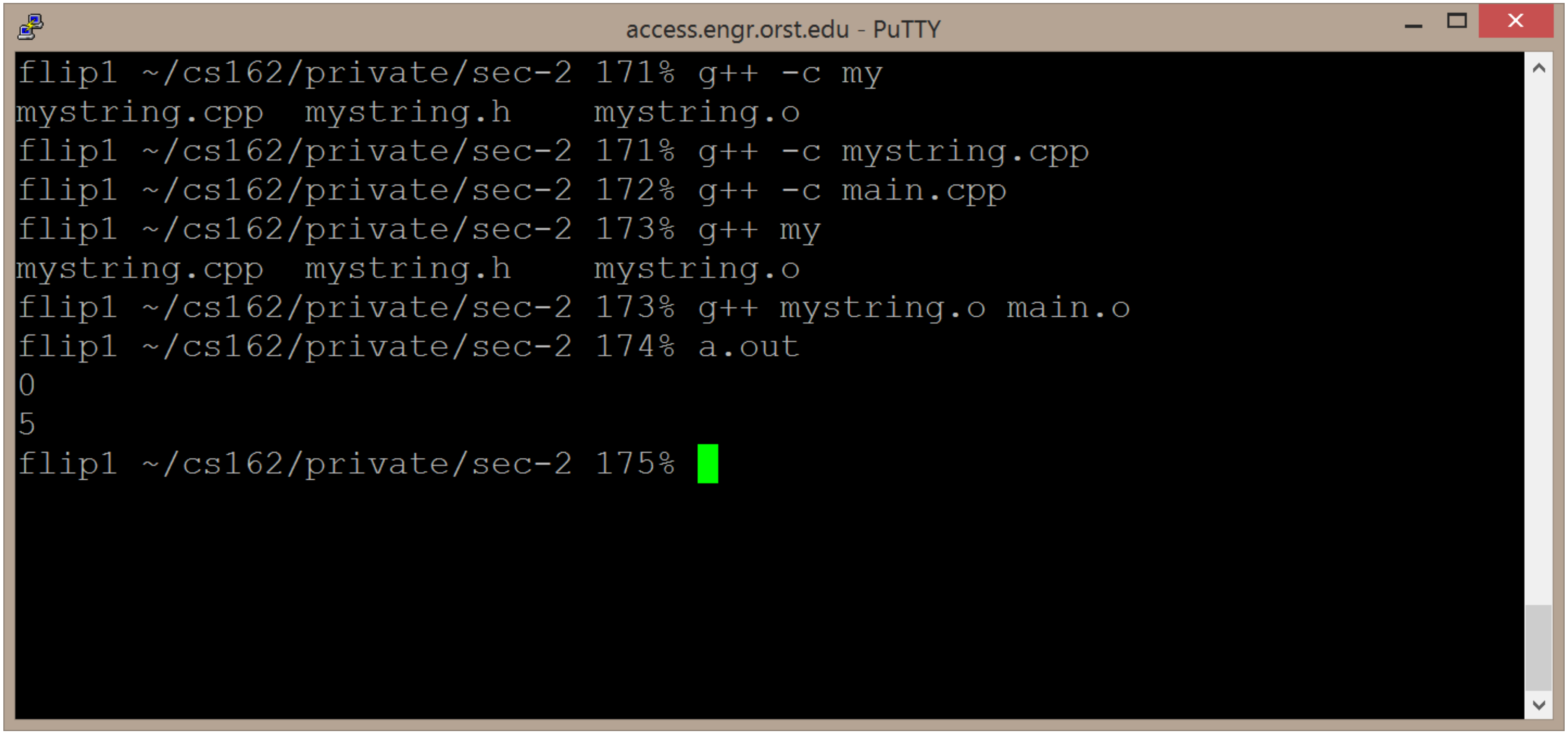
```
#include "./mystring.h"
#include <string.h> //or cstring for c-style strings

string::string(){ //default should set s to NULL and len is zero
   s=NULL;
   len=0;
}
string::string(const char *str){ //set to str and change len
   len=strlen(str);
   s=new char[len];
   for(int i=0; i<len; i++)
      s[i]=str[i];
}
int string::length() const {
   return len;
}
"mystring.cpp" 16L, 363C written                             3,0-1         All
```

Test string class in mystring.h and .cpp



```
#include "./mystring.h"
#include <iostream>

using std::cout;
using std::endl;

int main() {
   string s, s2("hello");

   cout << s.length() << endl;
   cout << s2.length() << endl;
   return 0;
}
~
~
~
"main.cpp" 13L, 198C                                        3,0-1         All
```

Test string class in mystring.h and .cpp



```
flip1 ~/cs162/private/sec-2 171% g++ -c my
mystring.cpp  mystring.h    mystring.o
flip1 ~/cs162/private/sec-2 171% g++ -c mystring.cpp
flip1 ~/cs162/private/sec-2 172% g++ -c main.cpp
flip1 ~/cs162/private/sec-2 173% g++ my
mystring.cpp  mystring.h    mystring.o
flip1 ~/cs162/private/sec-2 173% g++ mystring.o main.o
flip1 ~/cs162/private/sec-2 174% a.out
0
5
flip1 ~/cs162/private/sec-2 175% 
```

What is const vs. static?

- What is const?
  - const int x;   //cannot have as member var
  - void function(const int &x) { … }
  - void function() const { … }
  - When would we want to make a member function const? When wouldn't we?
- What is static?
  - Class variable or function
  - static int x; …. Point::x
- Can have a **static const int x=0;**