PACKAGES USED IN PROGRAM

The libraries imported in our program are time, tkinter, and pptree.

Note that NONE of these libraries are used to encode, decode, or build binary trees.

The tkinter built-in library is used to build an application window as part of the program's UI.

The pptree library is used to print the binary tree we created (it does not build the tree in any way).

Documentation of the pptree package: https://github.com/clemtoy/pptree

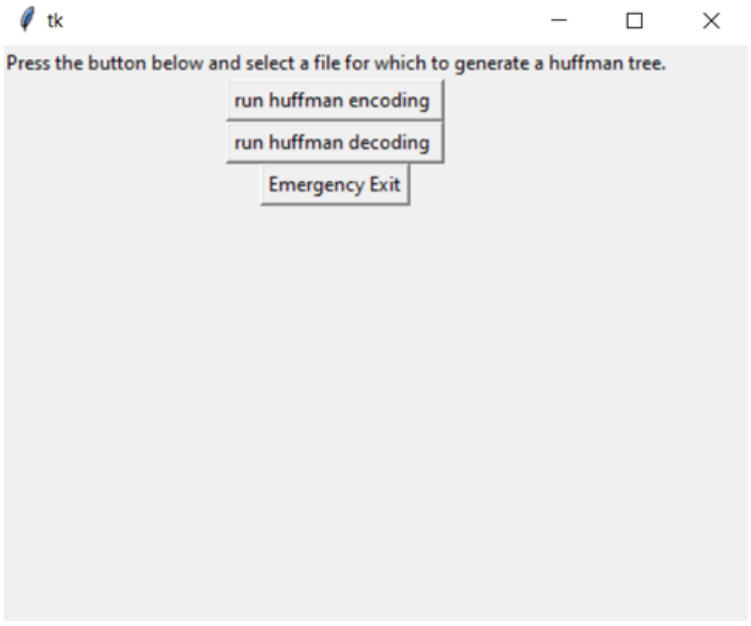
This package can be installed by running pip install pptree in your terminal/console.

HOW TO RUN PROGRAM

Our program is written in a single Python file named HuffmanCodingVisualizer.py

To run the program, open a console/terminal and run python HuffmanCodingVisualizer.py

You will then see the following application window:



First, click the "**run huffman encoding**" button and select a text file to encode. The console/terminal will display a dictionary of codewords and their frequencies in addition to a binary tree. The program will write the resulting encoded string to a file named encodingOutput.txt in the same file as the program.

Back on the application window, you can now click the "**run huffman decoding**" button. Select the encodingOutput.txt file to begin. The console/terminal will display the resulting decoded string and the program will write the decoded string to a file named decodingOutput.txt
Note that Huffman decoding can ONLY be used after Huffman encoding has taken place.

You can exit the program by clicking on the "Emergency Exit" button on the application window.