

Problem Jimbo

Input file `stdin`
 Output file `stdout`



Figure 1: The tarot reading of the problem *Jimbo*

Gimi has recently discovered a new game called Talatro. In this game, Gimi has a deck of N cards, and his goal is to maximize the score obtained by playing exactly 5 cards.

At the beginning, the score is determined by two components:

- Chips, denoted by C , initialized with 0.
- Multiplier, denoted by M , initialized with 1.

Each card played by Gimi can modify the values of C and M . There are 4 types of cards:

- 1 x : Adds x to C . More precisely, $C \leftarrow C + x$.
- 2 x y : Adds x to C and adds y to M . More precisely, $C \leftarrow C + x, M \leftarrow M + y$.
- 3 x z : Adds x to C and multiplies M by z . More precisely, $C \leftarrow C + x, M \leftarrow M \cdot z$.
- 4 x y z : Adds x to C , then adds y to M , and finally multiplies M by z . More precisely, $C \leftarrow C + x, M \leftarrow (M + y) \cdot z$.

The final score is calculated as the product of C and M . Gimi is free to choose the order in which he plays the cards. The question is: what is the maximum score he can achieve?

Task

Write a program that, given as input N (the total number of cards in the deck) and the description of the N cards, determines the maximum score Gimi can obtain.

Input data

The input file contains on the first line the natural number N , representing the total number of cards in the deck. The following N lines each describe one card, with each line starting with the value t_i , indicating the type of card i . Depending on the type of the card, the corresponding values follow:

- For $t_i = 1$, the value x_i is given.
- For $t_i = 2$, the values x_i and y_i are given.
- For $t_i = 3$, the values x_i and z_i are given.
- For $t_i = 4$, the values x_i , y_i , and z_i are given.

Output data

The output file will contain on the first line a single natural number, representing the maximum achievable score.

Constraints

- $5 \leq N \leq 1\,000$.
- $1 \leq x_i, y_i \leq 1\,000$, for any $1 \leq i \leq N$.
- $2 \leq z_i \leq 100$, for any $1 \leq i \leq N$.

#	Points	Constraints
1	8	$5 \leq N \leq 10$
2	10	$5 \leq N \leq 15$
3	24	$x_1 = x_2 = \dots = x_N$
4	18	All cards of types 2 and 4 will have the same y , and all cards of types 3 and 4 will have the same z .
5	23	There will be no cards of type $t = 4$.
6	17	No additional restrictions.

Examples

stdin	stdout	Explanations
6 1 3 1 5 2 1 1 3 1 2 4 1 1 2 3 1 3	324	<p>The optimal playing order is: the cards with indices 2,3,5,4, and 6.</p> <p>Initially: $C = 0$, $M = 1$.</p> <p>After card 2: $C = 5, M = 1$</p> <p>After card 3: $C = 6, M = 2$</p> <p>After card 5: $C = 7, M = 6$</p> <p>After card 4: $C = 8, M = 12$</p> <p>After card 6: $C = 9, M = 36$</p> <p>Final score: $C \cdot M = 9 \cdot 36 = 324$.</p> <p>A different order of playing these cards may lead to lower scores.</p>