

***** Explanation_3*****

- The Huffman problem used class Node with attributes frequency, char, left, right.
- the implementation keep a dictionary of occurrence of each character.
- for key in dict(characters) the code uses min heap data structure to designated appropriate nodes to the characters.
- the root nodes are popped from the min heap and merged(add the freq and create new arbitrary node) till the length of heap is 1
- This 1 node object is a encoded tree.
- this data is then passed to the decoding function to decode the given data.

Time Complexity:

The time complexity is $O(n \log n)$

Time complexity for huffman_encoding method $\rightarrow n \log n$

Time complexity for huffman_decoding method $\rightarrow O(l)$ where l is the length of code.