Chocolate bar

Algoritmia II

Coco has a chocolate bar that is 1 x N, where each chocolate block is 1 x 1 and unbreakable. She wants to divide the bar into different sizes. For example, if she has a bar of 1 x 8, she can divide it into the following pieces: 1x1, 1x3, and 1x4.

Help Coco maximize the pieces of chocolate she will end up with.

Input

A number **N**.

Output

The maximum number of pieces of chocolate that can be obtained.

Sample 1

Input	Output
Sample input 1	**Sample output 1**
8	3

Sample 2

Input	Output
Sample input 2	**Sample output 2**
12	4

1. Identify if this problem can be solved with dynamic programming and/or a greedy algorithm
   (a) If you say that can be solved with dynamic programming
      i. Analyze the problem based on sub-problems.
      ii. Identify where the overlap occurs.
      iii. Implement the code
      iv. What is the time complexity of your solution?
   (b) If you say that can be solved with a greedy algorithm
      i. Identify the greedy choice.
      ii. Explain the optimal substructure.
      iii. Implement the code
      iv. What is the time complexity of your solution?
2. If you say the problem can not be solved with a greedy algorithm or dynamic program, explain the reason using an example.