

CSC 425/525 Homework #2 answer key

1. My solution space will be drawn whereby children are indented beneath their parents. A state with an X after it is a deadend and a state with an R after it is a repeated node and will not continue as an earlier node at this level or a higher level is the same. Each node will be denoted as X, Y, Z where X is who is on the left shore, Y is who is in the boat and Z is who is on the right shore. Legal moves are for 1-2 people to get into the boat, 1-2 people to get out of the boat, or 1-2 people to get out of the boat while 1-2 get into the boat.

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MMMCCC, 0, 0
  MMCC, MC, 0
    MMCC, M, C
      MCC, MM, C (X)
      MMC, MC, C
        MMC, M, CC
          MM, MC, CC
            MM, M, CCC
              M, MM, CCC
                M, M, MCCC (X)
                M, C, MMCC
                  0, MC, MMCC
                    0, 0, MMMCCC

                    MM, C, MCC (X)
                    MC, MM, CC
                      MC, M, MCC (X)
                        MMC, C, MC
                          MM, CC, MC
                            MM, C, MCC (X)
                            MM, M, CCC (R)
                              MC, MC, MC
                                MC, M, MCC (X)
                                MC, C, MMC
                                  M, CC, MMC
                                    M, C, MMCC (R)
                                    M, M, MCCC (RX)
                                      C, MC, MMC
                                        C, M, MMCC
                                          0, MC, MMCC
                                            0, 0, MMMCCC
                                              C, C, MMMC
                                                0, CC, MMMC
                                                  0, 0, MMMCCC

                                                  CC, MM, MC
                                                    CC, M, MMC
                                                      C, MC, MMC (R)

MMCC, C, M
  MCC, MC, M (XR)
  MMC, CC, M
    MMC, C, MC (R)
    MMC, M, CC (R)

MMMCC, CC, 0
  MMMC, C, C
    MMC, MC, C (R)
    MMM, CC, C
      MMM, C, CC

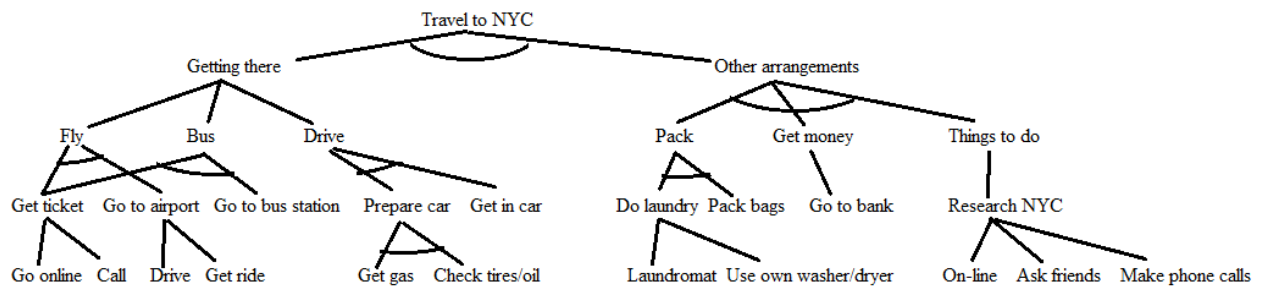
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MM, MC, CC (R)
 MC, MM, CC (R)
 MCC, MM, C (XR)
 MCCC, MM, 0 (X)

2. #7.

- Data-driven - you start with the symptoms of the car problems. If you had to do goal-driven, there are too many starting points because you would have to consider every possible malfunction.
- Data-driven – you know this person’s relatives which is the data to start searching with. You do not know exactly how far back you need to go so you do not know which goals to try to prove.
- Goal-driven – you know that you have a common ancestor of no more than 8 generations back, so you would try to prove this ancestry starting with that goal and work your way toward the data.
- Goal-driven – you are trying to prove something, which is your goal.
- Data-driven – the sonar readings are the data you are trying to interpret, where the interpretation is the goal.
- Data-driven – you start with information about the plants and try to derive their classifications.

3. See below. “AND options have a line connecting the AND paths.



4.

- A-B-E-J-K-L-F-G-O-P-M-N-C-D-I-R
- A-B-C-D-E-F-G-H-I-J-K-L-M-N-O-P-R

5. $F(\text{board}, a, b) = 100$ if this move captures opponent’s last piece(s)

= 50 if this move turns your piece into your king

Else compute the following:

5 points per opponent piece you can capture + 20 points per opponent king that you can capture – 6 points per your piece that can be capture – 25 points per king that your opponent can capture in this move

6.

- A – B – D – G – K – H – L – C – F – I – M
- A – E – C – F – J – O – N – Q – I – M
- A – E – B – D – H – L – K – P – M