# Bob's Farm

**Time limit:** 5.0s **Memory limit:** 250M

Bob has gotten bored of winning contests and farming rating. Today, he is going to farm potatoes instead.

Bob's garden is an infinite 2D plane. He has $n$ potatoes to plant, and the $i$-th potato must be planted at $(x_i, y_i)$. Starting at the point $(0, 0)$, Bob begins walking, in one step he can travel one unit *right* or *up* (increasing his $x$ or $y$ coordinate by $1$ respectively). At any point $(X, Y)$ during his walk, he can plant some potatoes at arbitrary points using his potato gun, consuming $\max(|X - x|, |Y - y|)$ units of energy in order to plant a potato at $(x, y)$. Find the minimum total energy required to plant every potato.

Note that Bob may plant any number of potatoes from any point.

## Input Specification

The first line contains the integer $n$ $(1 \leq n \leq 800\,000)$.

The next $n$ lines contain two integers $x_i$ and $y_i$ $(0 \leq x_i, y_i \leq 10^9)$, representing the location of the $i$-th potato. It is possible that some potatoes should be planted in the same location.

## Output Specification

Print the minimum total energy to plant all potatoes.

## Subtasks

For $50\%$ of the score, $x_i, y_i, n \leq 2000$.

## Sample Input 1

```
2
1 1
2 2
```

## Sample Output 1

```
0
```

## Explanation 1

Bob can travel to each spot directly and plant a potato with no energy required.

## Sample Input 2

```
2
1 1
2 0
```

## Sample Output 2

```
1
```

## Explanation 2

Moving to $(1, 0)$, Bob plants the second potato using $1$ energy. Next, he travels to $(1, 1)$ and plants the first potato with $0$ energy.

## Sample Input 3

```
3
5 5
7 7
4 9
```

## Sample Output 3

```
2
```

## Explanation 3

Moving to $(5, 5)$, Bob plants the first potato using $0$ energy. Next, he travels to $(6, 7)$ and plants the third potato with $2$ energy. Finally, he travels to $(7, 7)$ and plants the second potato with $0$ energy.

## Sample Input 4

```
3
5 5
7 7
4 9
```

## Sample Output 4

```
2
```

## Sample Input 5

```
10
5 1
4 0
9 6
0 2
10 1
9 10
3 10
0 10
8 9
1 5
```

## Sample Output 5

```
19
```

## Sample Input 6

```
10
1 1
2 2
2 0
4 2
4 0
2 0
0 2
4 0
4 2
5 1
```

## Sample Output 6

```
6
```