https://course.acciojob.com/idle?question=24317ca0-60e5-4823-9108-e0edfd4e3f08

- MEDIUM
- Max Score: 40 Points
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Minimum Limit of Balls in a Bag

You are given an integer array nums where the ith bag contains nums[i] balls. You are also given an integer maxOperations.

You can perform the following operation at most maxOperations times:

Take any bag of balls and divide it into two new bags with a positive number of balls.

For example, a bag of 5 balls can become two new bags of 1 and 4 balls, or two new bags of 2 and 3 balls.

Your penalty is the maximum number of balls in a bag. You want to minimize your penalty after the operations.

Print the minimum possible penalty after performing the operations.

Input Format

The first line of the input contains the number n(length of the array) and m(maximum number of operations).

The next n integers denote the elements of the array.

Output Format

Print the minimum penalty possible after performing at most m operations.

Example 1

Input

```
1 2
9
```

Output

```
3
```

Explanation

- Divide the bag with 9 balls into two bags of sizes 6 and 3. [9] -> [6,3].
- Divide the bag with 6 balls into two bags of sizes 3 and 3. [6,3] -> [3,3,3].
- The bag with the most number of balls has 3 balls, so your penalty is 3 and you should return 3.

Example 2

Input

```
4 4
2 4 8 2
```

Output

```
2
```

Explanation

- Divide the bag with 8 balls into two bags of sizes 4 and 4. [2,4,8,2] -> [2,4,4,4,2].
- Divide the bag with 4 balls into two bags of sizes 2 and 2. [2,4,4,4,2] -> [2,2,2,4,4,2].
- Divide the bag with 4 balls into two bags of sizes 2 and 2. [2,2,2,4,4,2] -> [2,2,2,2,2,4,2].
- Divide the bag with 4 balls into two bags of sizes 2 and 2. [2,2,2,2,2,4,2] -> [2,2,2,2,2,2,2,2].

The bag with the most number of balls has 2 balls, so your penalty is 2 an you should return 2.

Constraints:

1 <= nums.length <= 10^5

1 <= maxOperations, nums[i] <= 10^9

Topic Tags

- **Binary Search**

My code

```
// n java

import java.util.*;
import java.io.*;

public class Main {
        static boolean chech_posible(int arr[],int k,int mid)
        {
                int c=0;
                for(int i=0;i<arr.length;i++)
                        {
                                c+=(arr[i]-1)/mid;
                        }
                return c<=k;
        }
    public static void main(String args[]) {
        //your code here
            Scanner s=new Scanner(System.in);
            int n=s.nextInt();
             int k=s.nextInt();
            int arr[]=new int[n];
```

```
        int min=Integer.MAX_VALUE;
         int max=Integer.MIN_VALUE;
        for(int i=0;i<n;i++)
                {
                         arr[i]=s.nextInt();
                        if(arr[i]>max) max=arr[i];

                        if(arr[i]<min) min=arr[i];

                }
        int l=1,r=max;
        while(l<=r)
                {
                  int mid=(l+r)/2;
                        if(chech_posible(arr,k,mid))
                        {
                                r=mid-1;
                        }
                        else
                        {
                                l=mid+1;
                        }
                }
        System.out.print(l);
    }
}
```