

Kesong Xie
CSE 100
Huffman Project

Running Result:

Checkpoint1.txt

```
000110110001101100011011000110110001101100011011000110110001101100011011000110
1100011011
```

Checkpoint2.txt

[illegible]

Huffman Coding Tree:

Construction Process:

First we need to convert the given input message to a frequency counter array, with each position i corresponding to occurrence for the ASCII symbol with its code equals to i .

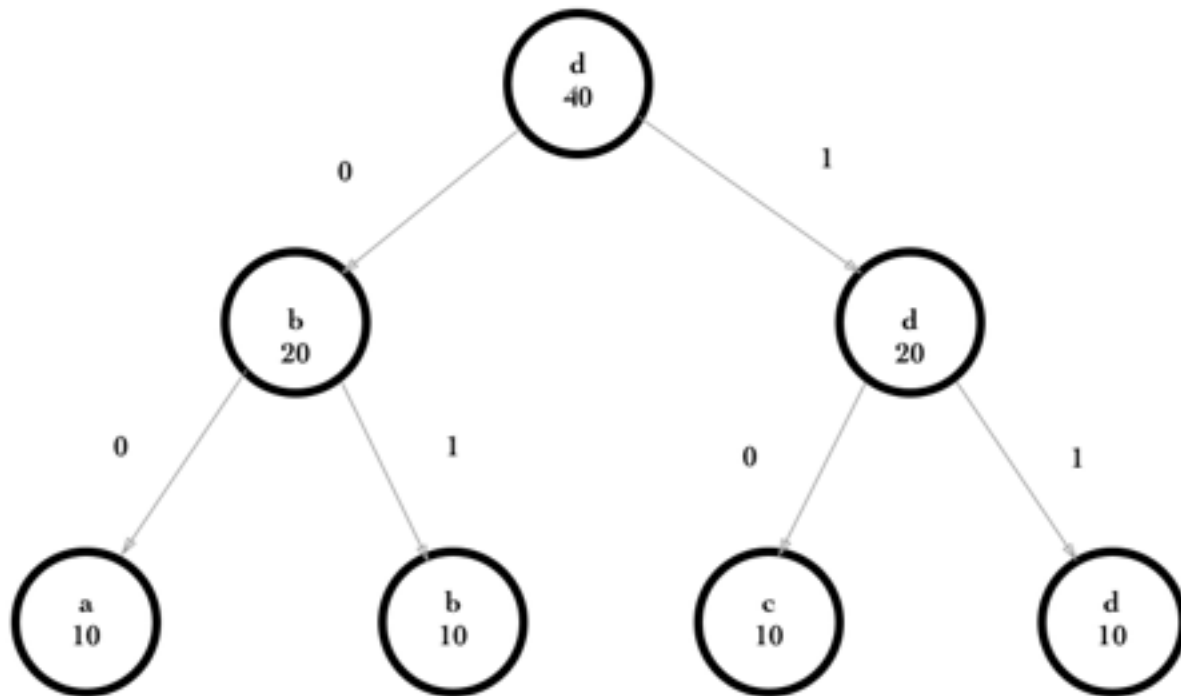
Then, we can construct the Huffman coding tree by repeatedly select the two nodes with least counter (high priority) and contract a subtree out of it, with its root to be a new node, in which the counter equals to the sum of the children node's counter. It would be convenient here to use a data structure like priority queue to perform the selection process.

To find the code for each byte:

Simply traverse the tree from root to the given leaf and concatenate the label with '0' or '1' along the path to find the code for each byte.

Huffman coding tree based on input string:

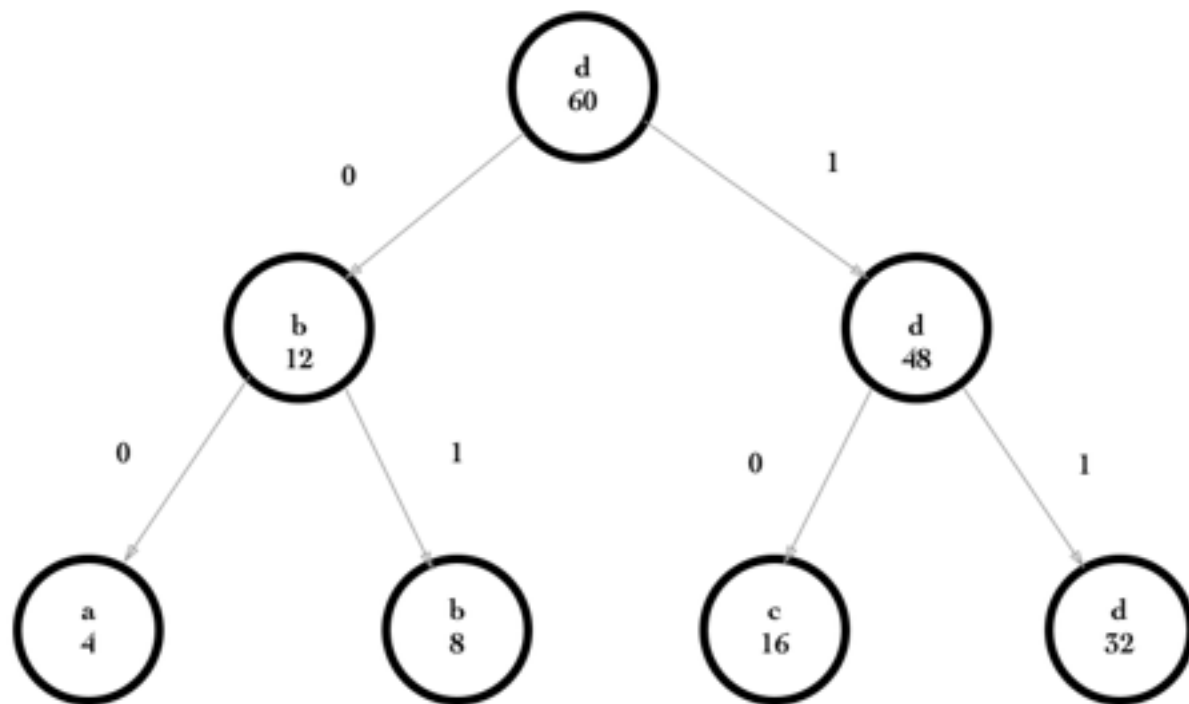
abcdabcdabcdabcdabcdabcdabcdabcd from Checkpoint1.text



Huffman Coding Tree based on input string: abcdabcdabcdabcdabcdabcdabcdabcd

Huffman coding tree based on input string:

aabbbbccccccccddddddddddddddddddddccccccccbbbbbbaa from
Checkpoint2.text



Huffman Coding Tree based on input string: aabbbbccccccccddddddddddddddddddddddddddccccccbbbbaa

The output matches the expected.