

HW3 Tree Anagrams

<https://acm.cs.nthu.edu.tw/problem/12768/>

H E A R T
/ / / /
E A R T H



Anagrams

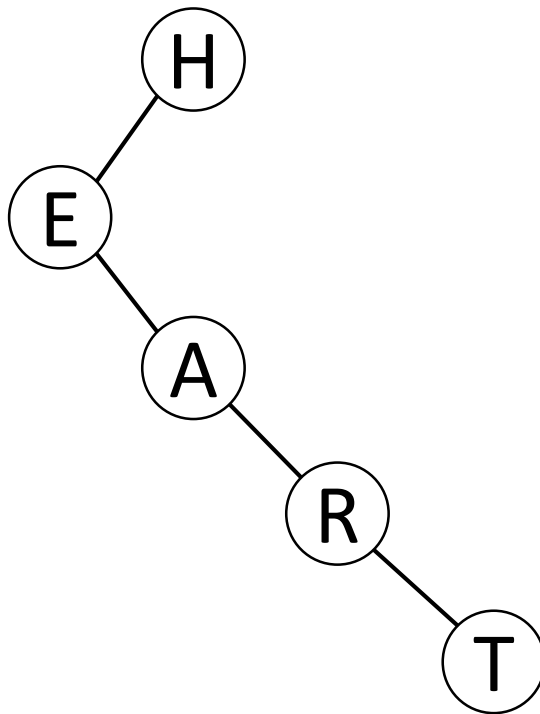
- "變位字" in Chinese

H E A R T
E A R T H



"Tree" Anagrams

- Our definition:



Level-order

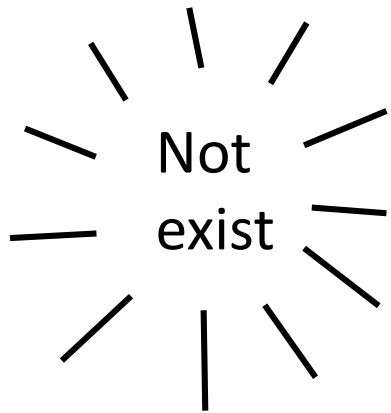
In-order

H E A R T
E A R T H

The diagram shows the level-order and in-order traversals of the tree. The level-order traversal is 'H E A R T' and the in-order traversal is 'E A R T H'. The letters are color-coded: H (red), E (orange), A (green), R (blue), T (purple). Four diagonal lines connect the letters between the two rows: H to E, E to A, A to R, and R to T.

Not All Anagrams are Valid Trees

- If we want "EARTH" to be the level-order sequence and "HEART" to be the in-order sequence, the tree does not exist

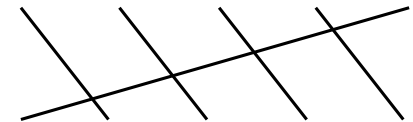


Level-order

E A R T H

In-order

H E A R T



Input

5	Number of sequence pairs
abdcef	} Level-order sequence
adbcef	
abecd	} In-order sequence
ebdac	
adbce	}
dacbe	
abdecfhg	}
efbhcgad	
acbdegf	}
ecdfagb	

(A letter is used exactly once in a sequence)

Output

5		
abdcef		
adbcef	0-2-1-4-3-5	Yes
abecd		
ebdac	3-1-0-4-2	No
adbce		
dacbe	1-0-3-2-4	Yes
abdecfhg		
efbhcgad	6-2-7-0-4-1-3-5	Yes
acbdegf		
ecdfagb	4-1-6-2-0-5-3	No

Same as the input

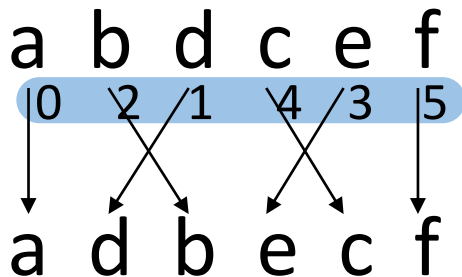
Permutation sequence

Does the tree exist? Yes or No.

Example

Level-order: **abdcef**

In-order: **adbecf** 0-2-1-4-3-5 Yes



The tree does exist

