Two robots Xyra and Orion couldn't wait to see each other. They raced towards each other in a travel network. The travel network is composed of n nodes, numbered from 1 to n, and m edges. The i-th edge connects nodes u_i and v_i, requiring w_i seconds to travel (with all wi being even). Xyra starts at node 1, while Orion starts at node n. They must meet at a node (i.e., not along an edge), and either can choose to wait at any node.

1) The input consists of m+1 lines. The first line contains 2 numbers, i.e., n and m (separated by space), Each of the rest m lines contains 3 numbers u_i v_i w_i. for edge i. Return the earliest time that Orion and Xyra can meet. Return -1 if node 1 and node n are disconnected in the travel network.

   Examples:

   Input:
   3 1
   1 2 2
   Output: -1
   Explanation: node 1 and 3 are disconnected in the graph, with only one edge connecting node 1 and 2.

   Input:
   3 3
   1 2 4
   1 3 8
   2 3 6
   Output: 6
   Explanation: Xyra travels to node 2 (4 seconds), and waits for Orion to travel from node 3 to 2 (6 seconds). At second 6, they meet.

2) (extra credit) Suppose at some nodes with special equipment, the robot can turn on the Hyberdrive mode in negligible time. After the Hyberdrive mode is turned on, the travel time is reduced by half, and once turned on, the mode remains available for the rest of the journey. Now you are given m+2 lines of input. First line contains n, m and h (the number of nodes where the Hyberdrive mode can be turned on). Second line contains h numbers, i.e., the h nodes where the Hyberdrive mode can be turned on. The rest m lines contain the information of m edges. Return the earliest time that Orion and Xyra can meet. Return -1 if node 1 and node n are disconnected in the travel network.

   Examples:

   Input:

3 3 2
2 3
1 2 4
1 3 8
2 3 6
Output: 4
Explanation: Orion uses Hyberdrive mode at node 3, and it takes him 3 seconds to go to node 2. Orion waits for Xyra to come to node 2 (4 seconds). Another case is Orion directly goes to node 1 in 4 seconds (Hyberdrive mode) to meet Xyra.

Input:
3 2 1
2
1 2 4
1 3 16
Output: 14
Explanation: Xyra goes to node 2 (4 seconds), turns on the Hyperdrive mode, goes back to node 1 (2 seconds), and goes to node 3 to meet Orion (8 seconds). Orion waits.