Total number of possible Binary Search Trees with n keys

Total number of possible Binary Search Trees with n different keys = Catalan number Cn = (2n)!/(n+1)!*n!

See references for proof and examples.

References:
http://en.wikipedia.org/wiki/Catalan_number

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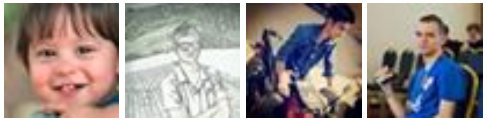

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atiq • 6 months ago

No. of Binary trees(it can be structurally similar and different) out of N nodes is

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Tao ➦ atiq • 7 days ago

I agree. Catalan(N) is the number of binary trees built from the array[1.

each permuted array can build Catalan(N) binary trees. Thus, the total

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Pawan Kumar • 9 months ago

I think catalan no. Cn is total no of possible binary tree with n nodes.

but in case of binary search tree total no. of possible bst(s) follows the recursi

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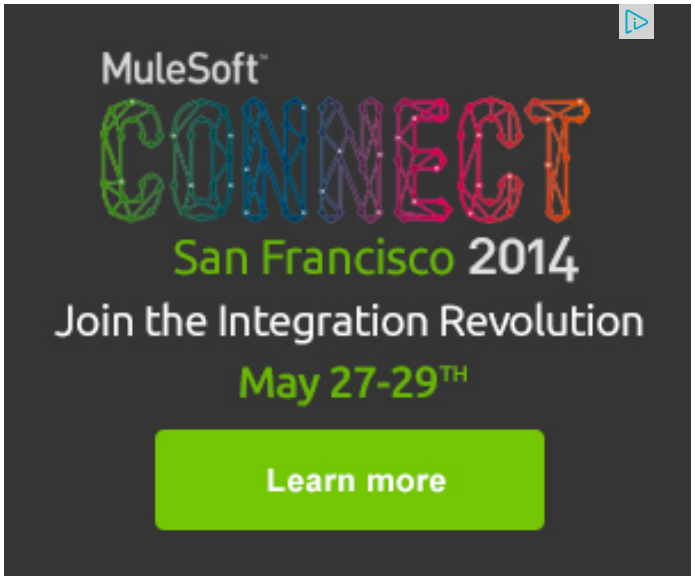

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t(n)=sigma(t(i - 1) t(n - i)) sum over i=1 to n.
correct me if I m wrong.

^ | v • Reply • Share ›

Kong • 9 months ago

It should be (2n)!/((n+1)!*n!) because above expression will evaluate to ((2n)!/

^ | v • Reply • Share ›

GeeksforGeeks • 10 months ago

@All:

The above fact is correct. The number of possible Binary Search Trees with n

Number of structurally different binary trees is also a catalan numbers.

They both are different types of questions, but their result is same.

In first, we are given n different keys and we want to know the number of ways
Let us take few examples.
keys[] = {1, 2, 3}, we can organize them in 5 ways: two trees with 1 as root +
root.
Take more examples, and you will see pattern of catalan numbers. See questi

In second, we want to know structurally different trees with n nodes, we are nc
For n = 3, there can be 5 trees. The expression for this will be same as the ex

^ | v • Reply • Share ›

aspire ➚ GeeksforGeeks • 9 months ago

Can you please explain the difference between nodes and keys?

^ | v • Reply • Share ›

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Asap • 10 months ago

I think its binary tree

http://cs.lmu.edu/~ray/notes/b...

http://stackoverflow.com/quest...

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subhasish • a year ago

It is number if Binary trees not Binary *Search* Trees

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wgpshashank • a year ago

hi , please update the post that Cn will number of fully binary trees not simple I

```
/* Paste your code here (You may delete these lines if not writing c
```

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geek4u • 4 years ago

What about binary trees? how many binary trees are possible with n nodes?

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veera reddy ➦ geek4u • 3 years ago

The number of structurally different Binary Trees with n nodes is Catal

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veera reddy ➦ veera reddy • 3 years ago

if we don't consider the structure then total number of possible

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affiszerv Your example has two 4s on row 3, that's why it...

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sandeep void rearrange(struct node *head) {...

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Neha I think that is what it should return as, in...

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