Homework 3

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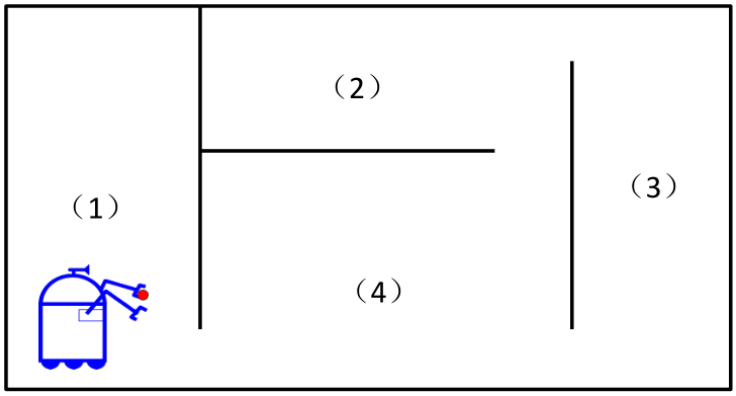
Problem 2:

Problem 2: A robot cleaner is roaming within an apartment with four rooms. The map of the apartment is given as follows. The probability of the robot going through each door is 0.1. Please answer the following questions:



(1) What is the Markov model for the robot roaming?
Robot next state depends on previous state, previous state depends on the previous of the previous, and so on, which is matched to the definition of Markov model.

(2) what is the probability of the robot staying at each room?
Room 1: 0.9; Room 2: 0.8; Room 3: 0.8; Room 4: 0.7.

(3) what is the probability of the robot going through the door between (1) and (4) when the robot is going through a door?
It is 0.25.

$$\frac{0.1 + 0.1}{0.3 + 0.2 + 0.2 + 0.1} = 0.25$$