

Contest Duration: 2025-11-15(Sat) 23:00 (<http://www.timeanddate.com/worldclock/fixedtime.html?iso=20251115T2100&p1=248>) - 2025-11-16(Sun) 00:40 (<http://www.timeanddate.com/worldclock/fixedtime.html?iso=20251115T2240&p1=248>) (local time) (100 minutes)

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F - Candy Redistribution

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Time Limit: 2 sec / Memory Limit: 1024 MiB

Score : 525 points

Problem Statement

There are N children, numbered 1 to N .

Child i has A_i candies.

Your goal is to execute the following operation as few times as possible so that eventually all N children have the same number of candies.

- Choose two distinct children x, y , and choose a positive integer z not exceeding the number of candies child x has. Take z candies from child x and give them to child y .

Determine whether there exists a sequence of operations such that eventually all N children have the same number of candies. If it exists, find one such sequence with the minimum number of operations.

Constraints

- $2 \leq N \leq 20$
- $1 \leq A_i \leq 10^8$
- All input values are integers.

Input

The input is given from Standard Input in the following format:

```
N  
A1 ... AN
```

Output

If there is no sequence of operations such that eventually all N children have the same number of candies, output -1.

If it exists, output one with the minimum number of operations in the following format:

```
q  
x1 y1 z1  
:  
xq yq zq
```

Here, q represents the number of operations, and x_i, y_i, z_i represent the values of x, y, z chosen in the i -th operation.

If there are multiple solutions, outputting any of them will be considered correct.

Sample Input 1

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```
4  
1 7 4 8
```

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Sample Output 1

Copy

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

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In this sample output, the operations are executed as follows:

1. Take 1 candy from child 2 and give it to child 3. Immediately after this, the number of candies each child has is 1, 6, 5, 8.
2. Take 1 candy from child 2 and give it to child 4. Immediately after this, the number of candies each child has is 1, 5, 5, 9.

3. Take 4 candies from child 4 and give them to child 1. Immediately after this, the number of candies each child has is 5, 5, 5, 5.

Eventually, all N children have exactly five candies each.

Sample Input 2

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```
2  
100 3
```

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Sample Output 2

[Copy](#)

```
-1
```

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