Artificial Intelligence Assignment - 1

- Write programmatic solution for the following problems using both BFS and DFS search as discussed in the class.
- Upload the codes On your Git-hub account.
- Submit the profile link to class CR.
- Submission deadline - **26/07/2025**

1.

3. In the *rabbit leap problem,* three east-bound rabbits stand in a line blocked by three west-bound rabbits. They are crossing a stream with stones placed in the east west direction in a line. There is one empty stone between them.

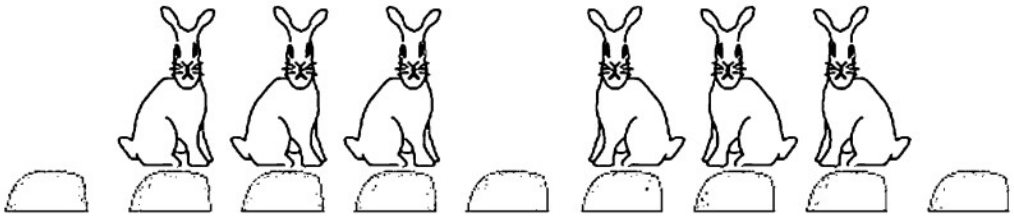

FIGURE 2.32 Rabbits waiting to cross. Each rabbit can jump over one, but not more than that. How can they avoid getting into a deadlock?

The rabbits can only move forward one step or two steps. They can jump over one rabbit if the need arises, but not more than that. Are they smart enough to cross each other without having to step into the water? Draw the state space for solving the problem, and find the solution path in the state space graph.

2.

5. Amogh, Ameya and their grandparents have to cross a bridge over the river within one hour to catch a train. It is raining and they have only one umbrella which can be shared by two people. Assuming that no one wants to get wet, how can they get across in an hour or less? Amogh can cross the bridge in 5 minutes, Ameya in 10, their grandmother in 20, and their grandfather in 25. Design a search algorithm to answer the question.