

1. 첫 번째로 할 일은 위에 보이는 것처럼 손으로 힙 정렬을 수행하는 것입니다.

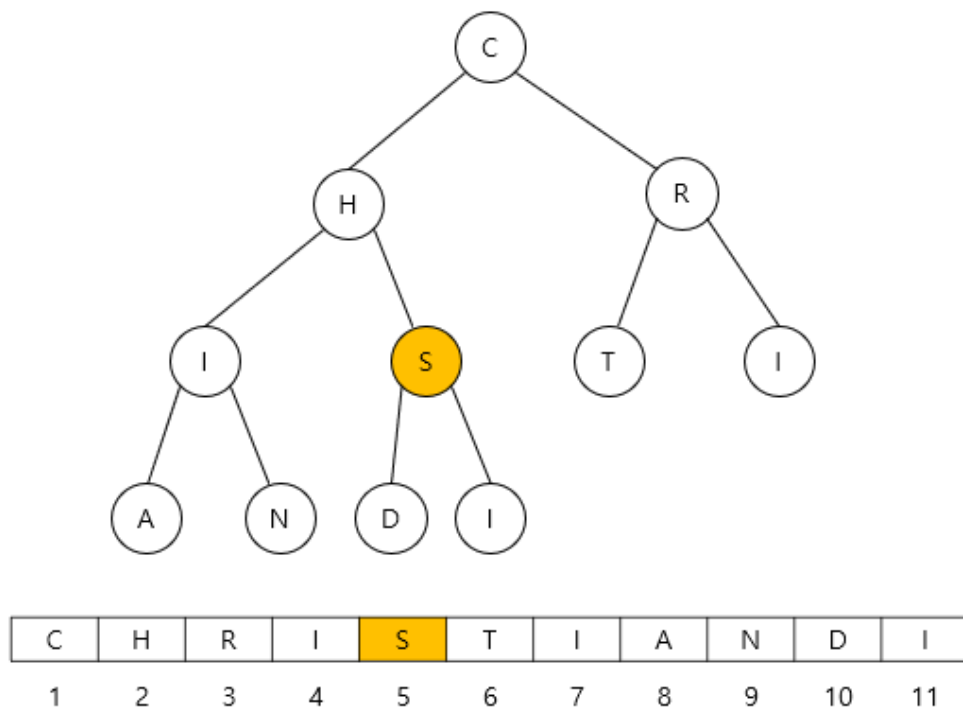
"CHRISTIAN" 뒤에 본인 이름의 이니셜 두 글자를 붙인 단어를 사용하세요.

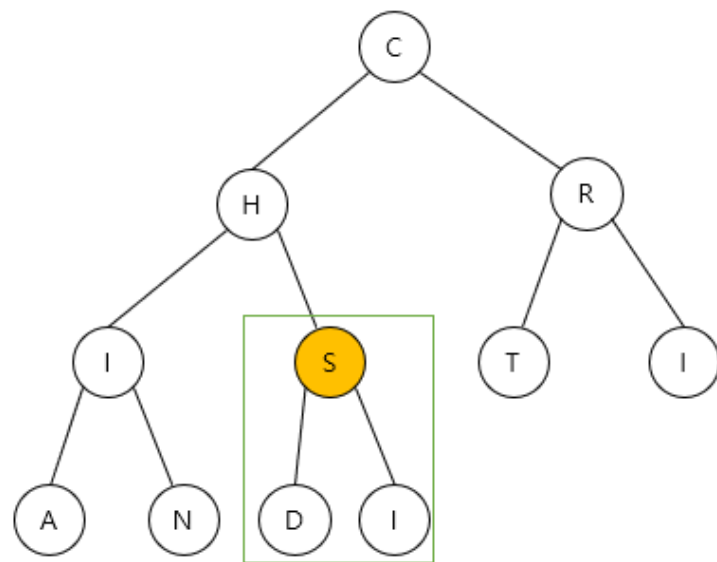
예를 들어, 제 이름의 이니셜은 YS 이므로 제가 작업해야 할 단어는 "CHRISTIANYS"입니다. 자신의 이름이 "한, 동만"이라면 단어는 "CHRISTIANDM"이 됩니다.

2. 질문:

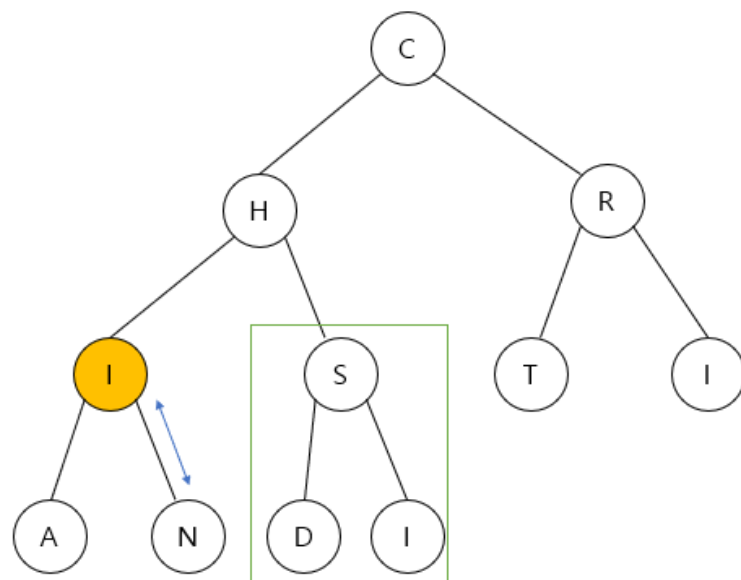
A. 첫 번째 패스에서는 작업할 첫 번째 문자와 두 번째 문자(본인의 이니셜), 그리고 각각 heapify 하는 동안 몇 번 비교하는지 작성하세요:

1st pass: 5, 6 comparisons

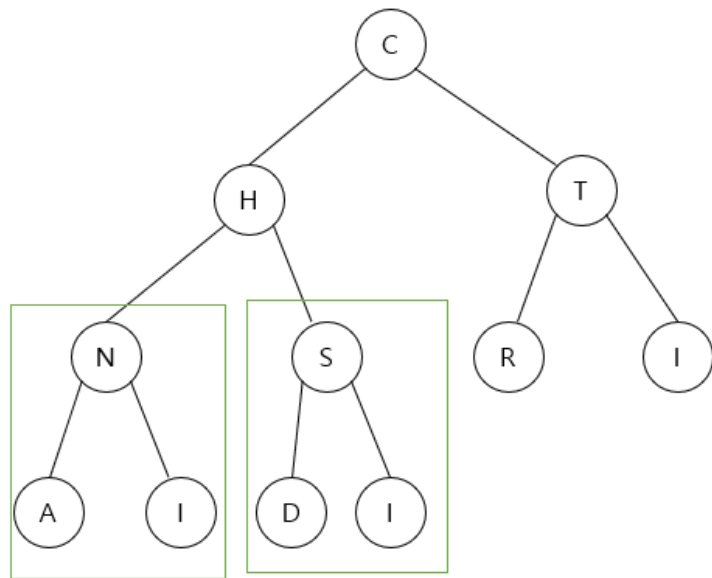




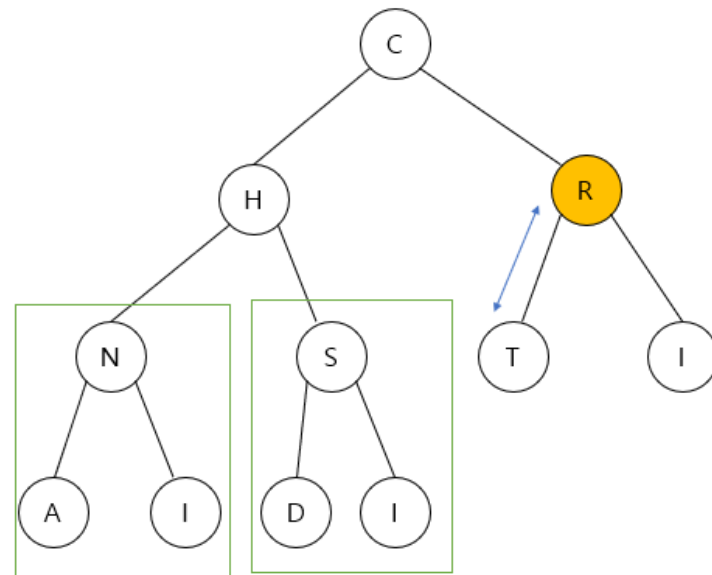
C	H	R	I	S	T	I	A	N	D	I
1	2	3	4	5	6	7	8	9	10	11



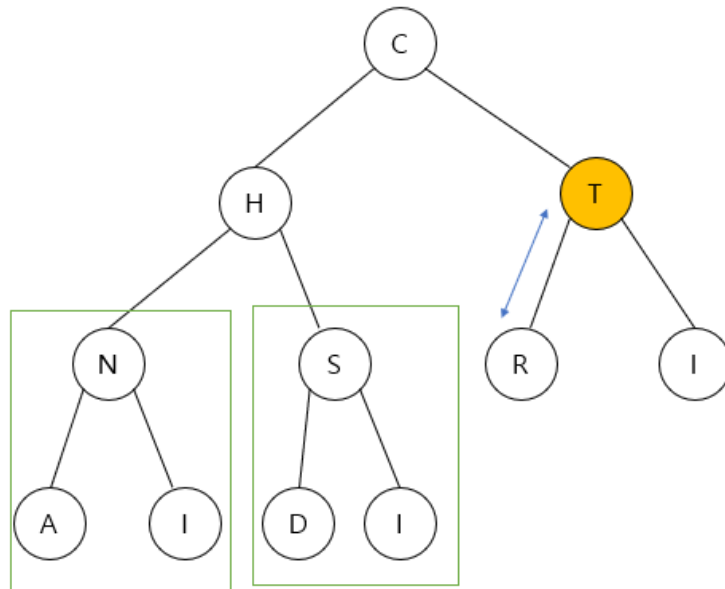
C	H	R	I	S	T	I	A	N	D	I
1	2	3	4	5	6	7	8	9	10	11



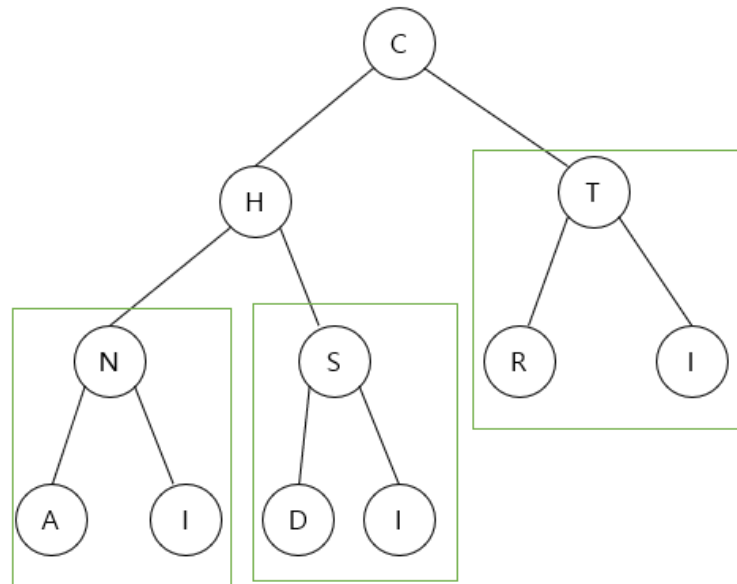
C	H	R	N	S	T	I	A	I	D	I
1	2	3	4	5	6	7	8	9	10	11



