E. Security System

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

Fox Ciel safely returned to her castle, but there was something wrong with the security system of the castle: sensors attached in the castle were covering her.

Ciel is at point $(1, 1)$ of the castle now, and wants to move to point (n, n), which is the position of her room. By one step, Ciel can move from point (x, y) to either $(x + 1, y)$ (rightward) or $(x, y + 1)$ (upward).

In her castle, c^2 sensors are set at points $(a + i, b + j)$ (for every integer i and j such that: $0 \le i < c, 0 \le j < c$).

Each sensor has a count value and decreases its count value every time Ciel moves. Initially, the count value of each sensor is t. Every time Ciel moves to point (x, y), the count value of a sensor at point (u, v) decreases by $(|u - x| + |v - y|)$. When the count value of some sensor becomes **strictly less than** 0, the sensor will catch Ciel as a suspicious individual!

Determine whether Ciel can move from $(1, 1)$ to (n, n) without being caught by a sensor, and if it is possible, output her steps. Assume that Ciel can move to every point even if there is a censor on the point.

Input

In the first line there are five integers n, t, a, b, c ($2 \le n \le 2 \cdot 10^5$, $0 \le t \le 10^{14}$, $1 \le a \le n - c + 1$, $1 \le b \le n - c + 1$, $1 \le c \le n$).

Please do not use the `%lld` specificator to read or write 64-bit integers in C++. It is preferred to use the `cin` stream (also you may use the `%I64d` specificator).

Output

If Ciel's objective is possible, output in first line $2n - 2$ characters that represent her feasible steps, where i-th character is `R` if i-th step is moving rightward, or `U` if moving upward. If there are several solution, output **lexicographically first** one. Character `R` is lexicographically earlier than the character `U`.

If her objective is impossible, output `Impossible`.

Examples

input
5 25 2 4 1
output
RRUURURU

input
3 6 1 2 2
output
URUR

input
3 5 1 2 2
output
Impossible

input
20 492 11 4 8

output
RRRRRRRRRRRRRRRRUUUUURUUUUURUUUUUUUU

Note

The answers for the first sample and the second sample are shown on the picture:

Here, a red point represents a point that contains a sensor.