Lavina and Counting Stars

Lavina really likes the song called Counting Stars. She likes it so much that she even sang it during her induction in 2016. But now she is bored, so she wondered about counting Binary Search Trees. She wonders given an integer **N** and **N UNIQUE** integers, how many unique binary search trees can she construct. You need to help her solve this problem as she is very busy.

Input
The first line of input consists of a single integer **N**.
The second line of input consists of **N** space separated unique integers in increasing order.
1 <= **N** <= 16
1 <= **Ai** <= 1000

Output
One line indicating the number of unique BSTs possible.

Sample Test
Input
3
1 4 7

Output
5

Explanation

These 5 trees are the 5 possible unique BSTs.