



HOME TOP CATALOG CONTESTS GYM PROBLEMSET GROUPS RATING EDU API CALENDAR HELP

PROBLEMS SUBMIT CODE MY SUBMISSIONS STATUS HACKS ROOM STANDINGS CUSTOM INVOCATION

B2. Bouquet (Hard Version)

time limit per test: 1.5 seconds memory limit per test: 256 megabytes

This is the hard version of the problem. The only difference is that in this version, instead of listing the number of petals for each flower, the number of petals and the quantity of flowers in the store is set for all types of flowers.

A girl is preparing for her birthday and wants to buy the most beautiful bouquet. There are a total of n different types of flowers in the store, each of which is characterized by the number of petals and the quantity of this type of flower. A flower with k petals costs k coins. The girl has decided that the difference in the number of petals between any two flowers she will use to decorate her cake should not exceed one. At the same time, the girl wants to assemble a bouquet with the maximum possible number of petals. Unfortunately, she only has m coins, and she cannot spend more. What is the maximum total number of petals she can assemble in the bouquet?

Input

Each test consists of several test cases. The first line contains a single integer t ($1 \le t \le 10\,000$) — the number of test cases. This is followed by descriptions of the test cases.

The first line of each test case contains two integers n, m (

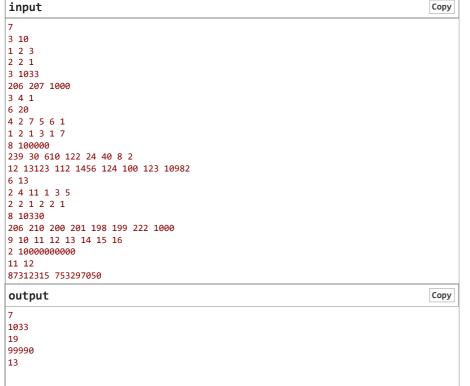
 $1 \leq n \leq 2 \cdot 10^5, 1 \leq m \leq 10^{18})$ — the number of types of flowers in the store and the number of coins the girl possesses, respectively. The second line of each test case contains n different integers a_1, a_2, \ldots, a_n $(1 \leq a_i \leq 10^9)$, where a_i is the number of petals of the i-th flower type in the store (for different indexes $i \neq j$, it must be $a_i \neq a_j$). The third line of each test case contains n integers c_1, c_2, \ldots, c_n $(1 \leq c_i \leq 10^9)$, where c_i is the quantity of the i-th flower type in the store.

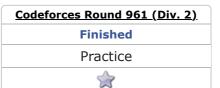
The sum of n over all test cases does not exceed $2 \cdot 10^5$.

Output

For each test case, print one integer — the maximum possible number of petals in a bouquet that a girl can collect, observing all the conditions listed above.

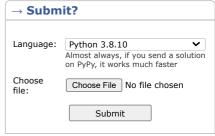
Example











→ Last submissions		
Submission	Time	Verdict
272679089	Jul/26/2024 11:54	Accepted



→ Contest materials		
Announcement (en)	×	
Tutorial #1 (en)	×	
Video Tutorial (en)	×	

10000 999999999

Note

In the first test case, some valid bouquets are (1,1,2,2),(2,2,3),(1,1),(2,2). The maximum over all valid bouquets not greater than 10 is 7 for (2,2,3) . In the second test case, you can assemble a valid bouquet with (206,206,207,207,207) with a sum of 1033, which is the maximum number of petals the girl can buy. In the third test case, you can assemble a valid bouquet with (5,5,5,4) with a sum of 19. It can be seen that no valid bouquet can have 20petals.

> Codeforces (c) Copyright 2010-2024 Mike Mirzayanov The only programming contests Web 2.0 platform Server time: Jul/26/2024 15:54:49^{UTC+5.5} (k2). Desktop version, switch to mobile version. Privacy Policy

> > Supported by



