Educational DP Contest AtCoder X - Tower

Time limit: 1.0s   **Memory limit:** 1G

There are N blocks, numbered $1, 2, \ldots, N$. For each i $(1 \le i \le N)$, Block i has a weight of w_i, a solidness of s_i, and a value of v_i.

Taro has decided to build a tower by choosing some of the N blocks and stacking them vertically in some order. Here, the tower must satisfy the following condition:

- For each Block i contained in the tower, the sum of the weights of the blocks stacked above it is not greater than s_i.

Find the maximum possible sum of the values of the blocks contained in the tower.

Constraints

- All values in input are integers.
- $1 \le N \le 10^3$
- $1 \le w_i, s_i \le 10^4$
- $1 \le v_i \le 10^9$

Input Specification

The first line will contain the integer N.

The next N lines will each contain three integers, w_i, s_i, v_i.

Output Specification

Print the maximum possible sum of the values of the blocks contained in the tower.

Sample Input 1

```
3
2 2 20
2 1 30
3 1 40
```

Sample Output 1

```
50
```

Explanation For Sample 1

If Blocks $2, 1$ are stacked in this order from top to bottom, this tower will satisfy the condition, with the total value of $30 + 20 = 50$.

Sample Input 2

```
4
1 2 10
3 1 10
2 4 10
1 6 10
```

Sample Output 2

```
40
```

Explanation For Sample 2

Blocks $1, 2, 3, 4$ should be stacked in this order from top to bottom.

Sample Input 3

```
5
1 10000 1000000000
1 10000 1000000000
1 10000 1000000000
1 10000 1000000000
1 10000 1000000000
```

Sample Output 3

```
5000000000
```

Explanation For Sample 3

The answer may not fit into a 32-bit integer type.

Sample Input 4

```
8
9 5 7
6 2 7
5 7 3
7 8 8
1 9 6
3 3 3
4 1 7
4 5 5
```

Sample Output 4

```
22
```

Explanation For Sample 4

We should, for example, stack Blocks $5, 6, 8, 4$ in this order from top to bottom.