02. The Delivery Path

Condition:

The FastShip delivery network spans multiple cities connected by roads. Each road has a certain length, but some roads also pass through dangerous areas where delays or breakdowns can occur, increasing travel times. The company's goal is to find the fastest route for delivering goods between two cities, minimizing the total travel time while also taking into account possible delays along the way.

The company needs to make a delivery from City A to City B, choosing a route that not only minimizes the distance but also passes through the fewest dangerous areas possible.

Your task is to find the shortest delivery route from City A to City B, taking into account not only the distance, but also the number of dangerous territories you will pass through.

Input:

1. The first line gives two integers **N** and **M** (≤ 1000), which represent the number of cities and roads.
2. The following are **M** lines, each containing three integers **A** , **B ,** and **T** , which indicate that there is a road between City A and City B with a duration **of T** . The road may pass through a dangerous zone if the time **T** is greater than 10.
3. On the last line are two integers **X** and **Y** , which specify City A and City B between which the delivery should be made.

Output:

Derive an integer that represents the minimum delivery time from City A to City B while minimizing the number of danger zones you will pass through.

Additional conditions:

- Every road is two-way, i.e. if there is a road from City A to City B, there is also one from B to A.
- The time **T** for the path may be different for different paths.
- Roads with a **T time** above 10 are considered dangerous.
- If there are several routes with the same travel time, choose the one that passes through less dangerous areas.

Example:

Input	Output
5 6 1 2 5 1 3 12 2 3 7 2 4 3 3 4 5 4 5 8 1 5	16

Explanation:

The shortest delivery route from City 1 to City 5 is via City 2 and City 4, with a total time of 16. This is the optimal route, as it does not pass through dangerous areas (there are no routes with a time over 10).

Solving instructions:

- Imagine a graph where each city is a vertex and the roads between them are edges with weight.
- Use a shortest path algorithm, such as **Dijkstra** , with additional tracking of the number of dangerous areas along the path.
- There are two minimization criteria: minimum delivery time and minimum number of danger zones.
- A priority queue can be used to efficiently process edges and find the optimal route.