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The Hurdle Race

 by [ma5termind](#)

Problem

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Dan is playing a video game in which his character competes in a hurdle race by jumping over n hurdles with heights h_0, h_1, \dots, h_{n-1} . He can initially jump a maximum height of k units, but he has an unlimited supply of magic beverages that help him jump higher! Each time Dan drinks a magic beverage, the maximum height he can jump during the race increases by 1 unit.

Given n , k , and the heights of all the hurdles, find and print the *minimum* number of magic beverages Dan must drink to complete the race.

Input Format

The first line contains two space-separated integers describing the respective values of n (the number of hurdles) and k (the maximum height he can jump without consuming any beverages).

The second line contains n space-separated integers describing the respective values of h_0, h_1, \dots, h_{n-1} .

Constraints

- $1 \leq n, k \leq 100$
- $1 \leq h_i \leq 100$

Output Format

Print an integer denoting the *minimum* number of magic beverages Dan must drink to complete the hurdle race.

Sample Input 0

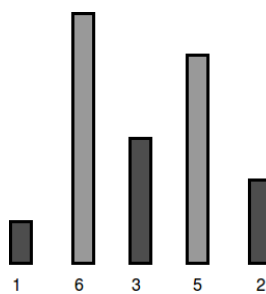
```
5 4
1 6 3 5 2
```

Sample Output 0

```
2
```

Explanation 0

Dan's character can jump a maximum of $k = 4$ units, but the tallest hurdle has a height of $h_1 = 6$:



To be able to jump all the hurdles, Dan must drink $6 - 4 = 2$ magic beverages.

Sample Input 1

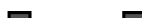
```
5 7
2 5 4 5 2
```

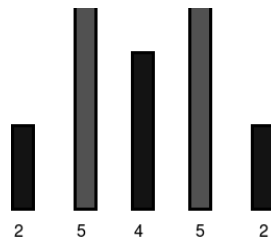
Sample Output 1

```
0
```

Explanation 1

Dan's character can jump a maximum of $k = 7$ units, which is enough to cross all the hurdles:





Because he can already jump all the hurdles, Dan needs to drink **0** magic beverages.

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Max Score: 15

Difficulty: Easy

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C++

```
1 #include <map>
2 #include <set>
3 #include <list>
4 #include <cmath>
5 #include <ctime>
6 #include <deque>
7 #include <queue>
8 #include <stack>
9 #include <string>
10 #include <bitset>
11 #include <cstdio>
12 #include <limits>
13 #include <vector>
14 #include <climits>
15 #include <cstring>
16 #include <cstdlib>
17 #include <fstream>
18 #include <numeric>
19 #include <sstream>
20 #include <iostream>
21 #include <algorithm>
22 #include <unordered_map>
23
24 using namespace std;
25
26
27 int main(){
28     int n;
29     int k;
30     cin >> n >> k;
31     vector<int> height(n);
32     int max = 0;
33     for(int height_i = 0; height_i < n; height_i++){
34         cin >> height[height_i];
35         if (height[height_i] > max) max = height[height_i];
36     }
37     cout << ((max - k) < 0 ? 0 : max - k);
38     // your code goes here
39     return 0;
40 }
41
```

Line: 1 Col: 1

[Upload Code as File](#) ☐ Test against custom input

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