

Huffman coding is an algorithm devised by David A. Huffman in 1952 for compressing text data to make a file occupy a smaller number of bytes. The advantage of Huffman coding is that if a character occurs frequently in the file, such as the letter e, it could be given a shorter encoding (fewer bits), making the file smaller.

Write a computer program, using Matlab, C, or C++, that performs Huffman encoding. Your program should contain methods to read an input text file, count its characters, and use these counts to build a Huffman tree for the characters by frequency. Use this Huffman tree to output an encoded and compressed version of the file. Your program should create a “code table” that gives each character, its frequency, and binary Huffman code. Save this information in an external file called `codetable.txt` where each line of the file is a character and its code. Also, you need to write a report for your project based on the samples that Prof. Vasić sent you before.