The Hurdle Race

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Problem Submissions Leaderboard Discussions Editorial

Dan is playing a video game in which his character competes in a hurdle race by jumping over n hurdles with heights $h_0, h_1, \ldots, h_{n-1}$. 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 $h_0, h_1, \ldots, h_{n-1}$.

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

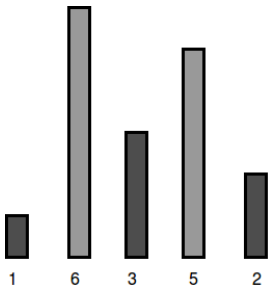
```
5 4
1 6 3 5 2
```

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

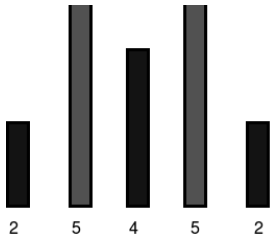
```
5 7
2 5 4 5 2
```

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.

Submissions: 7939
Max Score: 15
Difficulty: Easy

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Current Buffer (saved locally, editable) C++

```
#include <map>
#include <set>
#include <list>
#include <cmath>
#include <ctime>
#include <deque>
#include <queue>
#include <stack>
#include <string>
#include <bitset>
#include <cstdio>
#include <limits>
#include <vector>
#include <climits>
#include <cstring>
#include <cstdlib>
#include <fstream>
#include <numeric>
#include <sstream>
#include <iostream>
#include <algorithm>
#include <unordered_map>

using namespace std;


int main(){
    int n;
    int k;
    cin >> n >> k;
    vector<int> height(n);
    int max = 0;
    for(int height_i = 0; height_i < n; height_i++){
       cin >> height[height_i];
        if (height[height_i] > max) max = height[height_i];
    }
    cout << ((max - k) < 0 ? 0 : max - k);
    // your code goes here
    return 0;
}

```

Line: 1 Col: 1

Upload Code as File Test against custom input Run Code Submit Code