

Concierge

The organizers of the IOI 2015 in Kazakhstan are planning the perfect hotel experience for the participants. For that purpose they have to prepare the best concierge in the world. The hotel of the IOI has one big, magnificent entrance door and behind it is a single long corridor where all the hotel rooms are located. The first room is one walking-second away from the entrance, the second room is two walking-seconds away, the third three walking-seconds and so on. The hotel has exactly as many rooms as there are participants expected at the IOI.

The concierge knows in advance when every participant will arrive at the entrance and he wants to be able to go with every participant to their room. For that he has to wait at the entrance of the hotel for the participant in time, go with them to their room, go back to the entrance and be there in time before the next participant arrives.

The concierge can freely decide which participant gets which room. Help the concierge to assign a room to every participant in a way that he can accompany everyone in time to their room. You also have to recognize if there is no assignment of the rooms that enables the concierge to go with every participant to their room.

Input

The first line of the input contains N ($1 \leq N \leq 100\,000$), the number of participants at the IOI. The second line contains N integers in ascending order (separated by spaces). The i -th integer a_i ($1 \leq a_{i-1} \leq a_i \leq 10^{12}$) is the arrival time of the i -th participant in seconds.

Output

Your output should be a single line with N integers (separated by spaces): The i -th number has to be the room number of the i -th participant. If the concierge can't go with all participant to their rooms, print "IMPOSSIBLE".

Limits

- For 25% of all test cases we have $N \leq 10$.
- For 50% of all test cases we have $N \leq 1\,000$.
- For 100% of all test cases we have $N \leq 100\,000$.

Examples

Input	Output
5 1 3 11 16 24	1 3 2 4 5

Notice that 1 4 2 3 5 is a valid room assignment too. The concierge has got free choice if he puts participant 2 or 4 to room 2.

Input	Output
5 1 3 11 16 20	IMPOSSIBLE

The concierge can't go to a free room and back with participant 4 before participant 5 arrives.