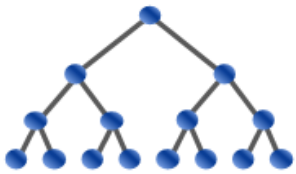

USACO 2021 DECEMBER CONTEST, SILVER
PROBLEM 1. CLOSEST COW WINS

Return to Problem List

Contest has ended.

Analysis mode

English (en)

Farmer John owns a long farm along the highway that can be considered somewhat like a one-dimensional number line. Along the farm, there are K grassy patches ($1 \leq K \leq 2 \cdot 10^5$); the i-th patch is located at position p_i and has an associated tastiness value t_i ($0 \leq t_i \leq 10^9$). Farmer John's nemesis, Farmer Nhoj, has already situated his M cows ($1 \leq M \leq 2 \cdot 10^5$) at locations $f_1 \ldots f_M$. All $K+M$ of these locations are distinct integers in the range $[0, 10^9]$.

Farmer John needs to pick N ($1 \leq N \leq 2 \cdot 10^5$) locations (not necessarily integers) for his cows to be located. These must be distinct from those already occupied by the cows of Farmer Nhoj, but it is possible for Farmer John to place his cows at the same locations as grassy patches.

Whichever farmer owns a cow closest to a grassy patch can claim ownership of that patch. If there are two cows from rival farmers equally close to the patch, then Farmer Nhoj claims the patch.

Given the locations of Farmer Nhoj's cows and the locations and tastiness values of the grassy patches, determine the maximum total tastiness Farmer John's cows can claim if optimally positioned.

INPUT FORMAT (input arrives from the terminal / stdin):

The first line contains K, M, and N.

The next K lines each contain two space-separated integers p_i and t_i.

The next M lines each contain a single integer f_i.

OUTPUT FORMAT (print output to the terminal / stdout):

An integer denoting the maximum total tastiness. Note that the answer to this problem can be too large to fit into a 32-bit integer, so you probably want to use 64-bit integers (e.g., "long long"s in C or C++).

SAMPLE INPUT:

```
6 5 2
0 4
4 6
8 10
10 8
12 12
13 14
2
3
5
7
11
```

SAMPLE OUTPUT:

```
36
```

If Farmer John places cows at positions 11.5 and 8 then he can claim a total tastiness of $10 + 12 + 14 = 36$.

Problem credits: Brian Dean

Language: C

Source File: Choose File No file chosen

Submit Solution

Note: Many issues (e.g., uninitialized variables, out-of-bounds memory access) can cause a program to produce different output when run multiple times; if your program behaves in a manner inconsistent with the official contest results, you should probably look for one of these issues. Timing can also differ slightly from run to run, so it is possible for a program timing out in the official results to occasionally run just under the time limit in analysis mode, and vice versa. Note also that we have recently changed grading servers, and since our new servers run at different speeds from the servers used during older contests, timing results for older contest problems may be slightly off until we manage to re-calibrate everything properly.

Previous In-Contest Submissions:

Sun, Dec 19, 2021 21:10:27 EST (C++11)