CS 444 Project 1 (Updated)
Due on Tuesday, October 3
Section CS 444-01 at 2:00pm
Section CS 444-02 at 5:30pm

1 Project Description

Write a C program that, given a text file, constructs Huffman code based on the character frequencies of the file contents and then encodes the file accordingly. The executable must accept the following command-line options:

- **-i filename** for the input file – default is **completeShakespeare.txt**
- **-o filename** for the output file – default is **huffman.out**

The reference executable will be ***/home/*hdeblois/cs444/proj1/huffman** on the CS Linux servers, available Sept 18. The test file **completeShakespeare.txt** is in the **proj1** directory. You need to make sure your code works perfectly with it. You can test your implementation with the following commands.

```
./yourExecutable -i completeShakespeare.txt -o yourExec.out
./instructorExecutable -i completeShakespeare.txt -o tmp.out
diff yourExec.out tmp.out
```

If your code works correctly, **diff** will find no difference between the two output files.

2 Grading Rubric

In the **cs444** folder under your courses directory on the CS server, create a folder called **proj1**, and put all your files in there, including C code and a **Makefile**. Prepare a **readMe.txt**, and explain what you have done and special features of your code. You should enter your full name at the beginning of **readMe.txt**, because some user names bear no resemblance to real names. Notice how the uppercase and lowercase letters are used in the file and directory names. You must use exactly the same letters in the names, or else your submission will not be collected. Do not touch any files in the folder after the time they are due. For section CS 444-01, the due time is 2:00pm. For section CS 444-02, the due time is 5:30pm. Late submission gets zero.

- (20 points) **readMe.txt**
- (10 points) **Makefile**
- (10 points) command-line options
- (60 points) correct output for **completeShakespeare.txt**