

Problem I. IOI Problem Revised

Input file: *standard input*
Output file: *standard output*
Time limit: 8 seconds
Memory limit: 512 mebibytes

There was an IOI problem 6102 years ago:

There is a straight highway with villages alongside the highway. The highway is represented as an integer axis, and the position of each village is identified with a single integer coordinate. There are no two villages in the same position. The distance between two positions is the absolute value of the difference of their integer coordinates.

Post offices will be built in some, but not necessarily all of the villages. A village and the post office in it have the same position. For building the post offices, their positions should be chosen so that the total sum of all distances between each village and its nearest post office is minimum.

However, this problem is too simple for an ICPC contest in the year 8102. You are supposed to solve a harder version.

There is a **circular** highway with length L . There are n villages alongside the highway. The position of each village is identified with a single integer coordinate. There **can be** two or more villages in the same position. The distance between two positions is the length of the shortest path along the highway. If there are two villages with coordinates a and b , the distance between them is $\min(|a - b|, L - |a - b|)$.

You want to build k post offices on the highway and minimize the total sum of all distances between each village and its nearest post office. Each post office has to be placed at an integer coordinate.

Input

The first line contains three integers n , k , and L ($1 \leq n \leq 2 \cdot 10^5$, $1 \leq k \leq n$, $1 \leq L \leq 10^{12}$).

The second line contains n integers $a_1, a_2, \dots, a_n$ ($0 \leq a_1 \leq a_2 \leq \dots \leq a_n < L$) indicating the coordinates of villages.

Output

On the first line, output the answer. On the second line, output k integers $c_1, c_2, \dots, c_k$ ($0 \leq c_i < L$, $c_i \leq c_{i+1}$) indicating the coordinates of the post offices.

Example

standard input	standard output
5 2 10 1 3 4 7 9	5 3 7