There are 8 rooms in a building.

One room has a prize.

The other rooms are either empty or they have a bomb.

Each room has a label. The label is true if it contains the prize, it is false if it contains a bomb, and about the labels of the empty rooms we do not know anything.

The 8 labels are:

1. Here is a bomb and label 3 is false.
2. The prize is not here.
3. Label 2 is true and the prize is in room 1.
4. The prize is in an odd room if room 2 is empty.
5. 3 rooms are empty.
6. There are 5 bombs in the 8 rooms.
7. Room 6 is not empty.
8. The prize is in room 7.

Write a program that will generate all the possible combinations of the rooms that will fulfill the enumerated conditions.

Brute force solutions will not count.