SONA COLLEGE OF TECHNOLOGY

(AUTONOMOUS)

B.E / B. Tech DEGREE SEMESTER END PRACTICAL EXAMINATIONS, DEC 2020 – JAN 2021

REGISTER NUMBER	:	1	5	1	8	1	0	2	1	2	6
SUBJECT CODE	:	U15CS506R								
SUBJECT NAME	:	PYTHON PROGRAMMING LABORATORY								
DATE	:	0	7	/	0	1	/	2	0	2	1
BATCH	:	4								

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Write a Python Program for the following:

1. Given 2 numbers(interval) display(space separated) odd numbers between two intervals.

Input Size : N,Q <= 100000

Sample Testcase :

INPUT

1 6

OUTPUT

3 5

2. Waking up in the morning, Apollo decided to bake cookies. To bake one cookie, he needs n ingredients, and for each ingredient he knows the value ai — how many grams of this ingredient one needs to bake a cookie. To prepare one cookie Apollo needs to use all n ingredients. Apollo has bigram of the i-th ingredient. Also she has k grams of a magic powder. Each gram of magic powder can be turned to exactly 1 gram of any of the n ingredients and can be used for baking cookies. Your task is to determine the maximum number of cookies, which Apollo is able to bake using the ingredients that he has and the magic powder.

Input

The first line of the input contains two positive integers n and k ($1 \le n, k \le 1000$) — the number of ingredients and the number of grams of the magic powder.

The second line contains the sequence $a1, a2, ..., an$ ($1 \le ai \le 1000$), where the i-th number is equal to the number of grams of the i-th ingredient, needed to bake one cookie.

The third line contains the sequence $b1, b2, ..., bn$ ($1 \le bi \le 1000$), where the i-th number is equal to the number of grams of the i-th ingredient, which Apollinaria has.

Output

Print the maximum number of cookies, which Apollinaria will be able to bake using the ingredients that she has and the magic powder.

Input Size : N<=100000, k<=1000000000

Example:

INPUT

3 1

2 1 4

11 3 16

OUTPUT

4

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Display odd numbers between two intervals.

Aim:

To write a python program to get 2 numbers(interval) and to display odd numbers between the two numbers.

Algorithm:

Step 1: Start the program

Step 2: get the two numbers from user as input

Step 3: Run a for loop for the given range/interval

Step 4: At each iteration check wheather 'i' is even (or) odd by using modulo 2 operation.

Step 5: If the number is odd, print the number with space and without line break.

Step 6: Stop the program.

Program:

```
x, y = map(int, input().split())
for i in range(x+1, y):
    if(i%2!=0):
        print(i, end=" ")
```

Output:

```
1 6
3 5
```

Result:

The above program is implemented to print the odd numbers between the intervals and the output is verified.

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2.

To Find the maximum number of cookies

Aim:

To write a Python program to get the no. of ingredients, K grams of magic powder, grams of each ingredient required to bake a cookie as list and also the grams of each ingredient appollo has as a list and to find the maximum number of cookie that can be made

Algorithm:

Step 1: Start the program.

Step 2: Get the number of ingredients and grams of magic powder as input.

Step 3: get the sequence of grams of i^{th} ingredient required to bake the cookie.

Step 4: get the sequence of grams of i^{th} ingredient that appollo has.

Step 5: Now assign the minimum positive value (i.e) 0 to l and a maximum value to r(ThisValue can be chosen based on the constraint.

Step 6: Now find the middle value of l and r and store it in 'mid'.

Step 7: Run a for loop and check whether the ingredients appollo has is greater than the mid times the ingredients required.

Step 8: If it is greater then skip the iteration else we need to use the magic powder.

Step 9: If it is smaller then subtract the magic powder required to make mid times the ith required ingredient.

Step 10: If the magic powder reaches negative value return false which means there is no more magic powder available to change the ingredient.

Step 11: If the magic powder is greater than 0 then return true which means it is possible to make mid number of cookies.

Step 12: Using while loop check whether the low value 'l' is not greater than 'r' (max value) and if l becomes larger than r break the loop and print l.

Step 13: Stop the program.

Program:

```
def sol(a, b, mid, n, k):
    for i in range(n):
        if (b[i] > (a[i]*mid)):
            continue
        else:
            k -= (a[i]*mid) - b[i]
            if (k<0):
                return False
    return k>=0

n, k = map(int, input().split())
a = list(map(int, input().split()))
b = list(map(int, input().split()))
l = 0
r = 10**4
while (l< r-1):
    mid = (l+r)//2
    if (sol(a,b,mid,n,k)):
        l = mid
    else:
        r = mid
print(l)
```

Output:

```
3 1
2 1 4
11 3 16

4
```

Result:

The above program code is implemented to determine the maximum number of cookie that can be made and the output is verified.