



F. Employment

time limit per test: 2 seconds
memory limit per test: 512 megabytes
input: standard input
output: standard output

Two large companies "Cecsi" and "Poca Pola" are fighting against each other for a long time. In order to overcome their competitor, "Poca Pola" started a super secret project, for which it has total n vacancies in all of their offices. After many tests and interviews n candidates were selected and the only thing left was their employment.

Because all candidates have the same skills, it doesn't matter where each of them will work. That is why the company decided to distribute candidates between workplaces so that the total distance between home and workplace over all candidates is minimal.

It is well known that Earth is round, so it can be described as a circle, and all m cities on Earth can be described as points on this circle. All cities are enumerated from 1 to m so that for each i ($1 \leq i \leq m - 1$) cities with indexes i and $i + 1$ are neighbors and cities with indexes 1 and m are neighbors as well. People can move only along the circle. The distance between any two cities equals to minimal number of transitions between neighboring cities you have to perform to get from one city to another. In particular, the distance between the city and itself equals 0.

The "Poca Pola" vacancies are located at offices in cities a_1, a_2, \dots, a_n . The candidates live in cities b_1, b_2, \dots, b_n . It is possible that some vacancies are located in the same cities and some candidates live in the same cities.

The "Poca Pola" managers are too busy with super secret project, so you were asked to help "Poca Pola" to distribute candidates between workplaces, so that the sum of the distance between home and workplace over all candidates is minimum possible.

Input

The first line contains two integers m and n ($1 \leq m \leq 10^9, 1 \leq n \leq 200\,000$) — the number of cities on Earth and the number of vacancies.

The second line contains n integers $a_1, a_2, a_3, \dots, a_n$ ($1 \leq a_i \leq m$) — the cities where vacancies are located.

The third line contains n integers $b_1, b_2, b_3, \dots, b_n$ ($1 \leq b_i \leq m$) — the cities where the candidates live.

Output

The first line should contain the minimum total distance between home and workplace over all candidates.

The second line should contain n different integers from 1 to n . The i -th of them should be the index of candidate that should work at i -th workplace.

Examples

input	Copy
10 3 1 5 5 10 4 6	
output	Copy
3 1 2 3	
input	Copy
10 3 1 4 8 8 3 6	

Codeforces Round #583 (Div. 1 + Div. 2, based on Olympiad of Metropolises)

Finished

Practice



→ 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

→ Practice

You are registered for practice. You can solve problems unofficially. Results can be found in the contest status and in the bottom of standings.

→ Clone Contest to Mashup

You can clone this contest to a mashup.

Clone Contest

→ Submit?

Language: GNU G++11 5.1.0

Choose file: 未选择任何文件

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

*2700

No tag edit access

→ Contest materials

- Announcement #1 (en)
- Announcement #2 (ru)
- Tutorial (en)

output

Copy

```
4
2 3 1
```

Note

In the first example, the distance between each candidate and his workplace equals to 1 (from 1 to 10, from 4 to 5 and from 6 to 5).

In the second example:

- The second candidate works at first workplace, the distance between cities 3 and 1 equals to 2.
- The third candidate works at second workplace, the distance between cities 6 and 4 equals to 2.
- The first candidate works at third workplace, the distance between cities 8 and 8 equals to 0.

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