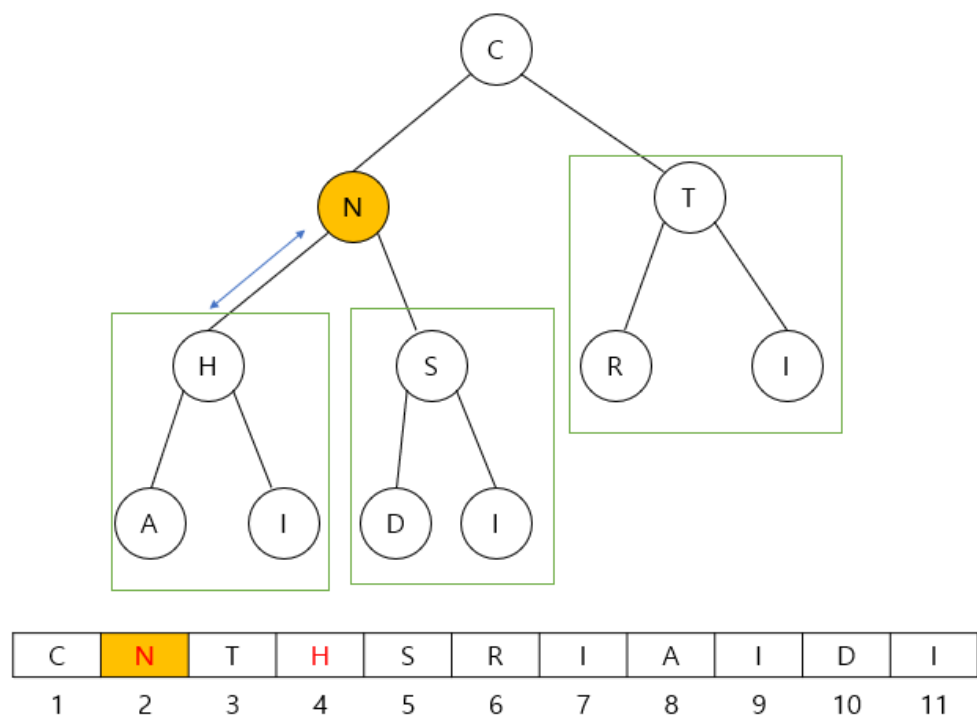
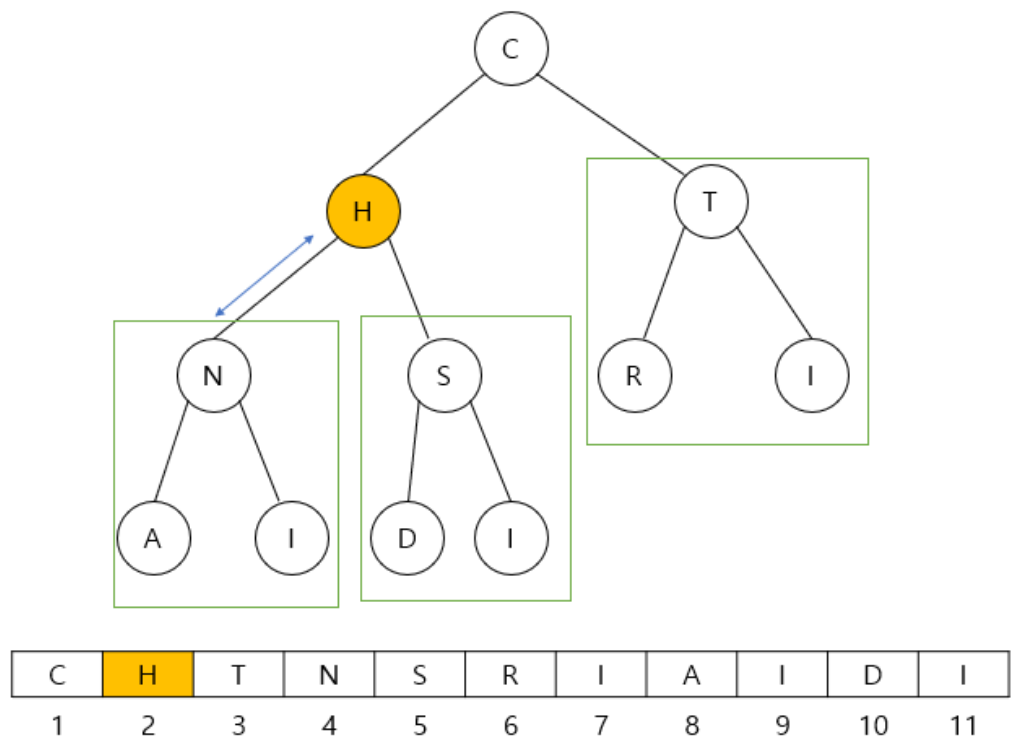
C	H	R	N	S	T	I	A	I	D	I
1	2	3	4	5	6	7	8	9	10	11

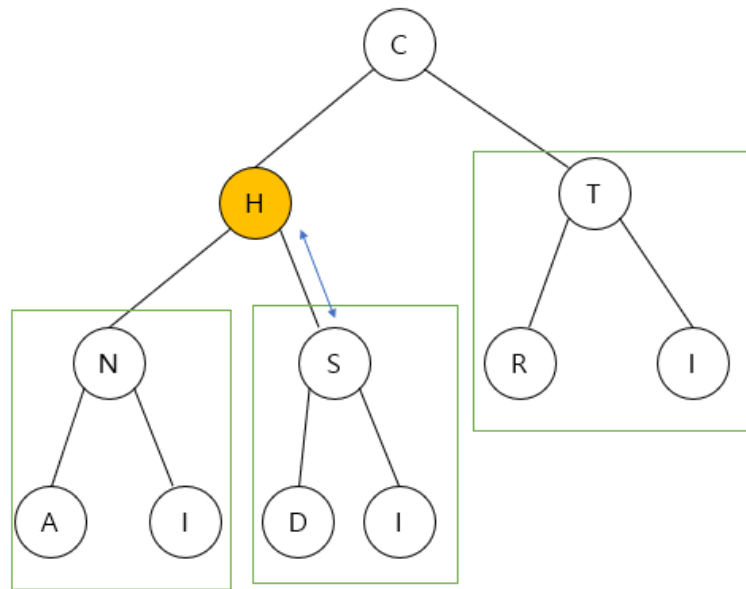


C	H	T	N	S	R	I	A	I	D	I
1	2	3	4	5	6	7	8	9	10	11

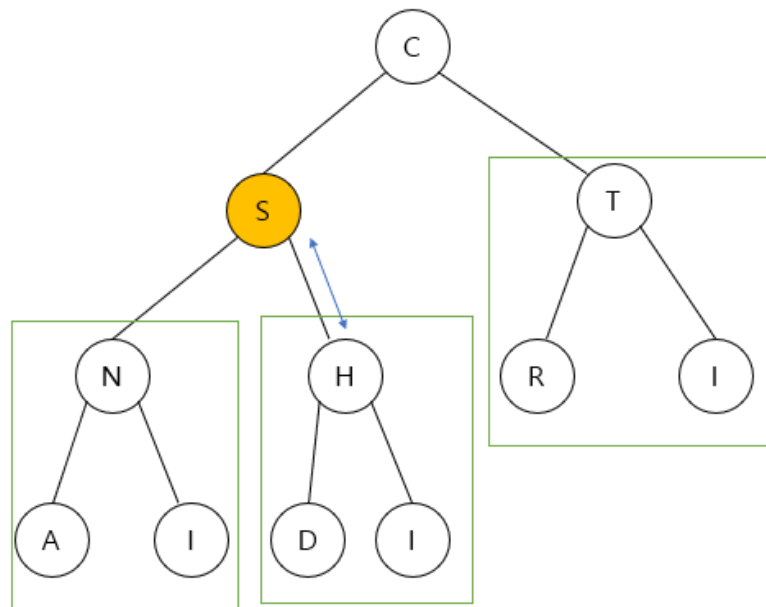


C	H	T	N	S	R	I	A	I	D	I
1	2	3	4	5	6	7	8	9	10	11

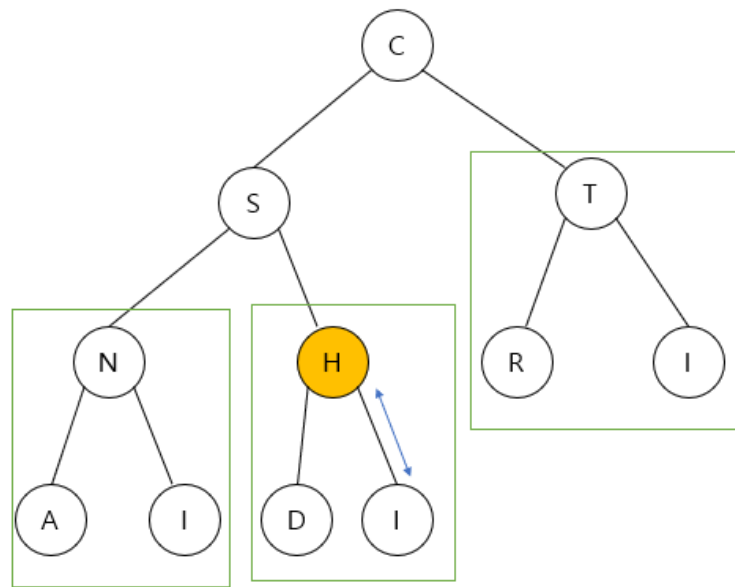




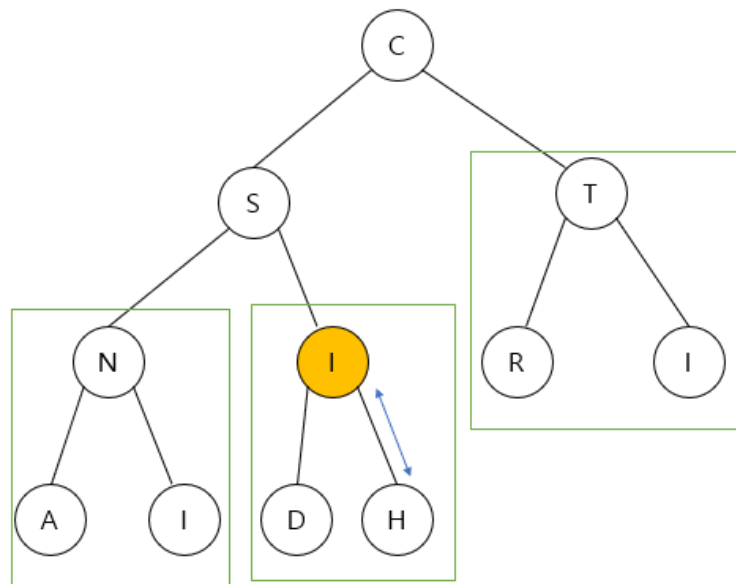
C	H	T	N	S	R	I	A	I	D	I
1	2	3	4	5	6	7	8	9	10	11



