

## Explore the arcadia

### Description

On the Hyrule continent, there are many shrines. After the protagonist Link has visited a shrine, he can teleport to this shrine from any location, thus saving the walking distance. Since Link is very familiar with the Hyrule continent, he knows every location of each shrine. Now please help Link calculate the minimum distance he needs to walk to visit every shrine.Link will be at shrine  $k$  at first.

Besides, you have the "power of teleportation". With this ability, you can teleport one time on the map without any restrictions on its destination.

The location is given in 2D coordinates, and the distance is calculated using manhattan distance.

### Input

First line two integer  $n, k$

Next  $n$  line, each line contains two integer  $x, y$ , which mean the coordinate.

For 40% cases,  $n \leq 10$

For 70% cases,  $n \leq 1000$

For 100% cases,  $n \leq 6000, 1 \leq x, y \leq 1e6, 1 \leq k \leq n$ , shrines coordinates are uniformly distributed.

### Output

A single integer denoting the minimum distance

#### Sample Input 1

```
10 7
4 8
1 10
7 1
4 1
2 6
4 5
3 5
3 5
8 5
10 6
```

#### Sample Output 1

```
20
```

#### Sample Input 2

```
10 5
2 7
2 5
4 4
9 7
1 5
2 9
7 5
9 4
6 8
8 2
```

#### Sample Output 2

```
21
```

Language: 

C

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Theme: 

Solarized Light

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Information	
ID	3003
Time Limit	1000MS
Memory Limit	512MB
IO Mode	Standard IO
Created By	root
Level	Low
Score	1000
Tags	<a href="#">Show</a>

