

CS236 Lab3

Formulate the following problems as the state space search problem. Solve it with:

1. DFS
2. BFS
3. Depth-limited search
4. Iterative deepening depth-first search
5. Bi-directional BFS

Compare the solutions in terms of time to solve and pick memory.

Problem-1. A farmer went to a market and purchased a wolf, a goat, and a cabbage. On his way home, the farmer came to the river bank and rented a boat. But crossing the river by boat, the farmer could carry only himself and one of his purchases: the wolf, the goat, or the cabbage.

If left unattended together, the wolf would eat the goat, or the goat would eat the cabbage. The farmer's challenge was to carry himself and his purchases to the river's far bank, leaving each purchase intact.

Problem-2. In the jealous husbands' problem, three married couples must cross a river using a boat that can carry at most two people, under the constraint that no woman can be in the presence of another man unless her husband is also present. The boat cannot cross the river by itself with no people on board.