PREPARE CERTIFY COMPETE

Q Search

J Ç

🏭 malindupasan 🗸

All Contests > National Olympiad in Informatics Sri Lanka - March 2023 > Planet Cruise

Planet Cruise

♠ locked

Problem

Submissions

Leaderboard

Discussions

There are n planets in a solar system (In this universe planets lie on a 2D coordinate plane). You're on the first planet and you need to reach the planet with the highest x coordinate using your spaceship.

Coordinates of the first planet is [0,0]. Coordinates of other planets are given to you. When you visit the i^{th} planet at t^{th} hour you have to pay $v_{i,t}$ for the planetory visa. You'll need spaceship fuel to travel between planets. Speed of the spaceship is 1 distance unit per hour. (to travel 5 distance units it will take 5 hours). Distance between two planets is the manhattan distance of their coordinates. You're only allowed to carry enough fuel to reach your next destination. In i^{th} planet you can buy fuel for the price f_i .

You're only allowed to move to planets which has **higher** \boldsymbol{x} **coordinate than the current planet you're in**. You can choose any order of planets you want to visit (not breaking the increasing \boldsymbol{x} rule) and you do not have to visit all planets, except the planet with the highest \boldsymbol{x} coordinate.

Find the minimum cost required for the journey and output on a single line.

Note: It is guaranteed that one x coordinate will contain only one planet.

Subtasks

• In 50% of testcases n <= 10, T <= 50

Input Format

First line contains n, the number of planets

next n lines has x y, x axis and y axis position of the planet

next line contains n integers, f_1 , f_2 , f_3 , ... f_n

next line contains integer $oldsymbol{T}$

Next n lines contains T integers each, $v_{i,t} (0 <= t <= T-1)$

Constraints

- All inputs are integers.
- $2 < n < 10^2$
- $2 < T < 5 * 10^2$
- $0 < v_{i,t} < 10^6$
- $0 < f_i < 10^6$
- $0 < x < 10^2$
- 0 < y < 4

Output Format

Single integer containing the minimum cost. It is guaranteed that a solution exists.

Sample Input 0

```
3
0 0
2 0
1 0
10 30 20
3
0 0 0
100 100 10
100 100 100
```

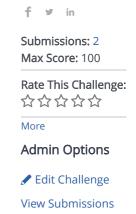
Sample Output 0

30

Explanation 0

Planet with the highest x is the second planet. We can just go straight to it. Cost can be calculated as follows,

- distance is 2, which takes time 2
- need **2** fuel
- fuel price on the first planet is 10 so fuel cost is 20
- time will be 2 hours when we reach the planet
- Visa cost at 2 hours is 10
- total = fuel + visa = **30**



Run Code

```
C++
                                                                                                              *
 1 <del>▼</del> #include <cmath>
 2 #include <cstdio>
   #include <vector>
3
 4 #include <iostream>
 5
   #include <algorithm>
 6
   using namespace std;
7
8
9 <del>√</del> int main() {
        /* Enter your code here. Read input from STDIN. Print output to STDOUT */
10 ▼
11
        return 0;
   }
12
13
                                                                                                       Line: 1 Col: 1
```

<u>♣ Upload Code as File</u> Test against custom input

Submit Code

Interview Prep | Blog | Scoring | Environment | FAQ | About Us | Support | Careers | Terms Of Service | Privacy Policy |