

# CS161-020 Final Proficiency Demonstration: Student Handout

1. Pay close attention to these **requirements**:
  - a. No global variables.
  - b. No memory leaks
  - c. No use of help or man.
  - d. No use of the internet.
2. **Wait to begin** until informed by the Proctors.  
You will be **given 50 minutes** from the time the Proctors begin.
3. You are encouraged to **spend time with design**; ask for scratch paper if needed.
4. Begin writing your code using a **Linux editor**
  - a. You may use vi, vim, or emacs as your editor
5. You are also allowed to **compile, test, and debug** your work.  
**g++ -o test test.cpp**  
**./test**
6. If you accidentally freeze your screen by typing ctrl+s, use **ctrl+q** to unfreeze it.
7. **When you are finished**, wait for the Proctor to check you off.
  - a. Give the Proctor all your design and question material.
  - b. Show, compile, and run your program for the proctor.
  - c. Remove your test.cpp file
8. Grading: 10 for passing (fully coding the solution), 1 for non-passing but submitting work, 0 for not present

## Main Template/Libraries for Common Built-in Functions:

```
/* ASCII values:
48-57    //0-9
65-90    //A-Z
97-122   //a-z
*/

#include <iostream>    /* cin, cout, endl */
#include <cmath>       /* pow(), sqrt() */
#include <string>      /* .length(), .at() */
#include <cstdlib>     /* srand(), rand() */
#include <ctime>       /* time() */
#include <cstring>     /* strlen() */

using namespace std;

int main() {
    /* Example use of random numbers */
    srand(time(NULL)); /* seed random generator */
    rand()%10;         /* generates a number between 0 and 9 (inclusive) */

    /* Example use of C-style strings, where s is a C-style string */
    strlen(s); /* gives number of (non-null) characters in string */

    return 0;
}
```