Recursion → Number of decompositions

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Hard 17 minutes Share:

Code Challenge — Write a program

> This problem is a bit complicated and require some additional knowledge and googling. You can just skip it if you are a beginner or don't have enough time. But it is a good case to improve your problem solving and algorithmic skills.

Read the integer N ($1 \leq N \leq 40$) from the standard input and list all the decompositions of NN into a sum of positive integers. The addends should go in non-ascending order within each decomposition.

Output all decompositions in the lexicographical order.

Please, use a recursive method to write your solution.

Sample Input 1:

```
5
```

Sample Output 1:

```
1 1 1 1 1
2 1 1 1
2 2 1
3 1 1
3 2
4 1
5
```

Code Editor IDE

Solve in IDE

IDE is opened If you don't see your IDE opened, switch to it manually

Code snippets from theory Show solution Skip problem

Time limit: 5 seconds Memory limit: 256 MB

Code snippets from theory

Comments (20) Hints (1) Useful links (1) Solutions (0)

Share something, Sergey Kubatko

Sort by: Last posted

YV **Yuriy Volkovskiy (β)** about 2 months ago Report

I can give you a hint:
Use KISS rule (Keep It Stupid Simple)

0 Reply

VP **Vladimir Pavlov** about 2 months ago Report

Now I know that recursion is not that I know

Now I know that recursion is not that I know

1 Reply

P **pilot_error** 3 months ago Report

I gave up, but to help others, the clue that would have really helped me out was that you should pass a String of your output along as a parameter in your recursive method. (The problem you get for skipping took me 5 minutes.)

private static void provideDecomposition(int toDecompose, int max, String out) {

0 Show all Reply

MB **Maciej Bystrzyński** 3 months ago Report

Ok nvm i got it. Wow it was hard.

0 Reply

DS **Dmitry Sitnikov** 3 months ago Report

Well, I have another problem with the task)) Despite the task was solved it is shown to me again as a day problem. I can't skip it, but the task hangs as unsolved. I have to interrupt my 44 consecutive days of solving problems of the day(((

0 Reply

AV **Angel V. G.** 4 months ago Report

I have the same problem as @Dmitry

0 Reply

DS **Dmitry Sitnikov** 5 months ago Report

When I click "Continue" I see two messages - "Please wait. Finding the next activity" and "There are no replacements left so you can not skip the problem". The problem is solved correctrly
How can I move on to the next problem?

0 Reply

O **olosh_ami** 5 months ago Report

Whoa, took hours to solve. For those who are looking for hints, try search partitioning, a concept from combinatorics.

0 Reply

MV **Misha Vyuzh** 5 months ago Report

It’s really difficult to get started, but the solution is quite simple. I did without recursion. At 0, they also check.

0 Reply

Code snippets from theory

A **andioz** 5 months ago Report

@Hoang There are no negative numbers at all! Only positive, no zero.

0 Reply

HT **Hoang Trung Nguyen** 5 months ago Report

@andioz Are there any cases the number is negative? I'm almost reaching the answer !!

0 Reply

A **andioz** 5 months ago Report

I have a solution now, but it is much more complicated than the reference. I think would never find that direction from what I learned so far.

0 Reply

A **andioz** 5 months ago Report

Let's say, for a correct but slow implementation: give some extra ideas how to improve speed. And in the definition, it should be clearly stated that performance is a criteria. In general, code challenges like this are very time consuming (at

least for me, I didn't get the right pass in my head), and stops me to continue. I think it is too complicated at all.

0 Reply

HT **Hoang Trung Nguyen** 5 months ago Report

@andioz What is your idea ?

0 Reply

A **andioz** 5 months ago Report

I'm working a whole day for finding a working reference solution. Slow but working, ready for refactoring. Then - "Failed test #2. Time limit exceeded". There is no requirement defined about timing!!! For this there should be more explanation about requirements. I feel not able to improve my code with such statements. I have to say, this kind of tests are really discouraging. You violate the way of TDD here: first make it run (with tests!), and then make it right. You want me to make it right in first place.

0 Reply

B **BlazingHeart** 7 months ago Report

Too hard for beginners : (

2 Reply

MH **Maksim Hlystov** 8 months ago Report

It can be better to use StringBuilder instead of strings concatenation.

0 Reply

AF **Alexander Fotov** 9 months ago Report

>>example with n >= 10

1 1 1 1 1 1 1 1 1 1
2 1 1 1 1 1 1 1 1
2 2 1 1 1 1 1 1 1

0 Show all Reply

U **usr** 10 months ago Report

can you share one more example with n >= 10? i failed in test 2 but according to your sample i did right computations.

0 Reply

AF **Aleksandr Fedchin** 10 months ago Fixed

Please, change "decompositions of NN into the whole positive addends", to "decompositions of NN into a sum of positive

0

Code snippets from theory