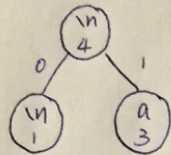


checkpoint1.txt : Frequency : a - 3 , \n - 1

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- ① pick a and \n , and merge. (\n as c0 , a as c1 because our programs always pick the smaller character as left child of mergenode).



- ② Encode the tree and we get : \n = 0 , a = 1

'aaa\n' should be encoded as

1110

• Our program output:

00001010 00000000 00000000 00000000 00000000 00000001 } header
97 = 01100001 00000000 00000000 00000000 00000000 00000011
'a's ASCII code 1110
↓ Huffman code.
'\n's frequency = 1
'a's frequency = 3

The code created by our program and manually are the same.

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-
- ```

graph TD
 h2((h_2)) --- h1((h_1))
 h2 --- o1((o_1))
 h1 --- h((h))
 h1 --- i1((i))
 o1 --- o((o))
 o1 --- i2((i))

```

- 
- ```

graph TD
    n2((in2)) --- n1((in1))
    n2 --- e1((e1))
  
```

- ```

graph TD
 h4((h4)) --- h2((h2))
 h4 --- l2((l2))
 h2 --- h1((h1))
 h2 --- o1((o1))

```

- 
- ```

graph TD
    n6((n6)) -- 0 --> n2((n2))
    n6 -- 1 --> h4((h4))
    n2 -- 0 --> n1((n1))
    n2 -- 1 --> e1((e1))
    h4 -- 0 --> h2((h2))
    h4 -- 1 --> l2((l2))
    h2 -- 0 --> h1((h1))
    h2 -- 1 --> o1((o1))
  
```

- $n:00, e:01, h:100$

Hello 'n' should be: $\frac{1000}{h} \frac{1111}{e} \frac{0101}{l} \frac{01}{n}$

Hello '\n' should be: $\frac{1000}{h} \frac{1111}{e} \frac{0101}{l} \frac{01}{o} \frac{1}{\backslash n}$
 = 10, '\n' s ASCII code

[illegible]

Huffman code created manually and by our code ~~are~~ exactly the same.