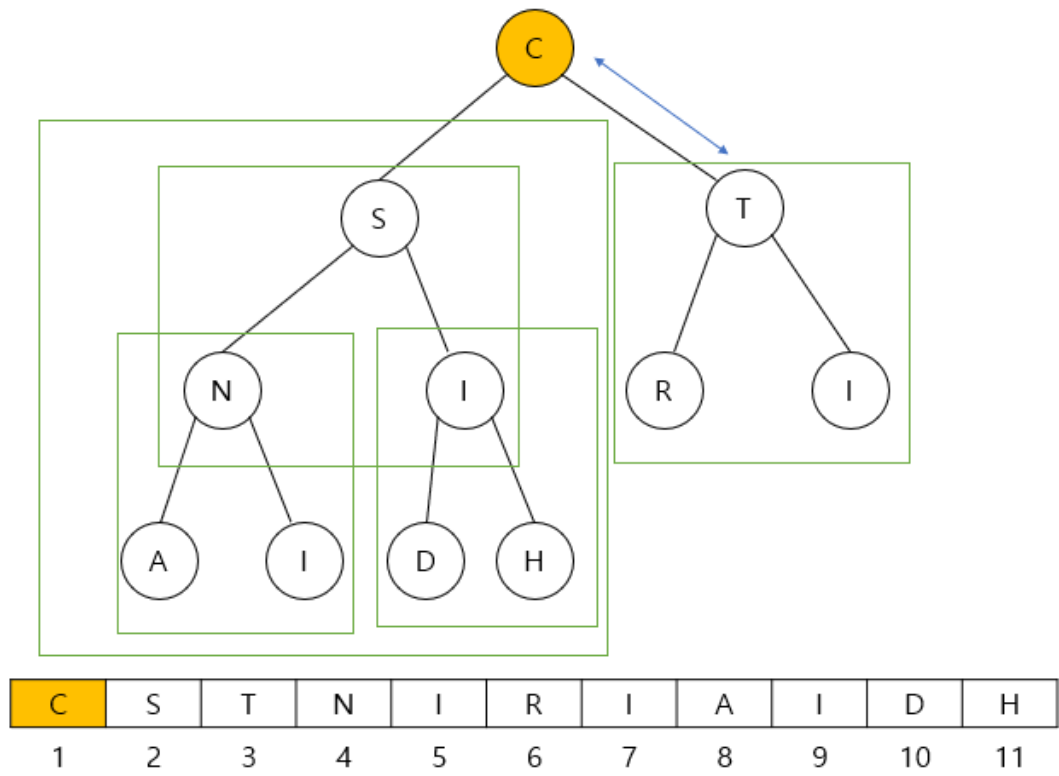
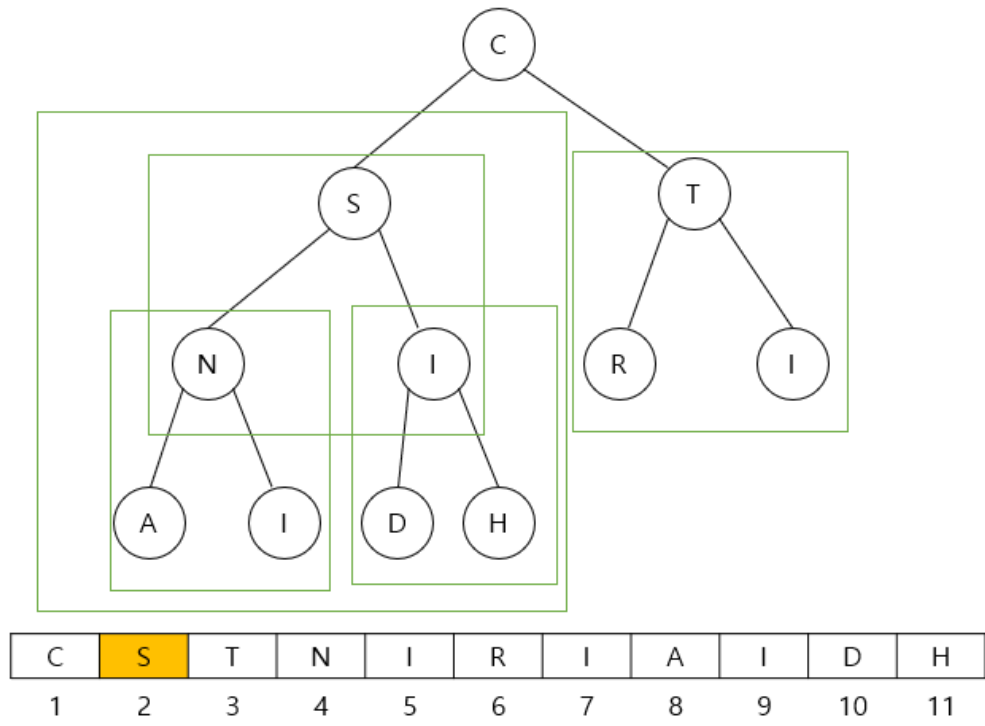
C	S	T	N	H	R	I	A	I	D	I
1	2	3	4	5	6	7	8	9	10	11

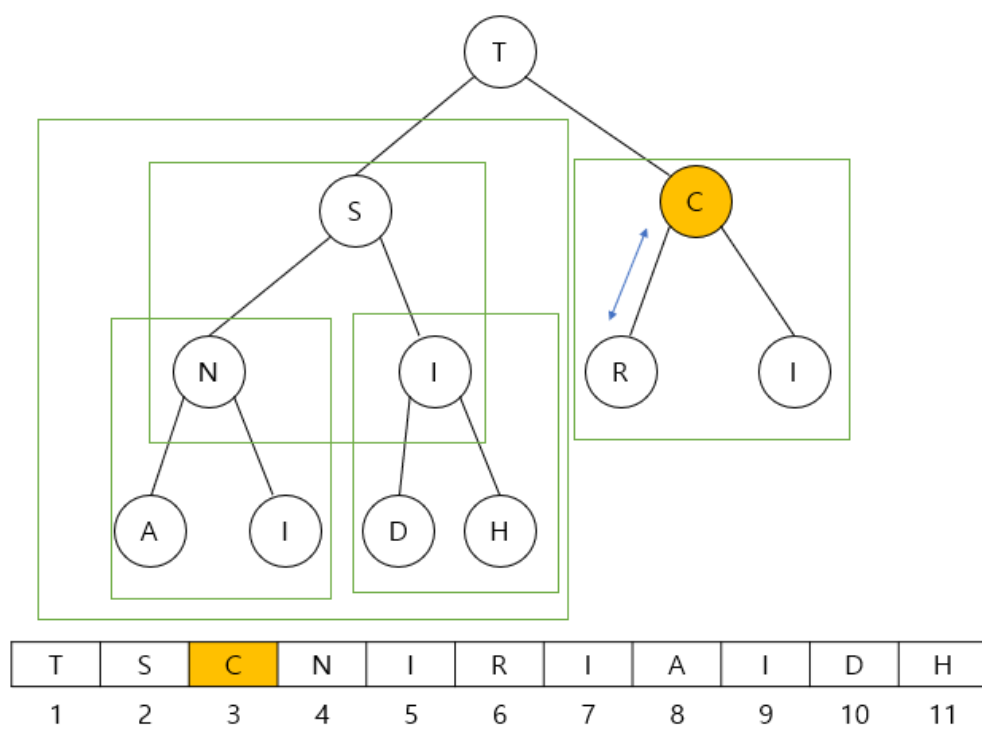
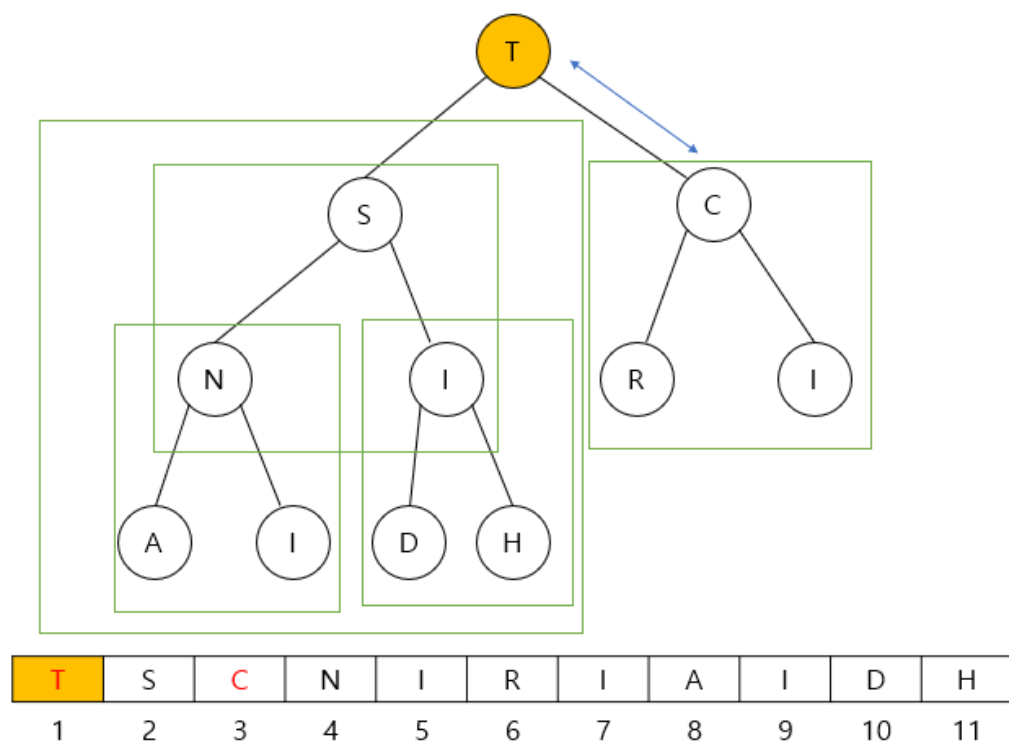


