Problem A
Spread Out Message
Time Limit: 2 seconds

Wakkas is a great chief of a tribe. As a leader, every day he has to deal with many jobs. Once he makes a decision, the message must be sent to all of his people. Traditionally, Wakkas announces a message in a square and simply let the message be spread out among people. Sometimes, not all people are notified of a message by this way. If a person is not in the square during the announcement of a message, it is possible that no one tells him the message. Even though he hears the message, he may doubt the credibility if the message is sent by a stranger. Another problem is that one person might hear the same message over and over again. Thus, some people do not spread out any message since they are bored to do so.

Recently, Wakkas figures out a more efficient way to spread out a message. He maintains a list, called the *spreading list*, which consists of pairs of persons. Each pair (p_i, p_j) of the list indicates that p_i needs to tell p_j any new message he received and p_j also needs to tell p_i any new message he received. For example, assume that there are four persons p_1, p_2, p_3, and p_4 and $((p_2, p_3), (p_1, p_3), (p_3, p_4))$ is the spreading list. If Wakkas tells a new message to p_1; p_1 in turn tells the message to p_3; and finally, p_3 tells the message to both p_2 and p_4. (See Figure 1.) To announce a new message, Wakkas always tells the message only to p_1.

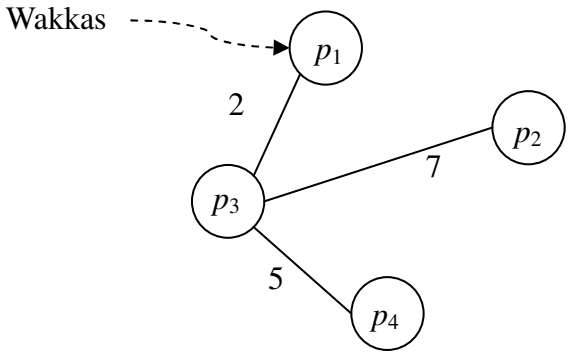
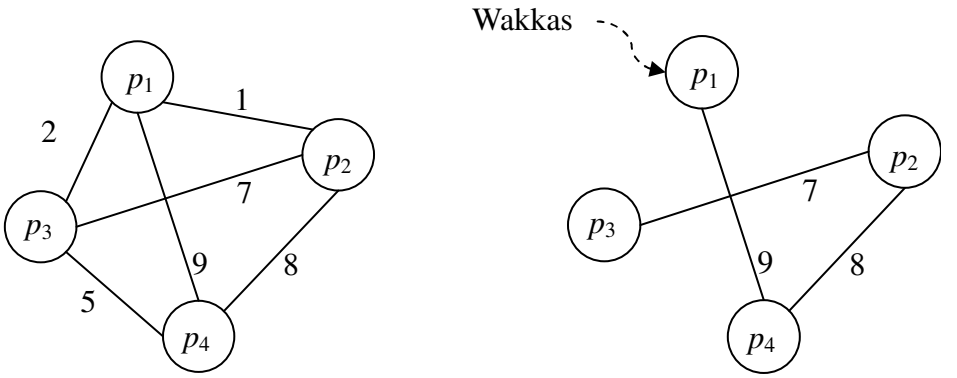


Figure 1. A spreading list $((p_2, p_3), (p_1, p_3), (p_3, p_4))$.

Wakkas wants the length of the spreading list to be as short as possible. After some study, he finds that a list of $n - 1$ pairs is necessary and sufficient for all people to receive a new message, where n is the number of his people. Wakkas also wants that a new message can be received by all of his people as soon as possible. To do so, for every pair (p_i, p_j) of his people, he assigns a *score* $f_{(i,j)}$ according to the degree of familiarity between p_i and p_j, where a higher score indicates that the two people are more familiar with each other. Wakkas defines the score of a spreading list as the total score of its pairs. For example, if $f_{(2,3)} = 7$, $f_{(1,3)} = 2$, and $f_{(3,4)} = 5$, the score of the spreading list in Figure 1 is 14. Wakkas believes that the higher the score of a spreading list, the shorter the time required for all people to receive a new message.

Wakkas' target is to create a spreading list of highest score. The created spreading list must contain exactly $n - 1$ pairs which are sufficient for all people to receive a new message.

Consider the example in Figure 2(a). Figure 2(b) shows a spreading list with the highest score 24. Wakkas is too busy to handle it; therefore, he seeks for your help.



(a) scores $f_{(i,j)}$ (b) a spreading list with score 24

Figure 2. An example of $n = 4$.

Technical Specification

1. The number of people in the tribe, $n : 2 \leq n \leq 100$.
2. The score, $f_{(i,j)} : 0 \leq f_{(i,j)} \leq 100$.

Input

There are at most 100 test cases. Each test case describes the tribe in two parts. The first part is a single integer n, where $2 \leq n \leq 100$. The second part consists of n lines indicating the scores among the n people. The i^{th} line contains n integers $f_{(i,1)}, f_{(i,2)}, ..., f_{(i,n)}$. Note that $f_{(i,j)} = f_{(j,i)}$ for $1 \leq i, j \leq n$, and $f_{(i,i)} = 0$ for $1 \leq i \leq n$.

The last test case will be followed by a line consisting of an integer 0.

Output

For each test case, print a line containing the highest score of a spreading list.

Sample Input

```
3
0 5 2
5 0 3
2 3 0
```

```
4
0 1 2 9
1 0 7 8
2 7 0 5
9 8 5 0
0
```

Sample Output

```
8
24
```