Goal

The time has come to bring your city into the 21st century by providing it with efficient public transport. So you decide to build tram lines. To carry out your projects, you have the right to choose the route you want (by expropriating anyone who gets in your way), with one constraint: the technology you have does not allow you to make two lines that intersect, or two lines that share a terminus.

The potential terminuses of the tram lines are the **N** gates of the city. These are numbered from 0 to **N**-1 by walking around the city walls in a clockwise direction from an arbitrary point. Thus, an example of a situation where the line from A to B (with B> A) necessarily crosses that of C to D (with D> C) is when A <C <B <D.

For each pair of terminals, you have an estimate of the number of passengers who would use a tram line connecting these terminals, if it existed (this number does not depend on the existence of other lines). Your goal is to choose a set of lines that do not intersect two by two, so as to maximize the sum of the number of passengers in all lines.

Note: A solution in cubic time (O (N^3)) is expected.

Data

Input

Row *1*: an integer **N** between *3* and *100* inclusive, representing the number of terminals.
Row *2* to **N**+*1*: **N** integers between **1** and **100** separated by spaces representing the number of passengers who would take the tram connecting terminus A to terminus B. Each row corresponds to a terminus and each integer of the row corresponds to the different terminals (in the same order as that of the rows). A square matrix is thus obtained.

If we call t [A] [B] the number of passengers that would take the line from A to B, then you are guaranteed that:

- t [A] [B] == t [B] [A] (that is, the matrix is symmetrical)
- t [A] [A] == 0

Output

An integer representing the maximum number of passengers that would be transported by optimally constructing your lines within the constraints of the statement: two lines can not intersect and each terminal can be used more than once.

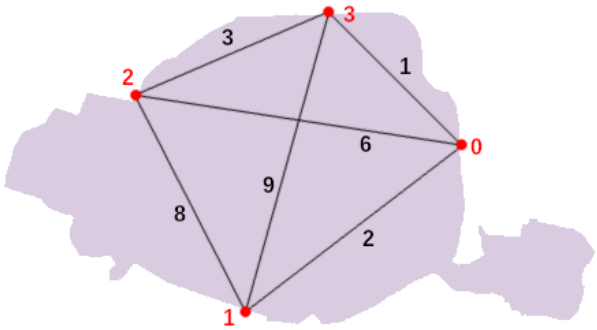
Example

4
0 2 6 1
2 0 8 9
6 8 0 3
1 9 3 0

There are two optimal choices, both of which reach the number of 9 passengers carried:

- build the line from 0 to 3 (1 passenger) and from 1 to 2 (8 passengers);
- build a single line, from 1 to 3. The expected answer is 9.

Note that it is not possible to build both line 1 to 3 and 0 to 2 (which would total 15 passengers) because of a crossing.



You can download sample input and output data files to work locally by clicking on the link at the bottom of the French version of the question

Téléchargez des fichiers d'exemple ainsi qu'un modèle de code pour travailler localement.