Einstein's riddle

Facts:

- There are 5 houses (along the street) in 5 ***different colors***:
  blue, green, red, white, and yellow.
- In each house lives a person of a ***different nationality***:
  Brit, Dane, German, Norwegian, and Swede.
- These 5 owners drink a certain of ***beverage***:
  beer, coffee, milk, tea, and water,
- These 5 owners smoke a certain ***brand of cigar***:
  Blue Master, Dunhill, Pall Mall, Prince, and Blend,
- These 5 owners keep a certain ***pet***:
  cat, bird, dog, fish, and horse.
- No owners have the same pet, smoke the same brand of cigar, or drink the same beverage.

Einstein’s riddle

Hints:

- The Brit lives in a red house.
- The Swede keeps dogs as pets.
- The Dane drinks tea.
- The green house is on the left of the white house (next to it).
- The green house owner drinks coffee.
- The person who smokes Pall Mall rears birds.
- The owner of the yellow house smokes Dunhill.
- The man living in the house right in the center drinks milk.
- The Norwegian lives in the first(leftmost) house.
- The man who smokes Blend lives next to the one who keeps cats.
- The man who keeps horses lives next to the man who smokes Dunhill.
- The owner who smokes Blue Master drinks beer.
- The German smokes Prince.
- The Norwegian lives next to the blue house.
- The man who smokes Blend has a neighbor who drinks water.

Programming Assignment #1

Due: May 29, 2022, 23:59

- Design and implement a backtracking algorithm that solves the Einstein's riddle

- Your program should print all solutions (if any) that match the given facts and hints.

- Your program should count and print the number of nodes that need to be explored until it finds a solution.

- In your report, you need to describe how each state of the state space tree is represented and how the 'promising' function works.

- Can you think of a more efficient way of solving the problem? Submit a report describing your own idea.