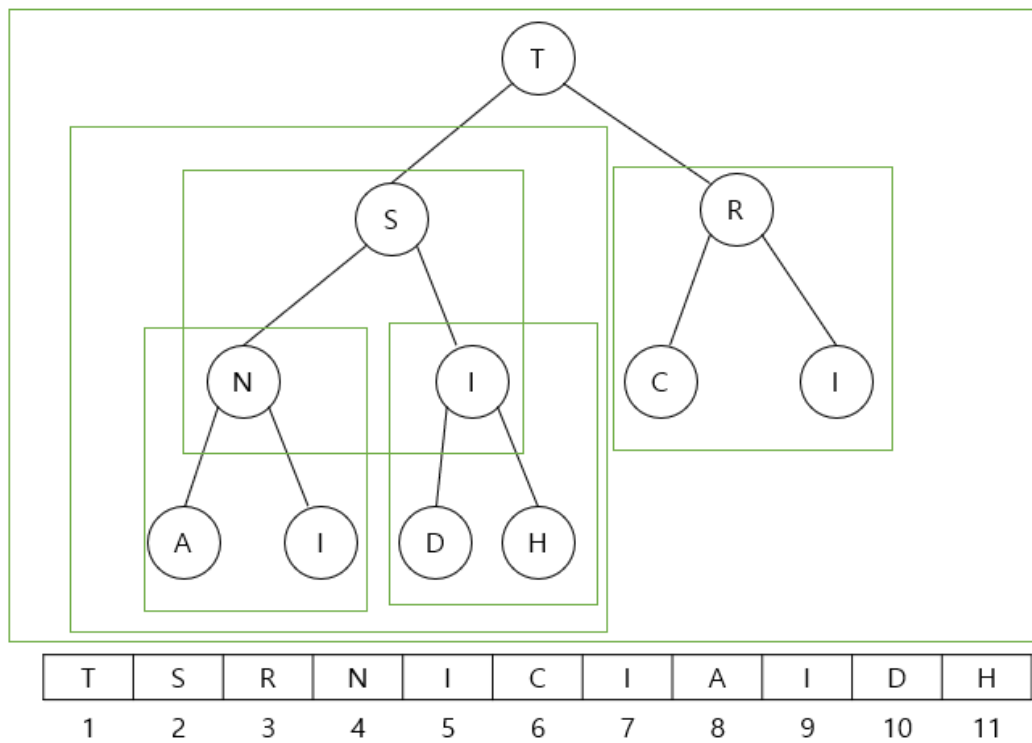
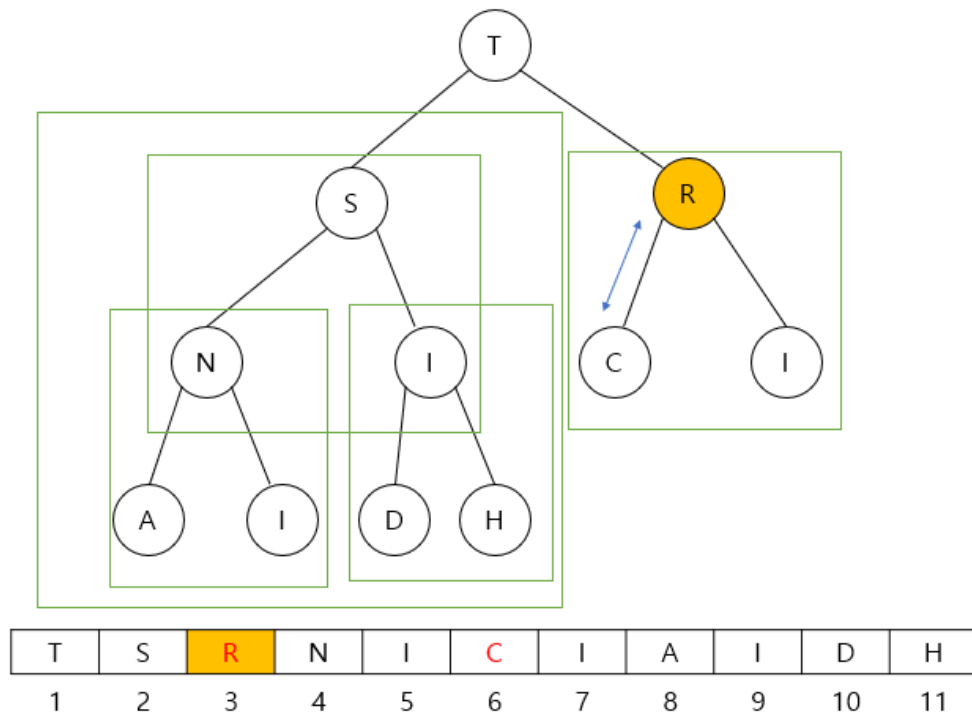
C	S	T	N	H	R	I	A	I	D	I
1	2	3	4	5	6	7	8	9	10	11



C	S	T	N	I	R	I	A	I	D	H
1	2	3	4	5	6	7	8	9	10	11







```
Input String:[ CHRISTIANDI], N=11
Input  a[11]: C H R I S T I A N D I
```

ASCENDING:

1st pass(heapify - $O(n)$) begins:

N=11 k=5 C H R I S T I A N D I

N=11 k=4 C H R N S T I A I D I

N=11 k=3 C H T N S R I A I D I

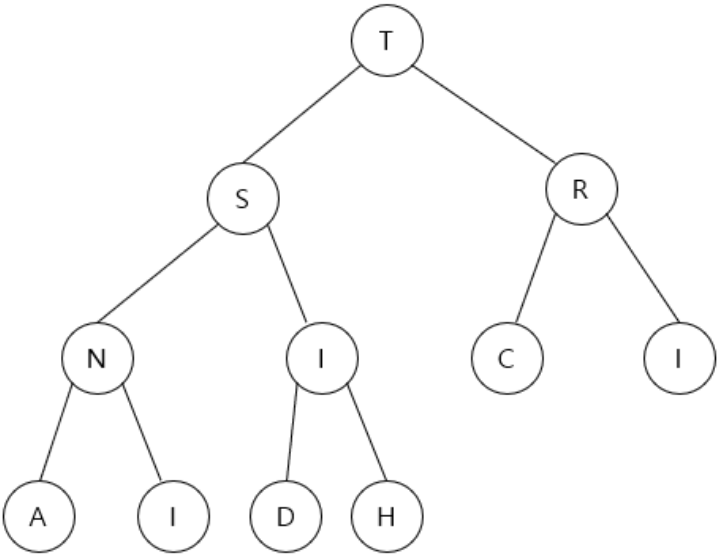
N=11 k=2 C S T N I R I A I D H

N=11 k=1 T S R N I C I A I D H

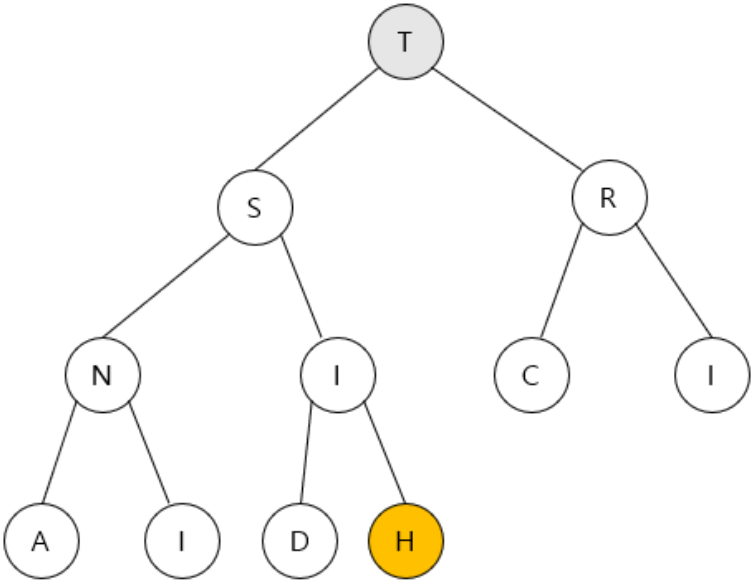
HeapOrdered: T S R N I C I A I D H

B. 두 번째 패스에서는 sink 할 첫 번째 문자와 두 번째 문자, 그리고 각각 sink 하는 동안 몇 번 비교하는지 작성하세요:

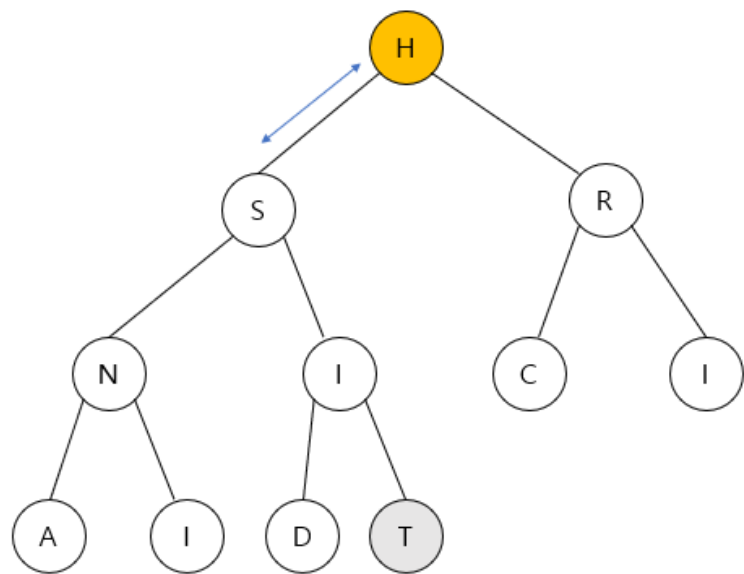
2nd pass: 13, 15 comparisons



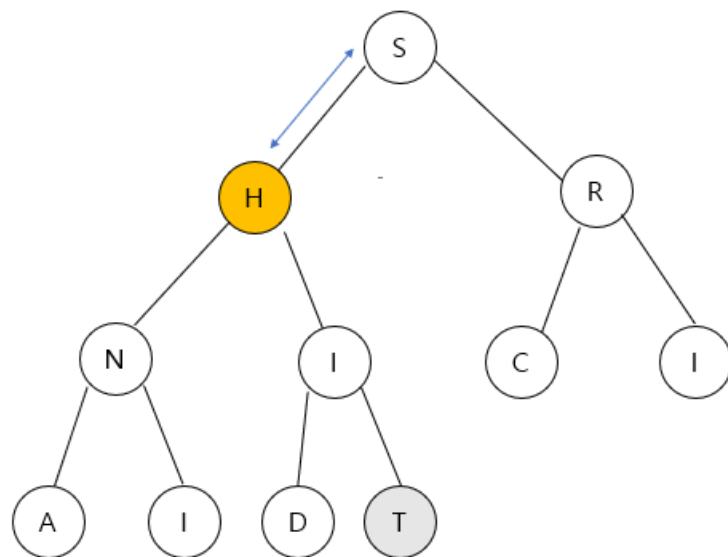
T	S	R	N	I	C	I	A	I	D	H
1	2	3	4	5	6	7	8	9	10	11



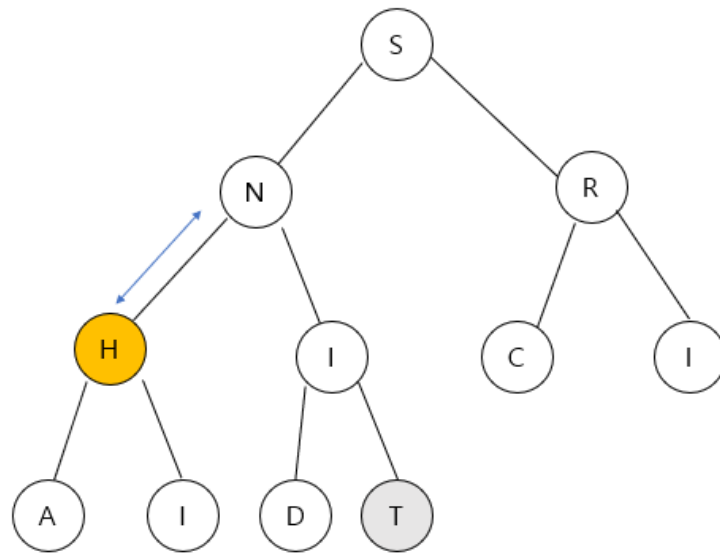
T	S	R	N	I	C	I	A	I	D	H
1	2	3	4	5	6	7	8	9	10	11



