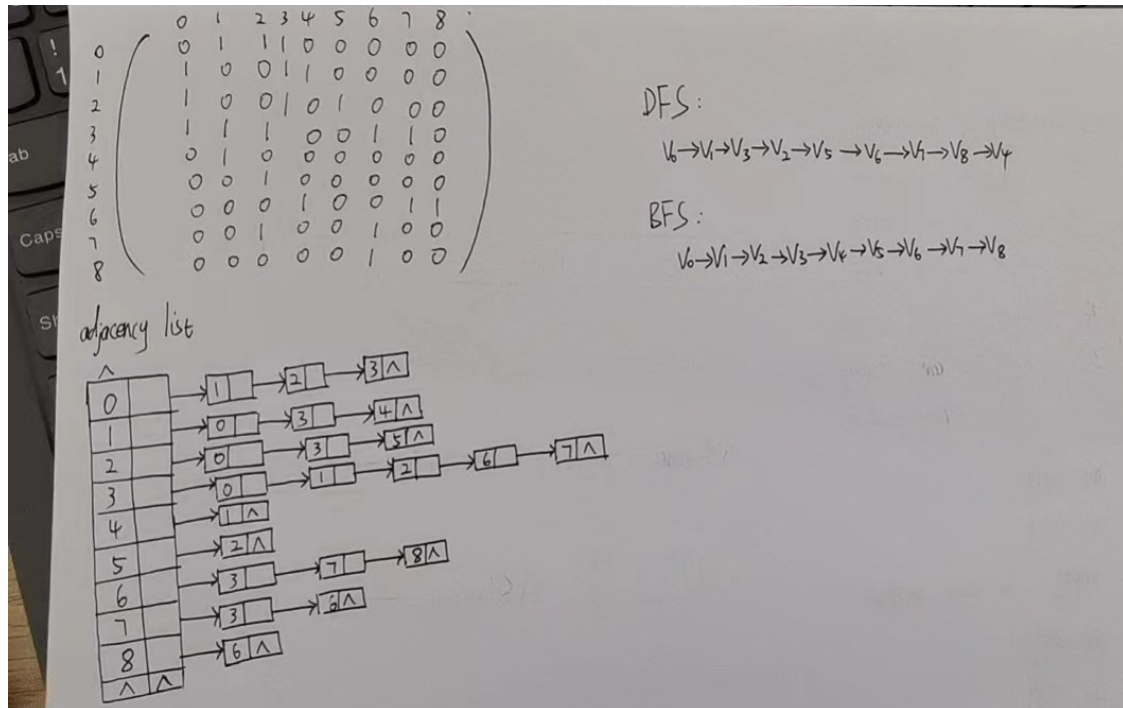


1

可能是对的



2

可能是对的
英文不会写

$$\therefore H(k) = 3k \bmod 10$$

① 32: $H(32) = 96 \bmod 10 = 6$, hash[6] is empty, so can construct.

② 13: $H(13) = 39 \bmod 10 = 9$, hash[9] is empty, so can construct

③ 49: $H(49) = 147 \bmod 10 = 7$, hash[7] is empty, so can construct

④ 24: $H(24) = 72 \bmod 10 = 2$, hash[2] is empty, so can construct

⑤ 38: $H(38) = 114 \bmod 10 = 4$, hash[4] is empty, so can construct

⑥ 21: $H(21) = 63 \bmod 10 = 3$, hash[3] is empty, so can construct

⑦ 4: $H(4) = 12 \bmod 10 = 2$, hash[2] is ^{not} empty, so can't construct.

⑧ $\therefore H(4) = (12+1) \bmod 10 = 3$ not empty

$H(4) = (12+2) \bmod 10 = 4$ not empty

$H(4) = (12+3) \bmod 10 = 5$ empty, so can construct

⑧ 12: $H(12) = 36 \bmod 10 = 6$ not empty

$H(12) = (36+1) \bmod 10 = 7$ not empty

$H(12) = (36+2) \bmod 10 = 8$ empty, so can construct.

0	1	2	3	4	5	6	7	8	9	10	11
		24	21	38	4	32	49	12	13		

$$ASL_{succ} = \frac{1}{8} (1 + 1 + 1 + 1 + 1 + 4 + 3) = \frac{13}{8}$$

$$ASL_{unsucc} = \frac{1}{11} (1 + 1 + 9 + 8 + 7 + 6 + 5 + 4 + 3 + 2 + 1) = \frac{47}{11}$$

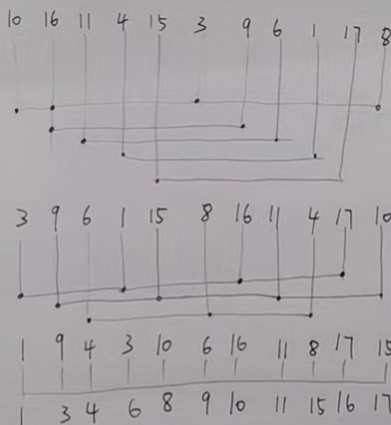
$$\therefore ASL_{succ} = \frac{13}{8} \quad ASL_{unsucc} = \frac{47}{11}$$

3

Shell 排序是对的

归并排序 step 没看懂题意, 抄 chatgpt 的步骤

快排应该是对的



merge sort step:

If the input list contains

① If the array contains only one element, return

② divide the array into two smaller subarrays.

