Spotora vs. Pandify

The Anonymous collective has just released the algorithm used to determine the song order in the music streaming services Pandify and Spotora. As a result, you can now assure that you will maximize the enjoyment you get from these services.

You are given the enjoyment factor that you derive from two lists of songs, which are queued to play on the two radio stations that you have created.

At the beginning of each song, you can either tune to radio station 1 or radio station 2. In addition, you may skip a song, and play the next song in the current station; however, you are limited to 1 skip per 3 songs. (In other words, if you have listened to 3 or more songs since you used the skip, you may skip again).

When you tune to a radio station, the song that will be played is the first non-played/non-skipped song in the song list for the station. Consider the following example:

Station 1: "Night in Tunisia", "It Don't Mean a Thing", "Caravan", "Georgia"

Station 2: "Green Chimneys", "Key to the Highway", "Bye Bye Blackbird", "Honeysuckle Rose"

If you were tune to station 1, and skip the song, you would listen to "It Don't Mean a Thing". You could then tune to station 2, listen to "Green Chimneys". If you then tuned back to station 1, you would listen to "Caravan". Tuning back to station 2, you could then skip "Key to the Highway", because you have listened to 3 songs since your last skip. You would then listen to "Bye Bye Blackbird".

Input Format

The input starts with a number n, 1 <= n <= 100, on a line by itself. This represents how many songs you are planning to listen to.

On the next line are 2 * n integers, each in the range -10^6 to 10^6. These represent the enjoyment from the songs queued up for station 1, where the first integer is the enjoyment from the first song, the second is the enjoyment from the second song, and so on.

On the third line are 2 * n integer, each in the range -10^6 to 10^6. These represent the enjoyment from the songs queued up for station 2.

Constraints

See above

Output Format

You should output, on a single line, the maximum enjoyment that can be derived from listening to n songs. This enjoyment is equal to the sum of the enjoyment factors of the songs that you select.

Sample Input

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4
10 -1 100 2 3 10 20 50
-5 6 4 3 10 30 200 1000
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Sample Output

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120
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Explanation

One strategy that maximizes the enjoyment factor is to do the following:

- Tune to station 2, skip a song, and listen to the next song (gaining 6 enjoyment units).
- Tune to station 1, and listen to the first song (gaining 10 more enjoyment units).

- Tune back to station 2 and listen to the next song (gaining 4 more enjoyment units).
- Tune back to station 1, and skip the song (with factor -1), and listen to the next song (gaining 100 more emjoyment units).