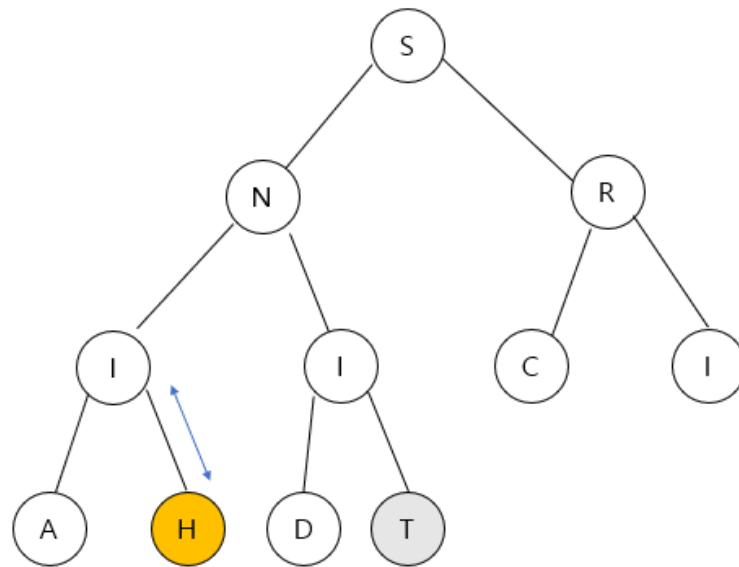
H	S	R	N	I	C	I	A	I	D	T
1	2	3	4	5	6	7	8	9	10	11



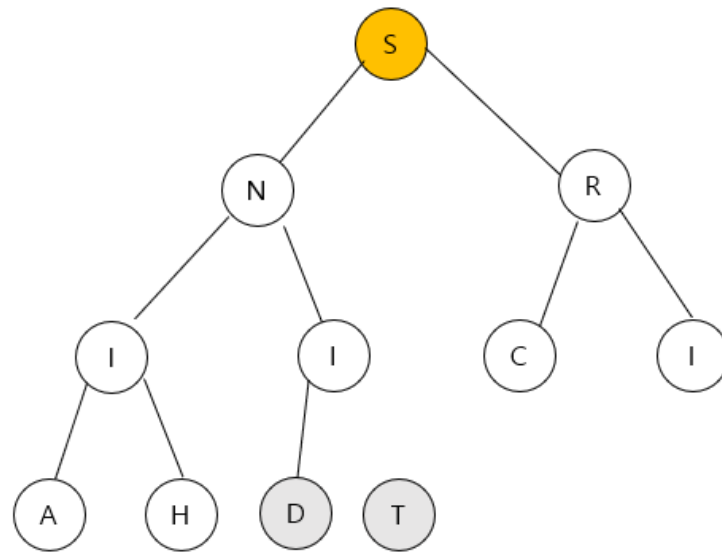
S	H	R	N	I	C	I	A	I	D	T
1	2	3	4	5	6	7	8	9	10	11



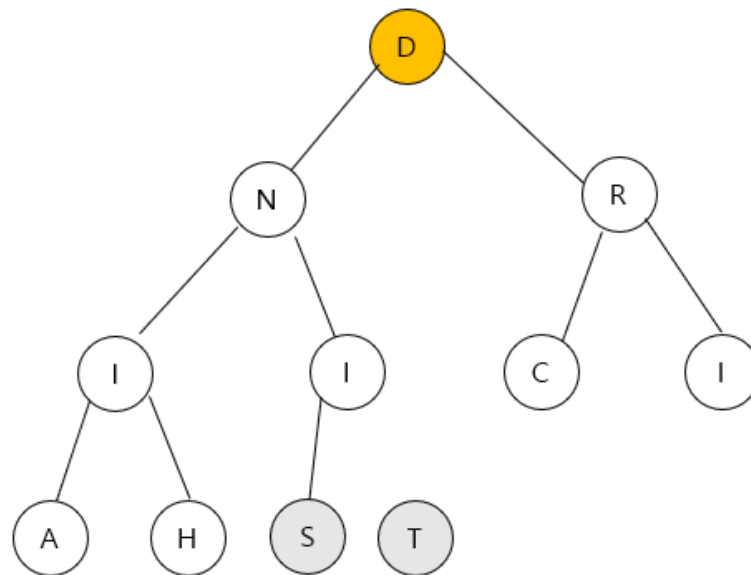
S	N	R	H	I	C	I	A	I	D	T
1	2	3	4	5	6	7	8	9	10	11



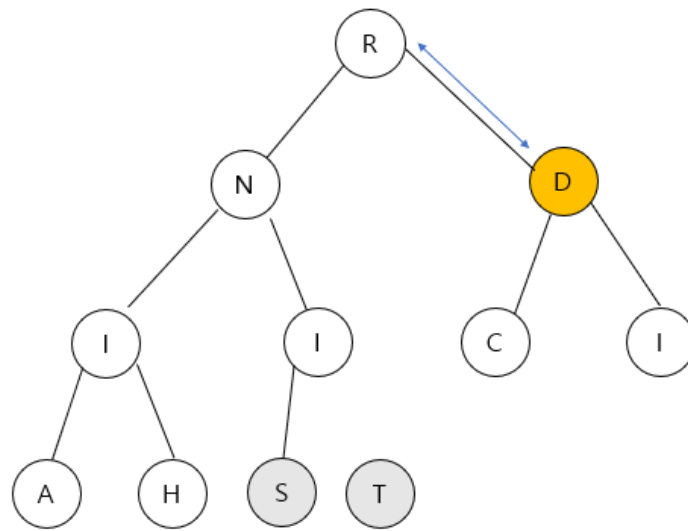
S	N	R	I	I	C	I	A	H	D	T
1	2	3	4	5	6	7	8	9	10	11



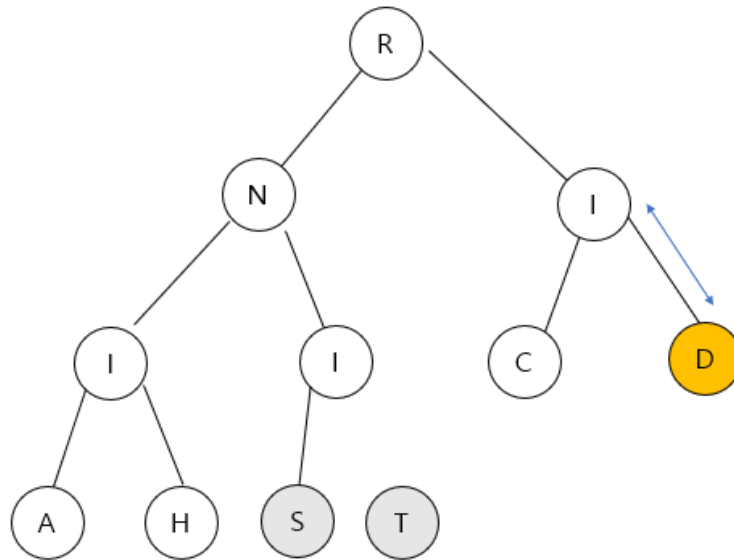
S	N	R	I	I	C	I	A	H	D	T
1	2	3	4	5	6	7	8	9	10	11



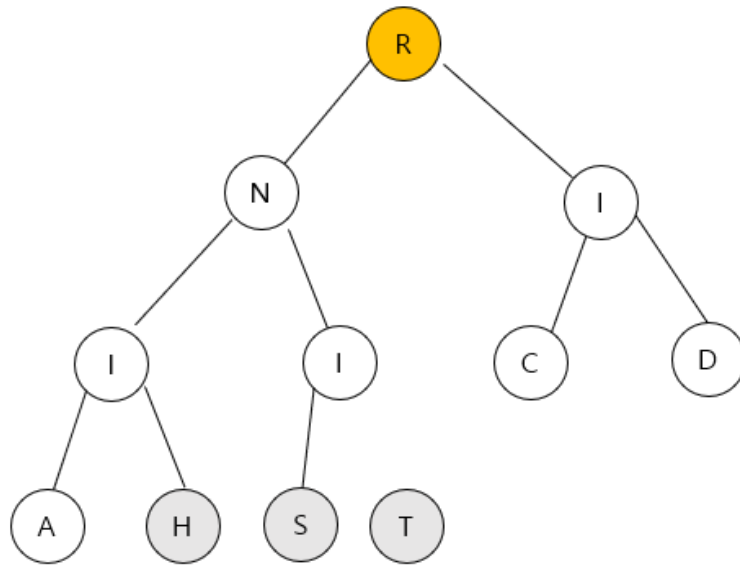
D	N	R	I	I	C	I	A	H	S	T
1	2	3	4	5	6	7	8	9	10	11



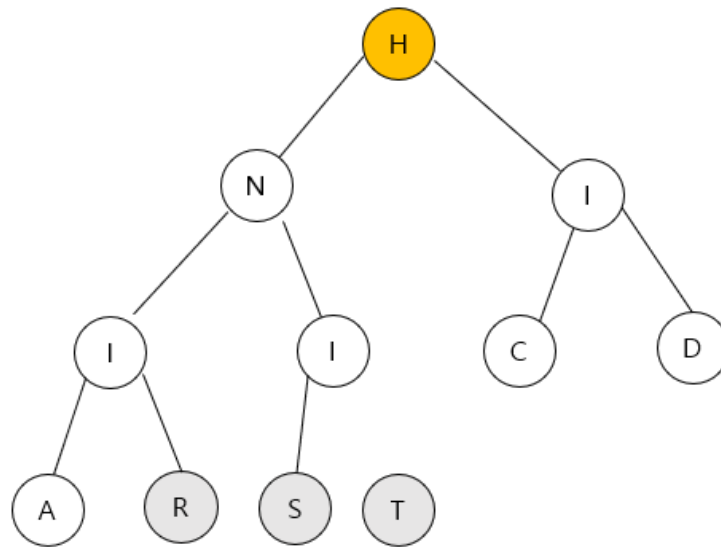
R	N	D	I	I	C	I	A	H	S	T
1	2	3	4	5	6	7	8	9	10	11



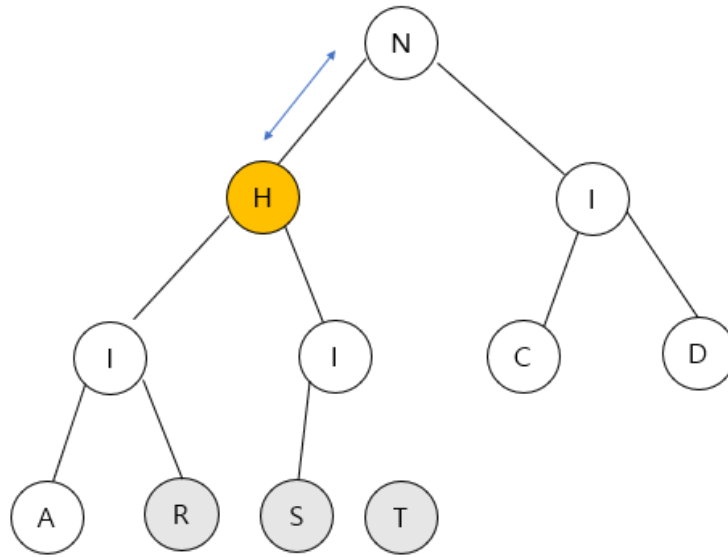
R	N	R	I	I	C	D	A	H	S	T
1	2	3	4	5	6	7	8	9	10	11



