

Modular Taxi

Input file: *standard input*
Output file: *standard output*
Time limit: 2 seconds
Memory limit: 512 mebibytes

Longlandia is a very long country. All of its n cities are located along a line segment. If we enumerate them from the beginning to the end of the segment, the i -th city has a_i inhabitants.

You need to get from city s to city f . For this purpose, an infinite number of taxis called Kaban-2, Kaban-3, Kaban-4, Kaban-5, ... operate in Longlandia. A taxi named Kaban- m can take you from city i to city j if the numbers of inhabitants in all cities from i to j inclusive are congruent modulo m . Formally, for any integer k such that $\min\{i, j\} \leq k \leq \max\{i, j\}$, the relation $a_k \equiv a_i \pmod{m}$ must hold.

Find the smallest number Q of taxi calls required to get from city s to city f , and output Q lines describing the route. If it is impossible to reach the destination by taxi, output “Impossible”.

Input

The first line contains an integer n : the number of cities in Longlandia ($2 \leq n \leq 2 \cdot 10^5$).

The second line contains n integers a_1, a_2, \dots, a_n : the population of each city ($1 \leq a_i \leq 10^9$).

The third line contains two integers s and f : the starting and finishing city numbers ($1 \leq s, f \leq n$; $s \neq f$).

Output

Let Q be the smallest number of taxi calls required to get from city s to city f . Output Q lines of the form “Kaban- m_i s_i f_i ”, indicating that the i -th trip will be made by taxi Kaban- m_i and will take you from city s_i to city f_i ($1 \leq s_i, f_i \leq n$; $2 \leq m_i \leq 10^9$). The following equalities must hold: $s_1 = s$; $f_Q = f$; $s_{i+1} = f_i$. And, of course, taxi Kaban- m_i must be able to take you from city s_i to city f_i .

If it is impossible to reach from s to f with any number of taxi calls, output the word “Impossible”.

Letter case does not matter, so you can output, for example, “kaBAN” and “IMPOSSIBLE”.

Examples

| <i>standard input</i> | <i>standard output</i> |
|--|--|
| 6 1 2 3 4 5 6 5 3 | Impossible |
| 8 1 16 20 20 20 23 7 8 1 7 | Kaban-5 1 2 Kaban-4 2 5 Kaban-3 5 6 Kaban-8 6 7 |
| 11 55 55 55 55 55 55 55 55 55 55 7 2 | kaBAAn-239239239 7 2 |