26. Cheap Airfare

Problem Statement

Anjali has started a new travel agency. She noticed that the air fares between the cities are not symmetrical. That is, the cost of flying from a to b is not the same as that of b to a. Further, there is no guarantee that once you fly directly from a to b there is a direct return flight.

She knows that passengers do not mind changing flights as long as the total airfare is minimized. She needs to advertise the lowest round trip cost between any pair of cities of tourist interest to attract potential passengers. All valid flights i.e. (A, B, P(A,B)) where A is the source city of tourist interest, B is the destination city of tourist interest and P(A,B) is the price of the ticket.

You must help her determine the lowest round trip cost & the cities involved.

Input Format

The first line consists of integer n indicating the number of cities

The second line consists of integer m indicating the number of flights

Each of the next 'm' lines contains 3 integers d by a space - starting city A, end city B and icket P(A,B) for flight from A to B

cost & the cities involved.

Input Format

The first line consists of integer n indicating the number of cities

The second line consists of integer m indicating the number of flights

Each of the next 'm' lines contains 3 integers separated by a space - starting city A, end city B and the price of the ticket P(A,B) for flight from A to B.

Constraints

$1 <$ Number of cities < 100

$0 <$ Number of flights < 5000

$0 <$ Price < 10000

Output Format

Return an array of 3 integers. 1st integer is the price for the cheapest round trip. 2nd and 3rd integers are the city indices involved in increasing order.

If there is no round trip available, return 1000000, -1 and -1.

If there are multiple pair of cities with lowest round trip fair, please select the pair with the lowest sum of their indices.

Sample Input 0
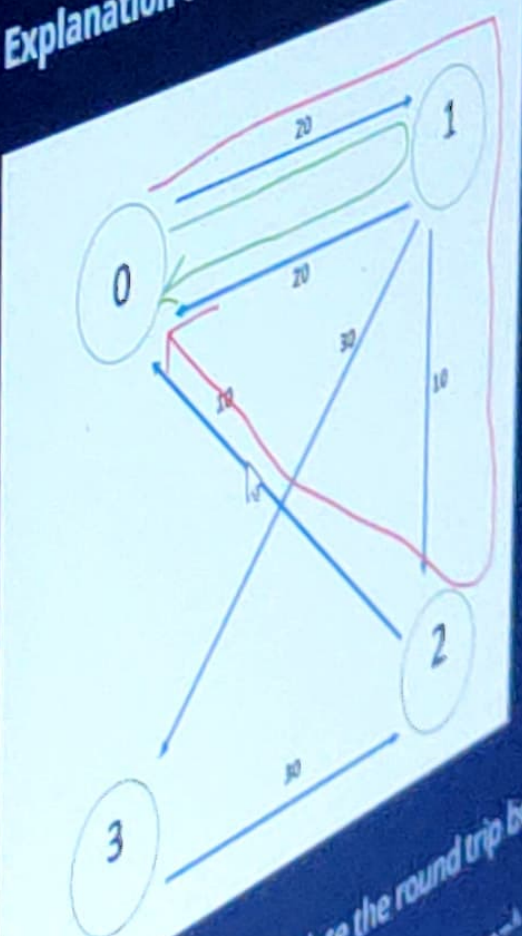
4

6

0 1 20

1 0 20

1 2 10

2 0 10

1 3 30

3 2 30

Sample Output 0

40

0

1

Explanation 0

calculate the round trip between

For example, Let us calculate the round trip between City 1 and City 3 ie R(1,3)

Cost(1, 3) = P(1, 3) = 30, because there are only one simple way to go to there.

Cost(3, 1) = P(3, 2) + P(2, 0) + P(0, 1) = 60.

So the cheapest round trip from City 1 and City 3 i.e R(1,3) is equal to 30 + 60 = 90 units.

We can calculate all the other round trip in the similar way, then we can get the answer which is R(0,1) i.e 40. There are 2 city pairs with the lowest cost (0,1) and (0,2).

Lowest sum of indices belongs to (0,1) & hence 0 and 1 in alphanumeric order.

Sample Input 1

3

3

0 1 100

1 2 100

0 2 100

Sample Output 1

1000000

-1

-1