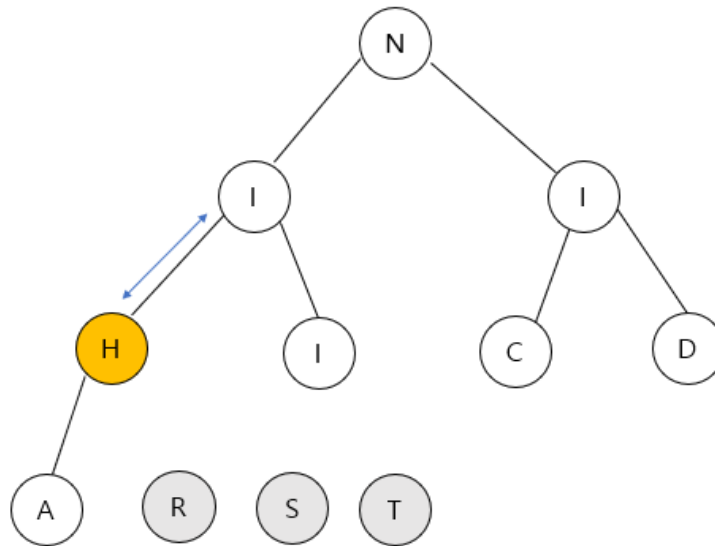
R	N	R	I	I	C	D	A	H	S	T
1	2	3	4	5	6	7	8	9	10	11



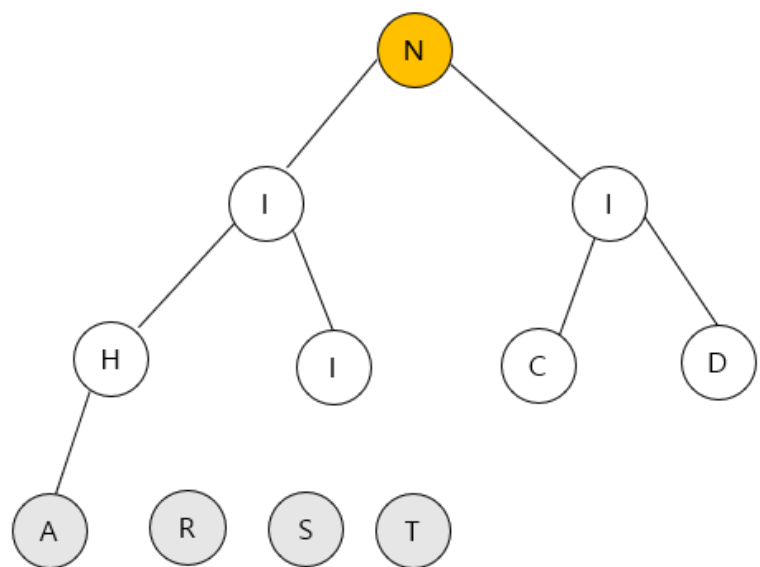
H	N	R	I	I	C	D	A	R	S	T
1	2	3	4	5	6	7	8	9	10	11



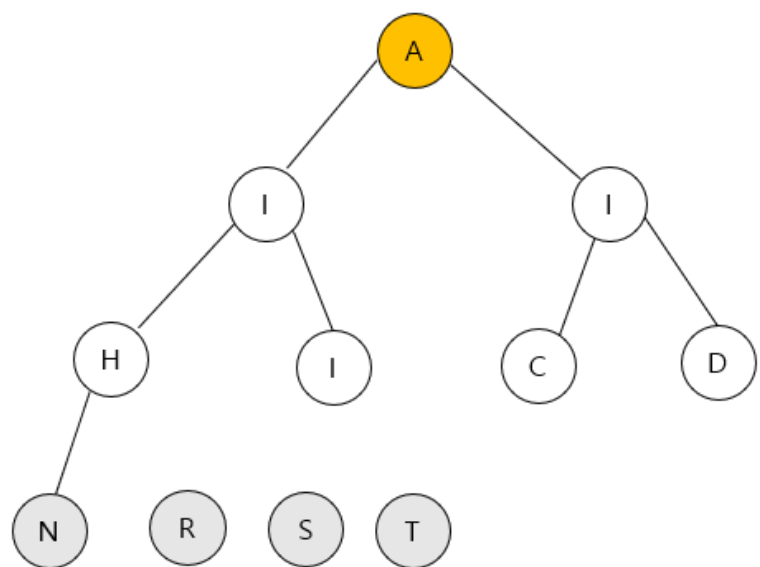
N	H	R	I	I	C	D	A	R	S	T
1	2	3	4	5	6	7	8	9	10	11



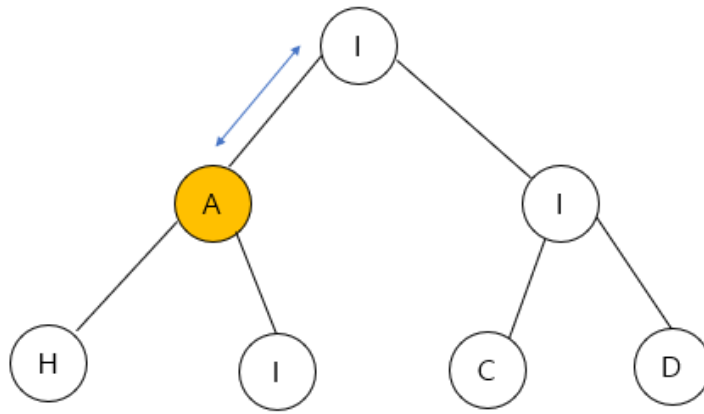
N	I	R	H	I	C	D	A	R	S	T
1	2	3	4	5	6	7	8	9	10	11



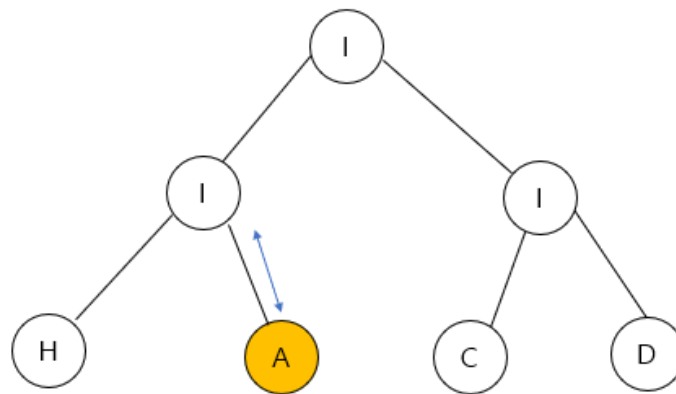
N	I	R	H	I	C	D	A	R	S	T
1	2	3	4	5	6	7	8	9	10	11



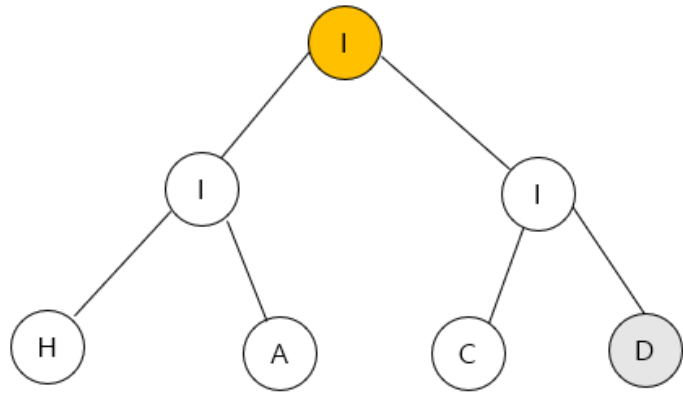
A	I	R	H	I	C	D	N	R	S	T
1	2	3	4	5	6	7	8	9	10	11



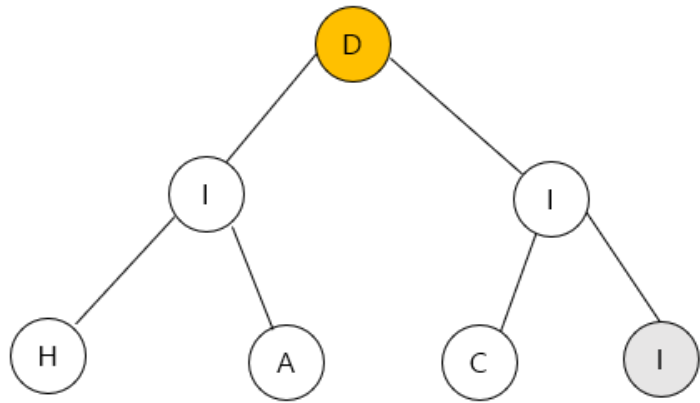
I	A	R	H	I	C	D	N	R	S	T
1	2	3	4	5	6	7	8	9	10	11



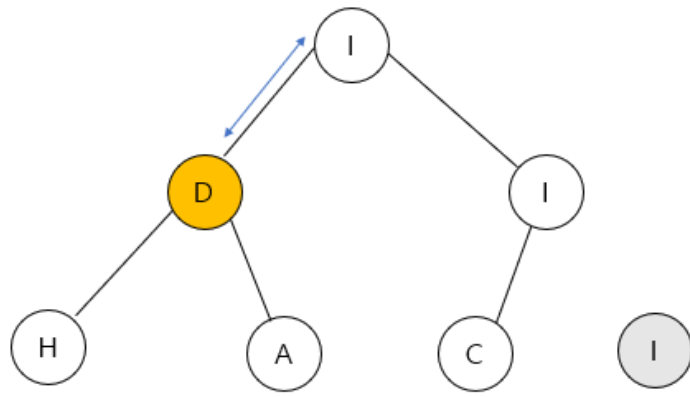
I	I	R	H	A	C	D	N	R	S	T
1	2	3	4	5	6	7	8	9	10	11



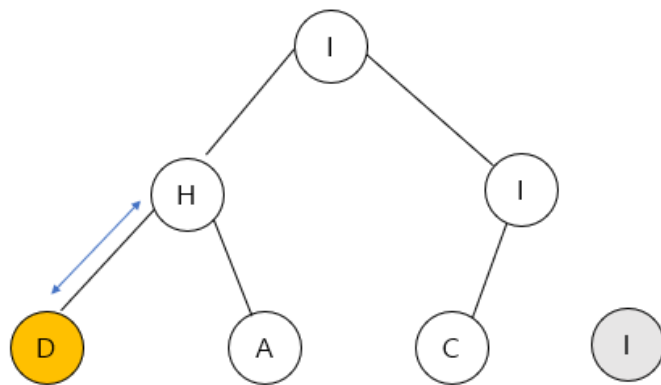
I	I	R	H	A	C	D	N	R	S	T
1	2	3	4	5	6	7	8	9	10	11



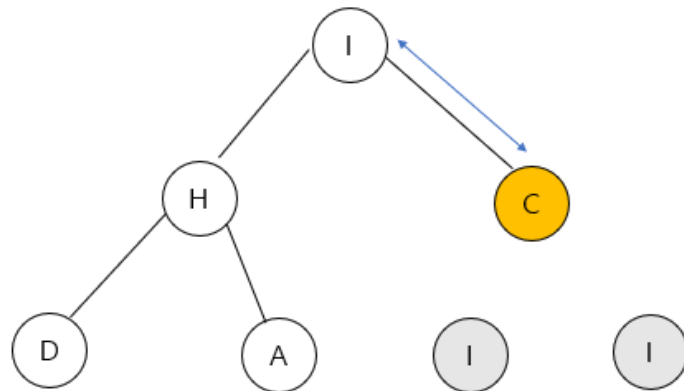
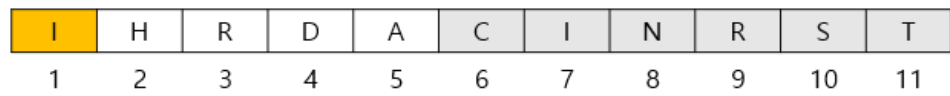
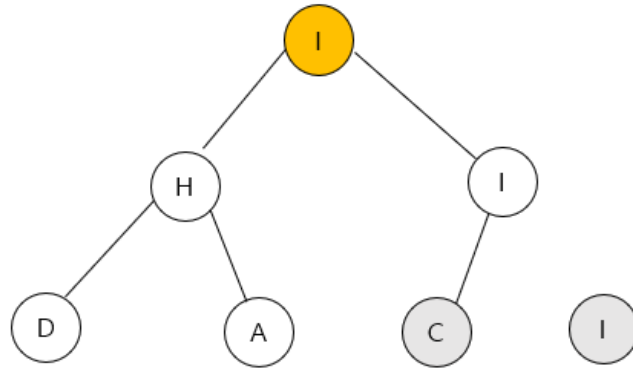
D	I	R	H	A	C	I	N	R	S	T
1	2	3	4	5	6	7	8	9	10	11

