



PROBLEM SQUIRREL

A squirrel has discovered a storage with nuts. The storage contains N rows of rooms numbered from 0 to $N - 1$. The row with index i contains $i + 1$ rooms numbered from 0 to i . The room located in the row i and column j contains A_{ij} nuts.

In the $\frac{N \times (N+1)}{2}$ rooms, the numbers A_{ij} are all distinct and have values between 1 and $\frac{N \times (N+1)}{2}$.

Formally, the storage has the shape of a triangle half-matrix, the one located below the main diagonal (including the main diagonal), in which each element represents a number of nuts. The numbers in this half-matrix are the numbers from 1 to $\frac{N \times (N+1)}{2}$, with each number appearing exactly once.

For example, for $N = 5$ the storage would have 15 rooms containing the numbers from 1 to 15. An example of such a storage could be the half-matrix shown below:

1				
14	6			
8	2	15		
3	10	4	12	
9	5	13	11	7

The squirrel walks along the main diagonal, and at each room located at position (i, i) it chooses a single room located in the rectangle with the top-right corner at position (i, i) and the bottom-left corner at position $(N - 1, 0)$, and eats the acorns from that room. In the example above, when the squirrel is at position $(1, 1)$, it may choose to eat the nuts from one of the 8 rooms colored in red. After it has gone through all the rooms on the main diagonal and has eaten the nuts from exactly N different rooms, the squirrel leaves satisfied.

REQUIREMENT Given N and A_{ij} for any i with $0 \leq i < N$ and j with $0 \leq j \leq i$, find the maximum number of nuts the squirrel can eat.

Also, for each of the N rooms visited, find the number of nuts eaten by the squirrel.

IMPLEMENTATION You must implement the function

DETAILS

```
void solve(int N, vector<vector<int>> A, long long& answer, vector<int>& solution)
```

Function parameters:

Input data:

- `int N` : storage size / number of rows
- `vector<vector<int>> A` : Number of nuts in each room (More precisely, in $A_{i,j}$ with $0 \leq i < N$ and $0 \leq j \leq i$ you will find the number of nuts in the room at position j of row i)



Output data:

- `long long &answer` : will contain the maximum number of nuts that the squirrel can eat after going through all N rooms of the diagonal.
- `vector<int> &solution` : a vector that will contain the amount of nuts eaten by the squirrel in each room. (More precisely, $solution_i$ with $0 \leq i < N$ represents the number of nuts eaten by the squirrel when it is in the room (i, i))

ATTENTION

For both A and $solution$, the indices start from 0 and the size of the $solution$ vector should be exactly N .

CONSTRAINTS

- ◆ $1 \leq N \leq 2000$
- ◆ $1 \leq A_{ij} \leq \frac{N \times (N+1)}{2}$

#	Points	Constraints
1	11	$N \leq 5$
2	12	$N \leq 100$
3	23	$N \leq 500$
4	15	$N \leq 1000$
5	13	$N \leq 1200$
6	8	The contents of the matrix are assigned randomly.
7	18	No additional constrains

EXAMPLES

Input data	Output data
5	64
1	14 10 15 12 13
14 6	
8 2 15	
3 10 4 12	
9 5 13 11 7	