

CSE 3318-003 Lab Assignment 2

Due March 4

Goal:

Compute a ternary Huffman code tree using a binary heap.

Requirements:

1. Modify <https://ranger.uta.edu/~weems/NOTES3318/huffman.c> for computing a ternary Huffman code tree and outputting it in tabular form. Instead of merging the two subtrees with the smallest probabilities in each round, you will be merging the three subtrees with the smallest probabilities.
2. Submit your C program on Canvas by 3:45 p.m. on Wednesday, March 4. One of the comment lines should include the compilation command used on OMEGA (5 point penalty for omitting this).

Getting Started:

1. Your program should read the input files from `stdin` by using Unix shell redirection (e.g. `a.out<lab2.dat`). By using redirection, it is unnecessary to explicitly open and close the input file, nor should your program prompt for a file name.
2. The first line of the input is the size of an alphabet. This value will be odd and indicates the number of probabilities to be read from the rest of the input, one probability per line.
3. The priority queue routines do not require modification.
4. The number of internal nodes will be smaller than conventional binary Huffman coding. The expected trits per symbol will be smaller than the expected bits per symbol from the original binary version.
5. Since the three branches for an internal node are interchangeable and duplicate weights will lead to differences in the heap processing, it is likely that our outputs will differ. The expected trits per symbol should be the same.