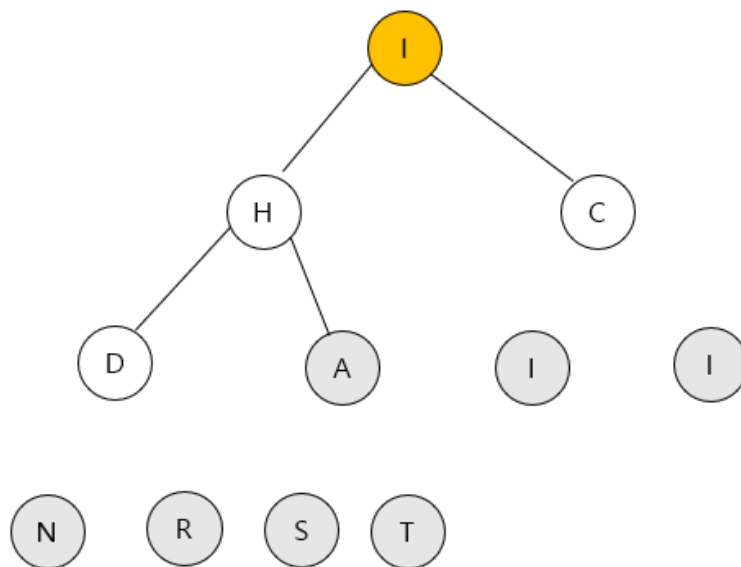


I	D	R	H	A	C	I	N	R	S	T
1	2	3	4	5	6	7	8	9	10	11

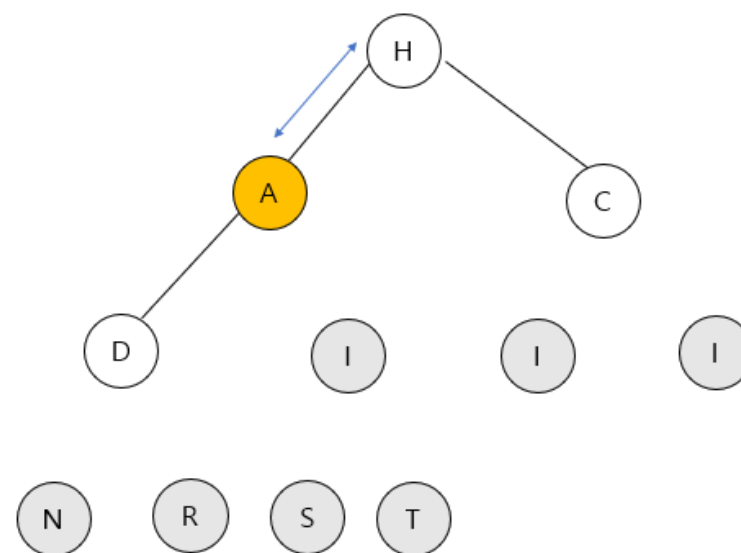


I	H	R	D	A	C	I	N	R	S	T
1	2	3	4	5	6	7	8	9	10	11

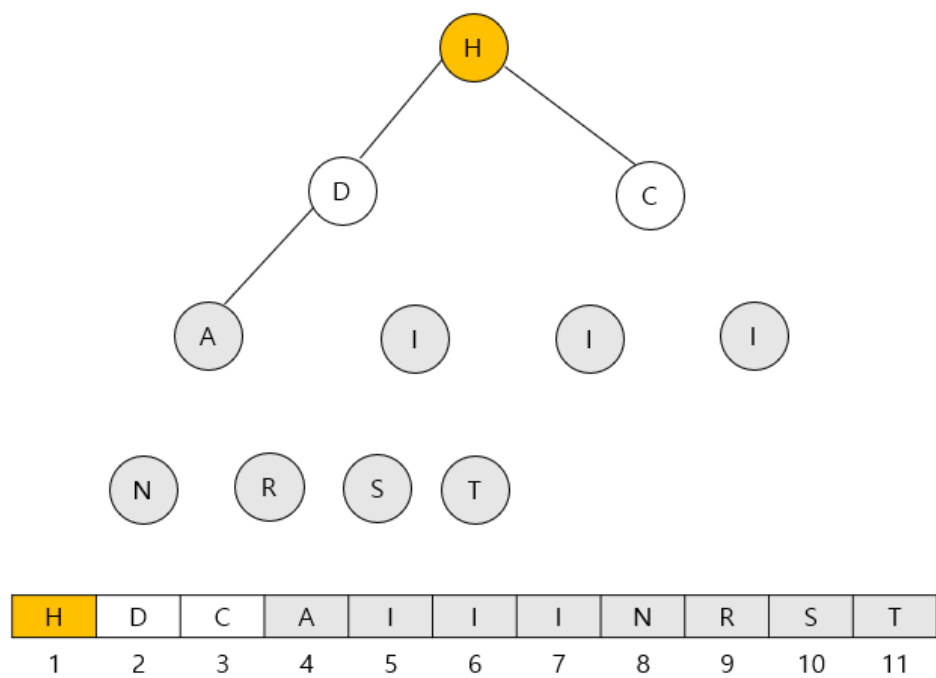
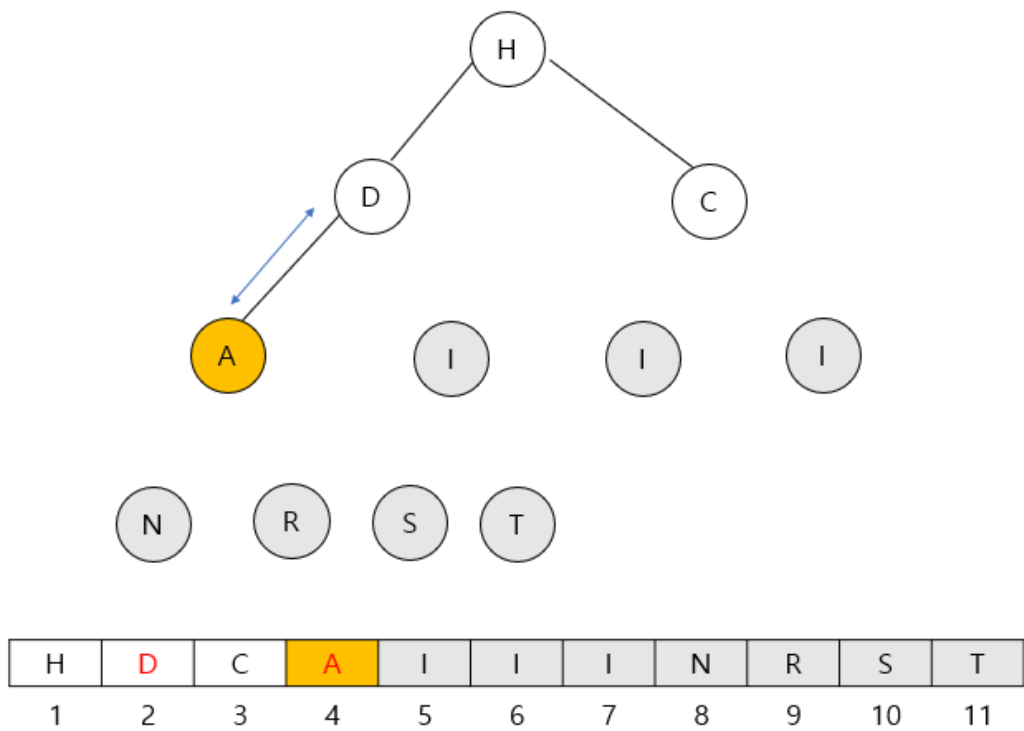


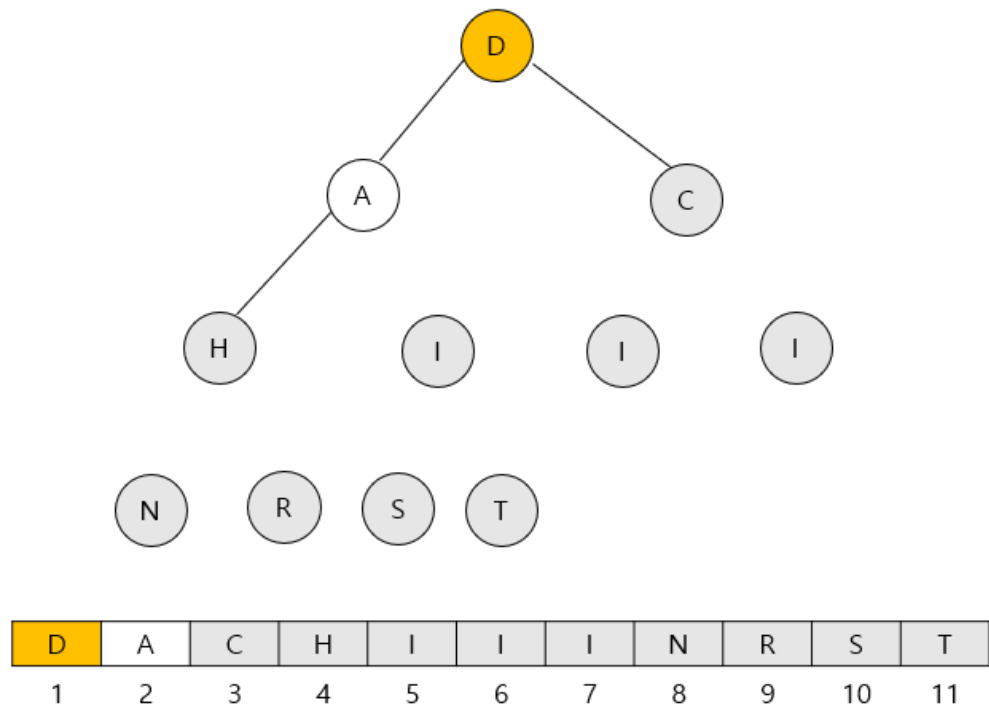
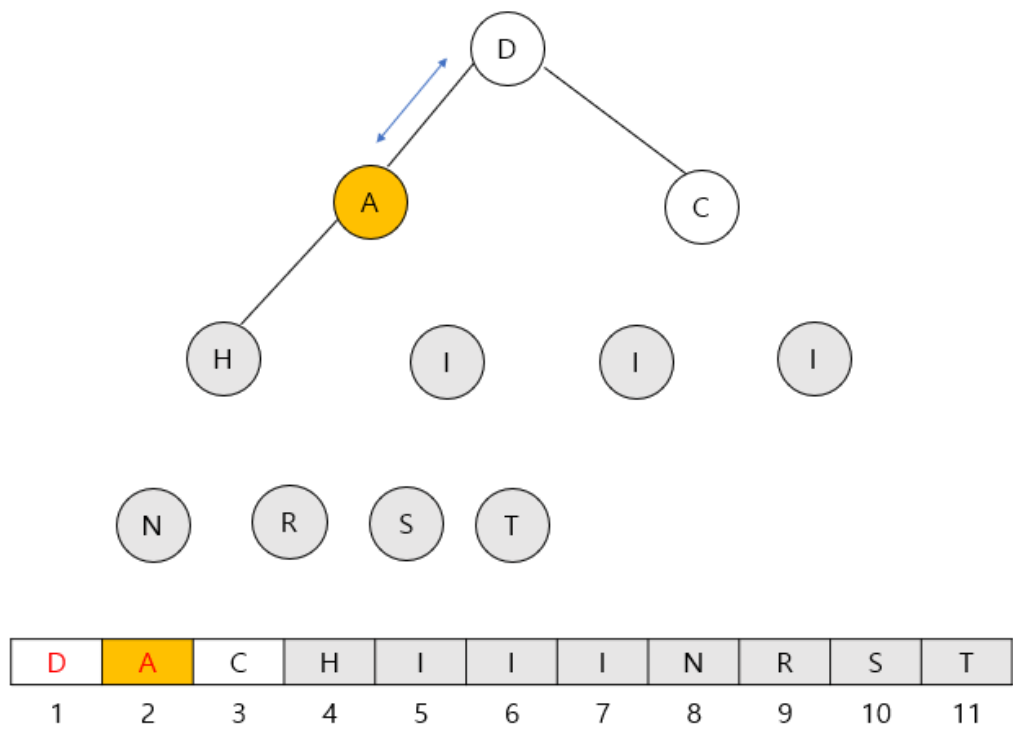


