**Steps for finding all combinations of a given junction.**

1. Create a 2D list of all 1 green traffic light.

for example, in a 1 – 6 junction, with traffic lights of (6'3+6'1, 2'3, 2'5, 4'1). For the simplicity, an always green invisible traffic light can be added to a road that doesn’t has a traffic light in the junction.

2D list of all the traffic lights: [[6'3+6'1], [2'3], [2'5], [4'1]]

1. Duplicate and add to each inner list a possible new traffic light. Repeat that until there are no more possible traffic lights to add. Then, remove duplicates and unoptimized combinations.

Result: [[6'3+6'1, 4'5], [2'3, 2'5, 4'5], [2'3, 4'1, 4'5]]

1. Separate the traffic lights that represent 2+ roads. (important to do that only **after** the combinations has been created)

Result: [[6'3, 6'1, 4'5], [2'3, 2'5, 4'5], [2'3, 4'1, 4'5]]