CODEFORCES$^\beta$
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PROBLEMS   SUBMIT   STATUS   STANDINGS   CUSTOM TEST

B. Cormen — The Best Friend Of a Man

time limit per test: 1 second
memory limit per test: 256 megabytes
input: standard input
output: standard output

Recently a dog was bought for Polycarp. The dog's name is Cormen. Now Polycarp has a lot of troubles. For example, Cormen likes going for a walk.

Empirically Polycarp learned that the dog needs at least k walks for any two consecutive days in order to feel good. For example, if $k = 5$ and yesterday Polycarp went for a walk with Cormen 2 times, today he has to go for a walk at least 3 times.

Polycarp analysed all his affairs over the next n days and made a sequence of n integers $a_1, a_2, ..., a_n$, where a_i is the number of times Polycarp will walk with the dog on the i-th day while doing all his affairs (for example, he has to go to a shop, throw out the trash, etc.).

Help Polycarp determine the minimum number of walks he needs to do additionaly in the next n days so that Cormen will feel good during all the n days. You can assume that on the day before the first day and on the day after the n-th day Polycarp will go for a walk with Cormen exactly k times.

Write a program that will find the minumum number of additional walks and the appropriate schedule — the sequence of integers $b_1, b_2, ..., b_n$ ($b_i \geq a_i$), where b_i means the total number of walks with the dog on the i-th day.

Input

The first line contains two integers n and k ($1 \leq n, k \leq 500$) — the number of days and the minimum number of walks with Cormen for any two consecutive days.

The second line contains integers $a_1, a_2, ..., a_n$ ($0 \leq a_i \leq 500$) — the number of walks with Cormen on the i-th day which Polycarp has already planned.

Output

In the first line print the smallest number of additional walks that Polycarp should do during the next n days so that Cormen will feel good during all days.

In the second line print n integers $b_1, b_2, ..., b_n$, where b_i — the total number of walks on the i-th day according to the found solutions ($a_i \leq b_i$ for all i from 1 to n). If there are multiple solutions, print any of them.

Examples

input

```
3 5
2 0 1
```

output

```
4
2 3 2
```

input

```
3 1
0 0 0
```

→ **Virtual participation**

Virtual contest is a way to take part in past contest, as close as possible to participation on time. It is supported only ACM-ICPC mode for virtual contests. If you've seen these problems, a virtual contest is not for you - solve these problems in the archive. If you just want to solve some problem from a contest, a virtual contest is not for you - solve this problem in the archive. Never use someone else's code, read the tutorials or communicate with other person during a virtual contest.

[Start virtual contest]

→ **Submit?**

Language: [Microsoft Visual C++ 2010 ▼]

Choose file: [Choose File] No file chosen

Be careful: there is 50 points penalty for submission which fails the pretests or resubmission (except failure on the first test, denial of judgement or similar verdicts). "Passed pretests" submission verdict doesn't guarantee that the solution is absolutely correct and it will pass system tests.

[Submit]

→ **Problem tags**

dp   greedy

No tag edit access

→ **Contest materials**

- Announcement   ✖
- Tutorial   ✖

output

```
1
0 1 0
```

input

```
4 6
2 4 3 5
```

output

```
0
2 4 3 5
```