Problem 1: Welcome to Neuroverse 2023!

Welcome to the final round of Neuroverse 2023, the annual intra-college tech fest organized by the Computer Science Department of RKMVCC Rahara!

In this problem, you will be given a string, s, consisting of lower-case English alphabets and your task is to check whether the word "neuroverse" is contained in it. If the string contains the word "neuroverse", your program should print "YES" (without quotes), otherwise it should print "NO" (without quotes).

Input format:

The first line of input contains a single integer, n, the length of the string.

The second line of input contains the string s.

Output format:

Print a single line containing your answer.

Constraints:

- $0 < n < 15$
- s only consists of lower-case English alphabets.

Sample Input 1:

fewneuroverseve

Sample Output 1:

YES

Sample Input 2:

computers

Sample Output 2:

NO

Problem 2: Tambi's bicycle

Tambi was recently gifted a bicycle by his uncle for his 10^{th} birthday. He promised his parents that he would clean his bicycle regularly and take good care of it.

Tambi decided that he would clean his bicycle every d days. He last cleaned his bicycle c days ago. Your task is to find out after how many days will Tambi clean his bicycle again.

Input format:

The first line of input contains two integers, d and c, as mentioned in the problem statement.

Output format:

Print a single integer, p, which means Tambi will again clean his bicycle after p days.

Constraints:

- $0 < c < d \leq 10^8$

Sample Input 1:

6 2

Sample Output 1:

4

Sample Input 2:

13 12

Sample Output 2:

1

Problem 3: Array Sum

Jacques De Gautier, the famous mathematician from Temiscaming, Quebec recently was accepted into the PhD program at McGill University. To congratulate him, his peers Jean McChand, Gerald Pericier and Pierre Trudeau gifted him an array, a of n non-negative integers.

Now Jacques De Gatino, being the curious mathematician that he is, wants to count how many **unordered pairs** of numbers are present in the array whose sum equals S. Can you help him solve the problem?

Input format:

The first line of input contains two integers, n, the length of the array, and S, the required sum.

The second line of input contains n positive space-separated integers, the values of the array - $a_1, a_2, \ldots, a_n$.

Output format:

Print a single line containing the number of **unordered pairs** of numbers whose sum equals S.

Constraints:

- $0 < n < 10^5$
- $0 < S \leq 10^8$
- $0 < a_i \leq 10^8$

Sample Input:

5 6

4 4 5 1 2

Sample Output:

3

Explanation:

The elements at indices $(1,5), (2,5), (3,4)$ each add up to give the sum S.

Problem 4: Somewhere Door

Nobita's final exams will start in a few days. Since Doraemon did not allow him to use the Anywhere Door, he needs to travel to and from his exam hall by another gadget that he stole from Doraemon, the Somewhere Door.

Just like the Anywhere Door, the Somewhere Door too opens a portal which allows Nobita to travel anywhere he wants instantly. But unlike the Anywhere Door, the Somewhere Door cannot be used at any time, it can only be used n specified times during the day.

Nobita's exams start at time t_1 and go up to time t_2 every day. Since there are many exams, to maximize the time he studies at home, Nobita wants to go as late as possible before the exam starts and come home as early as possible after the exam ends.

You are given the n specific times when the Somewhere Door can be used during the day - $s_1, s_2, \ldots, s_n$.

If Nobita chooses to go at time $s_i (s_i \leq t_1)$ and come back at time $s_j (s_j \geq t_2)$, the total time he spends for his exam is $s_j - s_i + 1$. Can you tell what is the minimum total time that Nobita spends for his exam?

Input format:

The first line of input contains two integers, t_1 and t_2, the starting and ending times of the exams.

The second line of input contains a single integer, n, denoting the number of times that the Somewhere Door can be used during the day.

The third line of input contains n space - separated integers, $s_1, s_2, \ldots, s_n$, denoting the times when the Somewhere Door can be used during the day.

Output format:

Print a single line containing the minimum time that Nobita spends for his exam.

Constraints:

- $0 < t_1 < t_2 \leq 10^8$
- $0 < n < 10^5$
- $0 < s_i \leq 10^8$
- It is guaranteed that there exists at least one s_i such that $s_i \leq t_1$ and at least one s_j such that $s_j \geq t_2$. In other words, it is guaranteed that Nobita can travel to and from his exam hall using the Somewhere Door.

Sample Input 1:

5 7

6

12 8 4 6 10 7

Sample Output 1:

4

Sample Explanation 1:

Nobita can use the Somewhere Door at time 4 to go to his exam hall and come back using the Somewhere Door at time 7, thus taking a total time of $7 - 4 + 1 = 4$.

Sample Input 2:

13 210

5

10 100 1000 10000 1

Sample Output 2:

991