Problem: TSP
Traveling salesman

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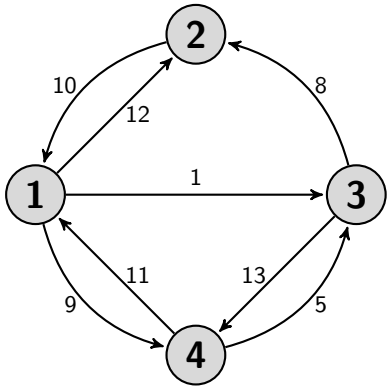
Sample qualifications problem

Traveling salesman like the traveling salesman — got his map with n cities marked on it and his task is to visit every one of them. To make our lives easier, we number the cities from 1 to n. Salesman leaves the city 1 and has to visit every other city once and in the end return to the city 1. On the salesman's map the distances between cities are given, but the distance from city i to city j is not necessarily equal to the distance from city j to city i. Moreover, there is also a possibility that there is only one-way road from one city to the other, or there may be none.

Help the traveling salesman plan his route. Of course, we do not need to add that the shorter the route, the better.



Input

In the first line of the input file there are two integers n and m ($1 \leqslant n \leqslant 1000$, $1 \leqslant m \leqslant 10\,000$) specifying the number of cities and the number of roads on the map. The next m lines describe roads between cities. In the i-th line there are three integers a_i, b_i and d_i ($1 \leqslant a_i, b_i \leqslant n$, $1 \leqslant d_i \leqslant 10\,000$) meaning that there is a road from city a_i to city b_i with the length of d_i. You can assume that the route for a traveling salesman exists.

Output

In the first line of the output file there should be one number p, specifying the length of the salesman route. In the second line there should be the numbers of consecutive cities through which the route goes; the first and the last one should be 1.

Scoring

In case of the correct route the score for the test is p. This is a minimization problem, therefore, the shorter the route, the better. The percentage of guaranteed points is 40%.

Example

For the input data:

```
4 8
1 2 12
2 1 10
3 2 8
1 3 1
4 1 11
1 4 9
3 4 13
4 3 5
```

the correct result is:

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32
1 4 3 2 1
```

Explanation of the example: The cycle of $1 \to 4 \to 3 \to 2 \to 1$ with the length of 32 is the shortest route allowing the salesman to visit every city once.