③ sort the left and the right sub arrays recursively using the merge sort

④ merge the left and right sub arrays back together, ensuring that the resulting array is in correct order.

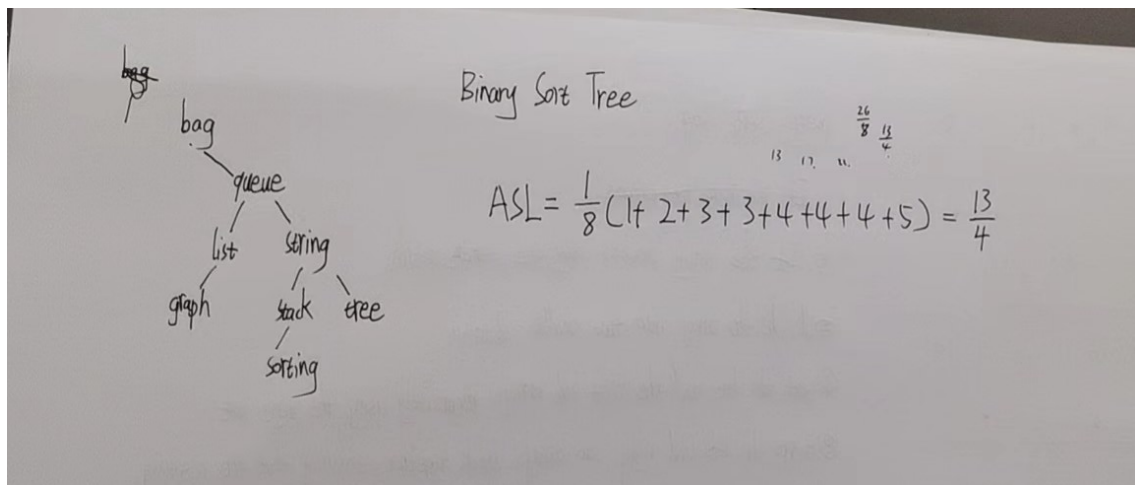
return of first pass of quick sort:

1 3 11 4 15 16 9 6 10 17 8

10 16 11 4 15 9 6 1 17 8
1 3 16 10

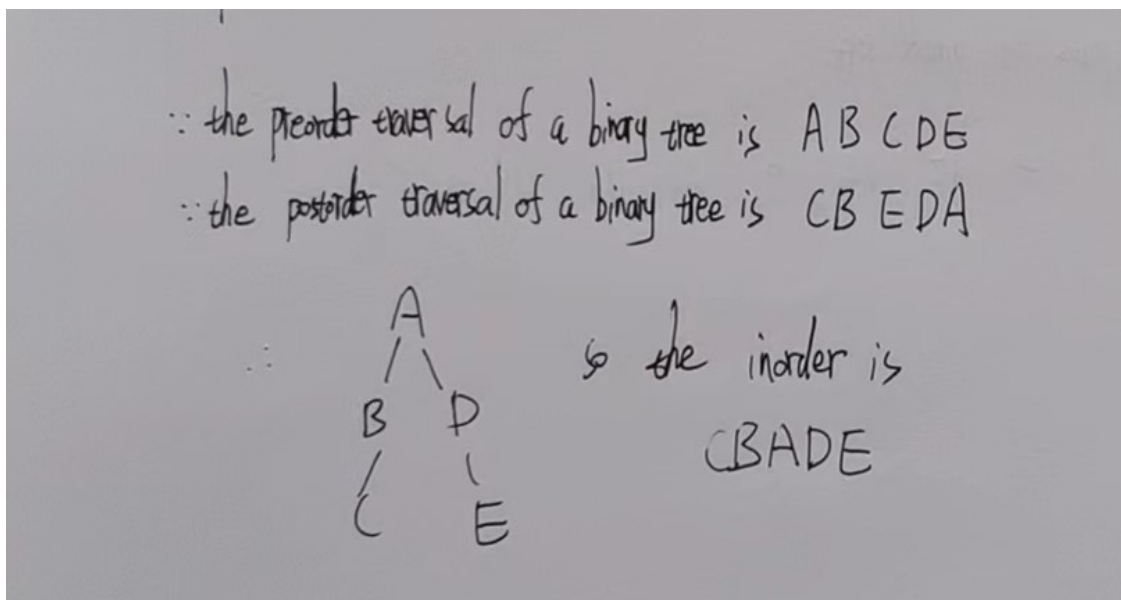
4

大概是对的，字典序我应该会写对的



5

这我真不会，
只有前序和后序是得不到唯一的中序的，
结果不唯一，但是就写了一个。



6

不知道哈夫曼编码是从根节点到叶节点还是从叶节点到根节点，

写的是从根节点到叶节点。

