Problem M. Kubernetes

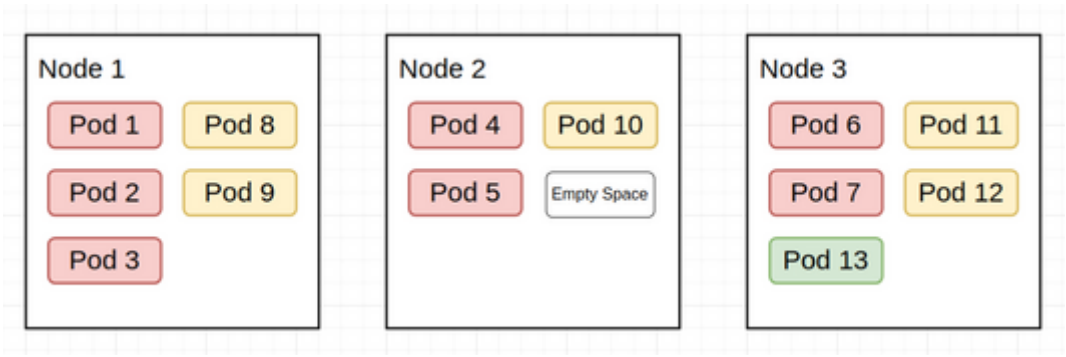
Time limit	1000 ms
Mem limit	262144 kB
OS	Windows

Kubernetes is a container orchestration system for automating software deployments, and google wants your help to maintain a highly available Kubernetes cluster.

A Kubernetes cluster is a group of N nodes (machines) that are used to run applications, each node has a capacity of c_i pods (a pod is an instance of an application).

We have M applications and each application has a number of pods a_j that needs to be run on the cluster to make sure that its users have a nice experience, for example a widely used application like google search must have a lot of instances running, while another small application like google keep doesn't need that much instances to keep users happy.

We define for each application a value called $availability_j$ which is equal to the **minimum** number of pods from the application j running on the **same node** after distrubution for example:



Here we have 3 nodes with capacities $5, 4, 5$ respectively and 3 applications:

1. **Application 1**: 7 pods (1 to 7) with availability of 2 (node 2 is only running 2 pods from this application)
2. **Application 2**: 5 pods (8 to 12) with availability of 1 (all nodes are running 2 pods from this application except for node 2)
3. **Application 3**: 1 pod (pod 13) with availabilito of 0 (there is only one pod in node 3 so nodes 1 and 2 have zero pods running from this application)

Now your job is determine the maximum possible value for $\min_{1 \le j \le M}(availability_j)$

Note: Its guaranteed that all applications can be deployed in the cluster

Input

The first line of the input contains N and M ($1 \leq N, M \leq 10^5$) the number of nodes, and the number of applications respectively.

The second line of the input contains N integer representing the capacity of each node ($1 \leq c_i \leq 10^9$)

The third line of the input contains M integer representing the number of pods ($1 \leq a_j \leq 10^9$)

Its guaranteed that $\sum_{j=1}^{j=M} a_j \leq \sum_{i=1}^{i=N} c_i$

Output

Print one integer that represents the maximum possible value for $\min_{1 \leq j \leq M}(availability_j)$

Sample 1

Input	Output
3 3 5 4 5 7 5 1	0

Sample 2

Input	Output
4 3 9 9 8 9 8 10 10	2