The Codebook (codebook)

Passwords for the SSA (Super Secret Agency) are kept in special codebook with numbered pages (numbering starts from 1). Each page (except possibly the last one) has exactly B rows, numbered from 1 to B, and each row contains exactly one password.

Codebook with passwords is generated as follows. Executive chief of SSA selects a positive integer key K>1 and N distinct nonnegative integers A_i, (0<=i<N). Valid passwords are permutations of the N selected integers with the following property: in a valid password the greatest common divisor of two adjacent numbers is at least K. For example, if the selected numbers are (9, 8, 6, 3) and K=2, the password (8, 6, 3, 9) is valid but password (6, 8, 3, 9) is not. All valid passwords are sorted lexicographically and written in the codebook, starting at page 1.

The daily password is chosen in the following fashion: two integers P and Q are selected by the head of the IT department of SSA, where P represents the page number(P>=1), and Q represents the row number(Q>=1). Then the daily password is the one that is in row Q at page P. Your task is to print the daily password.

Task

It is your task to create a function DailyPassword that takes seven arguments. The first five are integers N,K,B,P and Q respectively. The sixth argument is the array A of length N that contains the N distinct integers. The seventh argument is the array password that you should write the daily password to (if one exists).

This function should return the boolean value of true if the requested daily password exists. In case that the requested daily password doesn’t exist the function should return false and the contents of array password is ignored.

Examples

First example

DailyPassword(4, 2, 2, 2, 2, (6, 8, 3, 9), password) = true, password = (9, 3, 6, 8)

The codebook has two rows per page. We want the password in the second row of the second page which is the fourth valid password, i.e.: (9, 3, 6, 8).

Second example

DailyPassword(4, 2, 3, 2, 2, (6, 8, 3, 9), password) = false

The codebook has three rows per page. We want the password in the second row of the second page which is the fifth valid password. This password does not exist.

Subtasks

Subtask 1 (5 points) : 1<=n<=10, 0<=A_i<=500

Subtask 2 (8 points) : 1<=n<=10, 0<=A_i<=10,000,000

Subtask 3 (14 points) : 1<=n<=10, 0<=A_i<=10,000,000, additionally for each i, (0<=i<N) GCD(A_i, A_j) >= K will be true for at most 4 distinct j!=i, (0<=j<N)

Subtask 4 (33 points) : 1<=n<=12, 0<=A_i<=10,000,000

Subtask 5 (40 points) : 1<=n<=20, 0<=A_i<=10,000,000