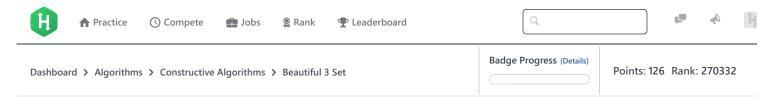
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# Beautiful 3 Set



|--|

You are given an integer n. A set, S, of triples  $(x_i, y_i, z_i)$  is beautiful if and only if:

- $0 \leq x_i, y_i, z_i$
- $x_i + y_i + z_i = n, \forall i : 1 \leq i \leq |S|$
- Let X be the set of different  $x_i$ 's in S, Y be the set of different  $y_i$ 's in S, and Z be the set of different  $z_i$  in S. Then |X| = |Y| = |Z| = |S|.

The third condition means that all  $x_i$ 's are pairwise distinct. The same goes for  $y_i$  and  $z_i$ .

Given n, find any beautiful set having a maximum number of elements. Then print the cardinality of S (i.e., |S|) on a new line, followed by |S| lines where each line contains 3 space-separated integers describing the respective values of  $x_i$ ,  $y_i$ , and  $z_i$ .

#### **Input Format**

A single integer, n.

## **Constraints**

•  $1 \le n \le 300$ 

#### **Output Format**

On the first line, print the cardinality of  $\boldsymbol{S}$  (i.e.,  $|\boldsymbol{S}|$ ).

For each of the |S| subsequent lines, print three space-separated numbers per line describing the respective values of  $x_i, y_i$ , and  $z_i$  for triple i in S.

# Sample Input

3

## **Sample Output**

0 1 2

2 0 1

1 2 0

#### **Explanation**

In this case, n=3. We need to construct a set, S, of non-negative integer triples  $(x_i,y_i,z_i)$  where  $x_i+y_i+z_i=n$ . S has the following triples:

1. 
$$(x_1, y_1, z_1) = (0, 1, 2)$$

2. 
$$(x_2, y_2, z_2) = (2, 0, 1)$$

3. 
$$(z_3, y_3, z_3) = (1, 2, 0)$$

We then print the cardinality of this set, |S| = 3, on a new line, followed by 3 lines where each line contains three space-separated values describing a triple in S.

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in
Solved score: 60.00pts
Submissions:914
Max Score:60
Difficulty: Hard
Rate This Challenge:
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                                                                                              Java 7
                                                                                                                                Ö
 1 ▼ import java.io.*;
 2 import java.util.*;
   import java.text.*;
   import java.math.*;
    import java.util.regex.*;
 6
 7 ▼ public class Solution {
 8
 9 ▼
         public static void main(String[] args) {
10 ▼
             /* Enter your code here. Read input from STDIN. Print output to STDOUT. Your class should be named Solution. */
11
12 }
                                                                                                                        Line: 1 Col: 1
<u>1</u> <u>Upload Code as File</u> ☐ Test against custom input
                                                                                                           Run Code
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