HW14

1061036S

1. Algorithm:

Basically, my algorithm builds a Huffman code tree like how the algorithm in the course slide does. Yet the difference is that after building the tree, I apply depth-first search for passing through every path from root node to leaf nodes to decide code of each characters. Finally, I can output the encoded string of interest.

Since I use DFS for deciding codes of characters, the running time of my algorithm is O(|V| + |E|), where V represents the set of characters and E stands for the set of edges in the Huffman code tree.

However, during deciding the result, my algorithm searches code of each character in the string of interest in all characters one by one, so that when the size of the string of interest equals number of characters encoded, the running time would be O(|V|^2), where V is the set of characters.