# Count No. of Distinct Sub string in given String.

**Problem Statement** Suggest Edit

Given a string 'S', you are supposed to return the number of distinct substrings(including empty substring) of the given string. You should implement the program using a trie.

a b c a

→ a
a b
a b c
a b c a

b
b c
b c a

c
c a

e

9 + 1 = 10

1

Brute force: Substring

a b c a

a
ab
abc
abca

O(n²)

abca

bca

ca

a → Set

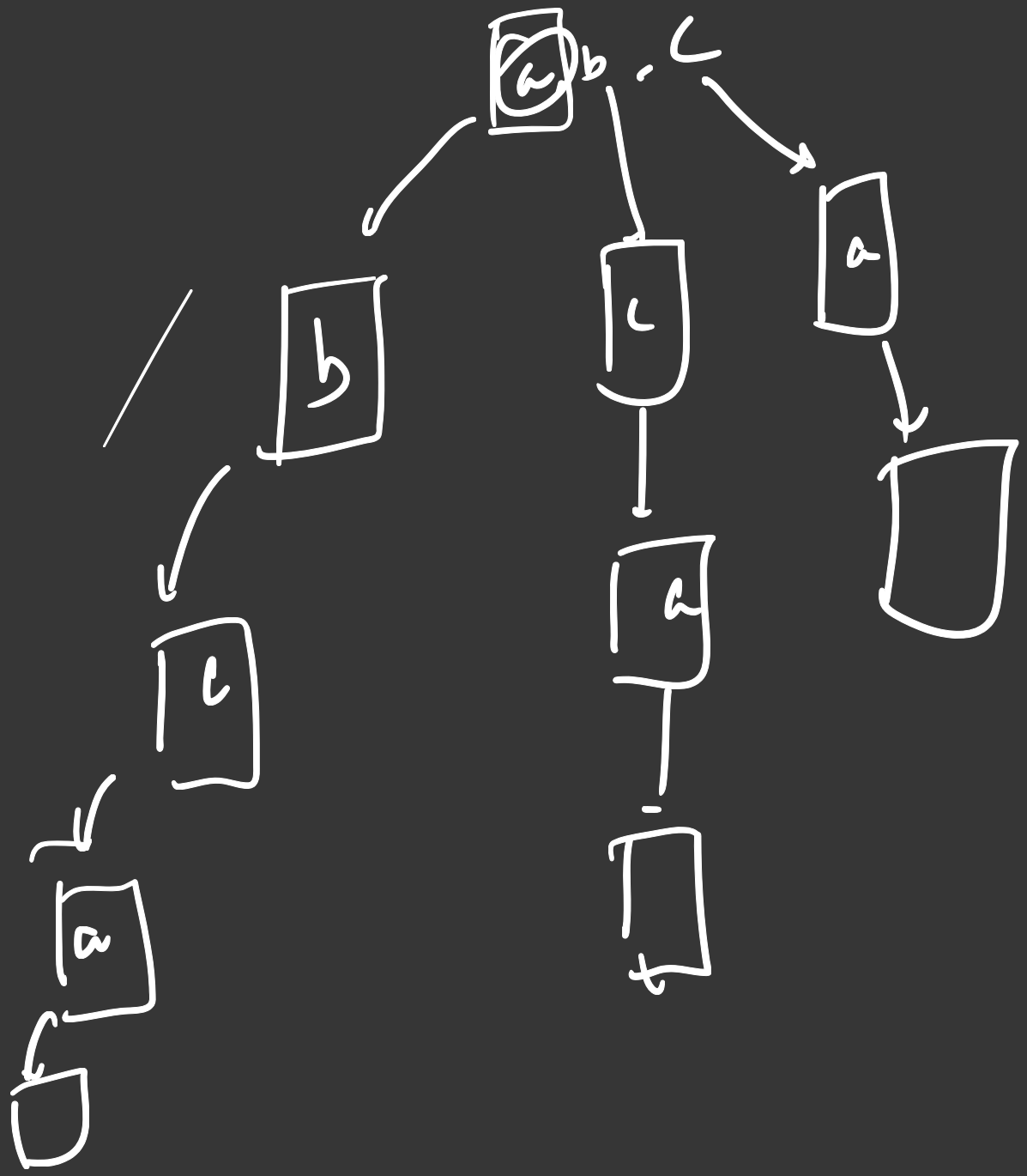
for( i=0; i<n; i++)
  for( j=0; j<n; j++)
    { set.add(s) }

Distinct element

O(N² x) ⊕ (log N)

SC. O(N³)

Trie




abcca

Pseudocode

```
for( i=0; i<n; i++)
    node=root
    for(j=0; j<n; j++){
        if (!node -> contain( ss[i] )){
            cont++;
            node->put ( ss[i], new node(1) )
        }
        node = node -> get (s[i]);
    }
}
return cont+1;
```

T.C.

$O(N \times N)$

$O(N^2)$

S.C.

$O(N \times C)$