

Huffman Code Trees

CS101 Project 4

Due 11/20

You are to write a program that reads three text files given as command line parameters. The first file is an inorder traversal of a Huffman code tree and the second parameter is the postorder traversal of the same tree. The third file is the encoded text, given as ASCII 0s and 1s.

Your program should:

- Compute the Huffman code tree from the two traversals.
- Decode the text, writing the output to standard output (cout).

The format of the inorder and postorder traversals will be integer values separated by whitespace. The leaves of the tree will be values < 128, representing the ASCII value of the letter. The internal nodes of the tree will be values 128 and greater.

Requirements:

- You should build all the data structures that you use yourself.
- Your makefile should build the executable named "decode".
- Zip all of your source code and makefile into a single .zip file for submission.
- You must use good object based organization, i.e. use classes in an appropriate way.

An example run `./decode inorder.txt postorder.txt encoded.txt`

inorder.txt:

66 129 76 128 77 130 65

postorder.txt:

66 76 77 128 129 65 130

encoded.txt:

101010010111

Output should be:

ALABAMA

Another example run `./decode inorder.txt postorder.txt encoded.txt`

Inorder.txt:

10 128 33 134 121 133 117 138 114 135 106 131 71 143 100 140 32 145 101 141
89 130 108 137 99 144 111 142 116 139 120 129 98 136 104 132 46

postorder.txt:

10 33 128 121 117 133 134 114 106 71 131 135 138 100 32 140 143 101 89 108
130 99 137 141 111 116 120 98 129 104 46 132 136 139 142 144 145

encoded.txt:

```
10100110000110110101001011110010100010011111011111010001111101001
11100111001110111100010001010010111110101010001011111100000001111
101100100110011011011110100001
```

Output should be:

You decoded the text correctly.

Good job!