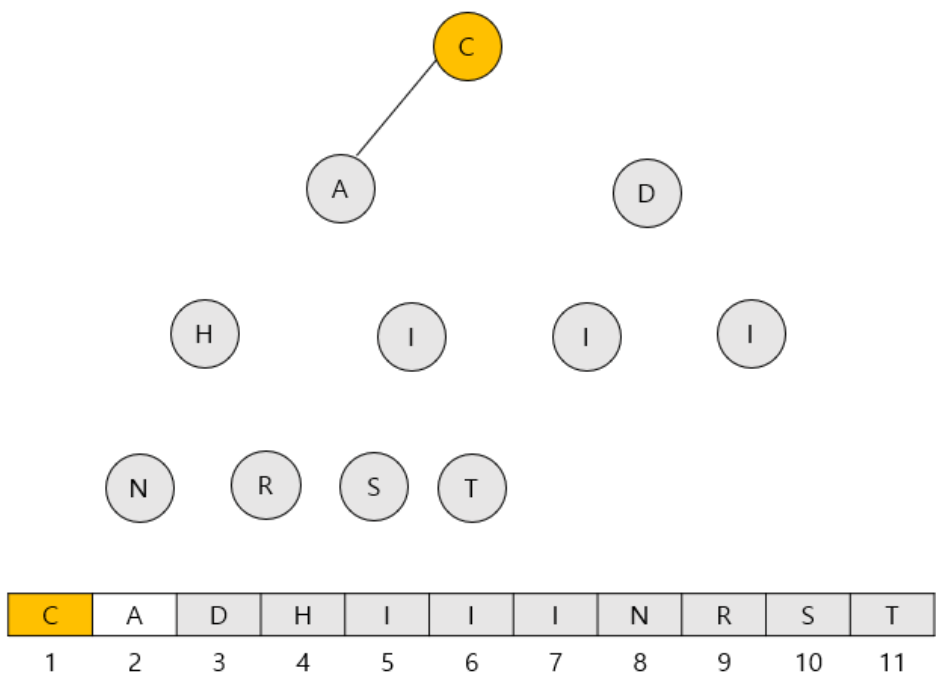
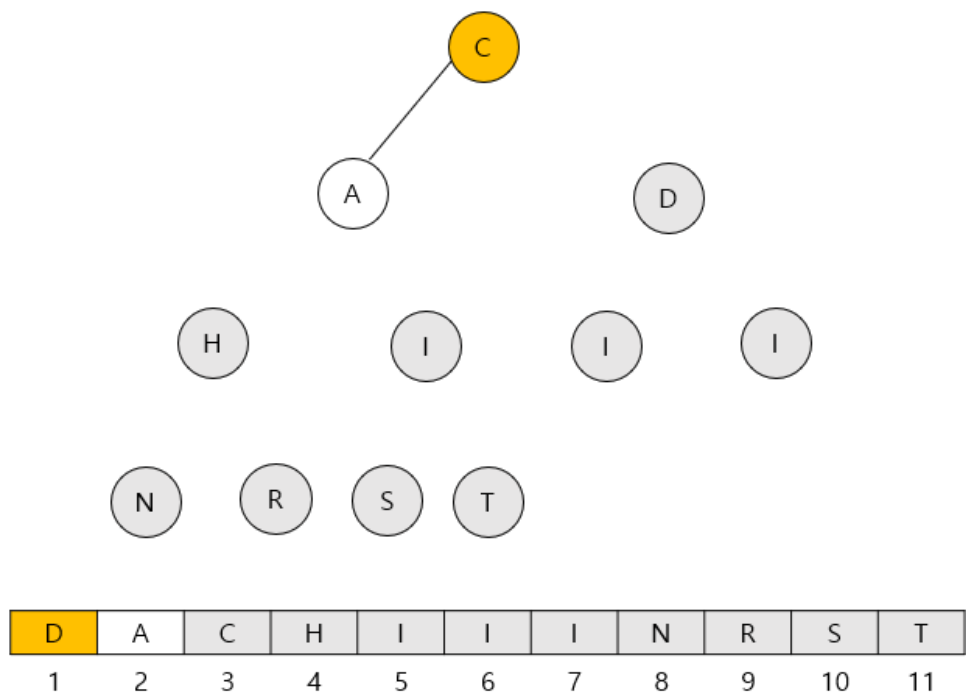
I	H	C	D	A	I	I	N	R	S	T
1	2	3	4	5	6	7	8	9	10	11

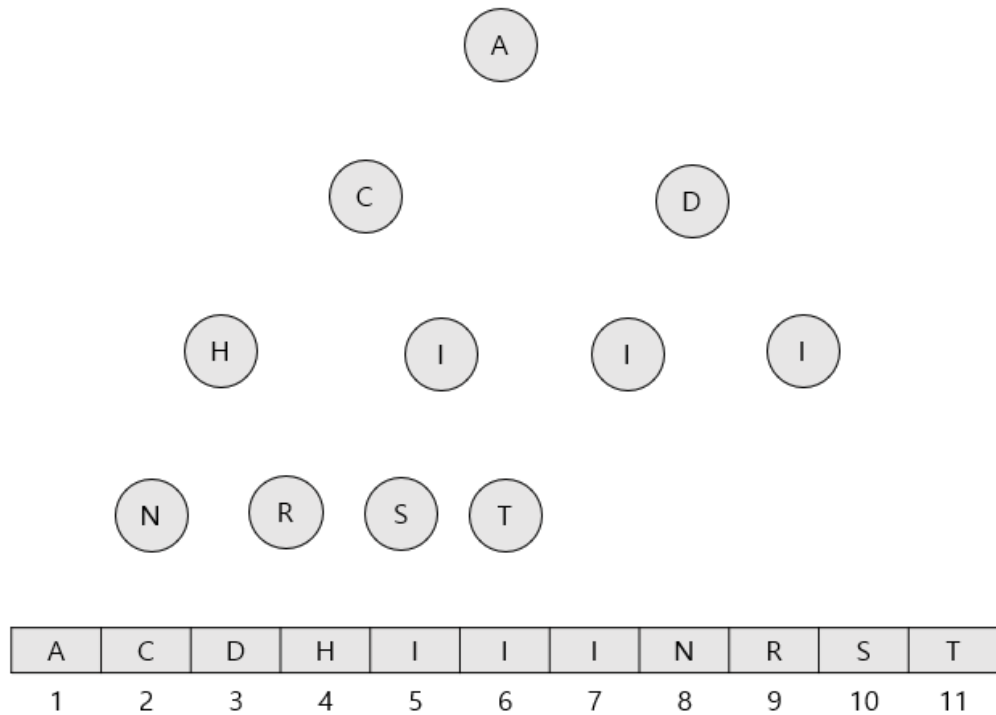
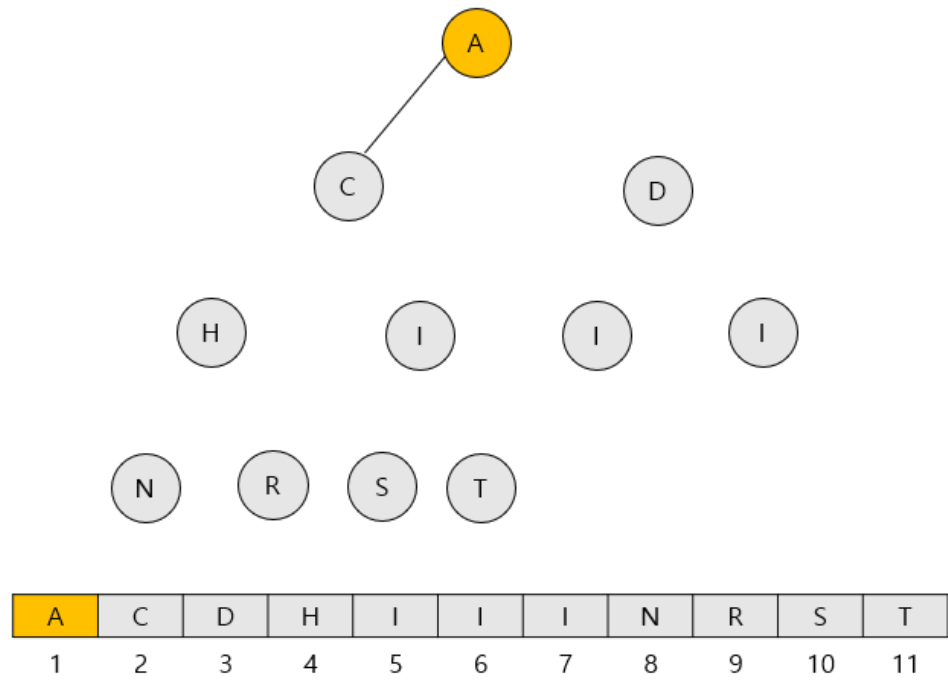


H	A	C	D	I	I	I	N	R	S	T
1	2	3	4	5	6	7	8	9	10	11









2nd pass(trim: swap and sink - $O(n \log n)$ begins:

N=10 k=1 S N R I I C I A H D

N=9 k=1 R N I I I C D A H

N=8 k=1 N I I H I C D A

N=7 k=1 I I I H A C D

N=6 k=1 I H I D A C

N=5 k=1 I H C D A

N=4 k=1 H D C A

N=3 k=1 D A C

N=2 k=1 C A

N=1 k=1 A

a[11]: A C D H I I I N R S T

- 위의 두 패스의 패턴을 따라가면서 __에 본인의 이니셜을 넣은 단어("CHRISTIAN__")의 힙 정렬 과정을 그리세요.
- 위의 질문과 답변을 함께 제출하세요.
- 이 step의 답변이 step 1.2 혹은 heapsortx.exe의 결과와 일치하는지 확인하세요. 일치하지 않는다면 이 step에 대한 점수를 얻을 수 없습니다.