5 Maximum Number of Prizes

Problem Introduction

You are organizing a funny competition for children. As a prize fund you have n candies. You would like to use these candies for top k places in a competition with a natural restriction that a higher place gets a larger number of candies. To make as many children happy as possible, you are going to find the largest value of k for which it is possible.

Problem Description

Task. The goal of this problem is to represent a given positive integer n as a sum of as many pairwise distinct positive integers as possible. That is, to find the maximum k such that n can be written as $a_1 + a_2 + \cdots + a_k$ where $a_1, \ldots, a_k$ are positive integers and $a_i \neq a_j$ for all $1 \leq i < j \leq k$.

Input Format. The input consists of a single integer n.

Constraints. $1 \leq n \leq 10^9$.

Output Format. In the first line, output the maximum number k such that n can be represented as a sum of k pairwise distinct positive integers. In the second line, output k pairwise distinct positive integers that sum up to n (if there are many such representations, output any of them).

Sample 1.

Input:

```
6
```

Output:

```
3
1 2 3
```

Sample 2.

Input:

```
8
```

Output:

```
3
1 2 5
```

Sample 3.

Input:

```
2
```

Output:

```
1
2
```

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