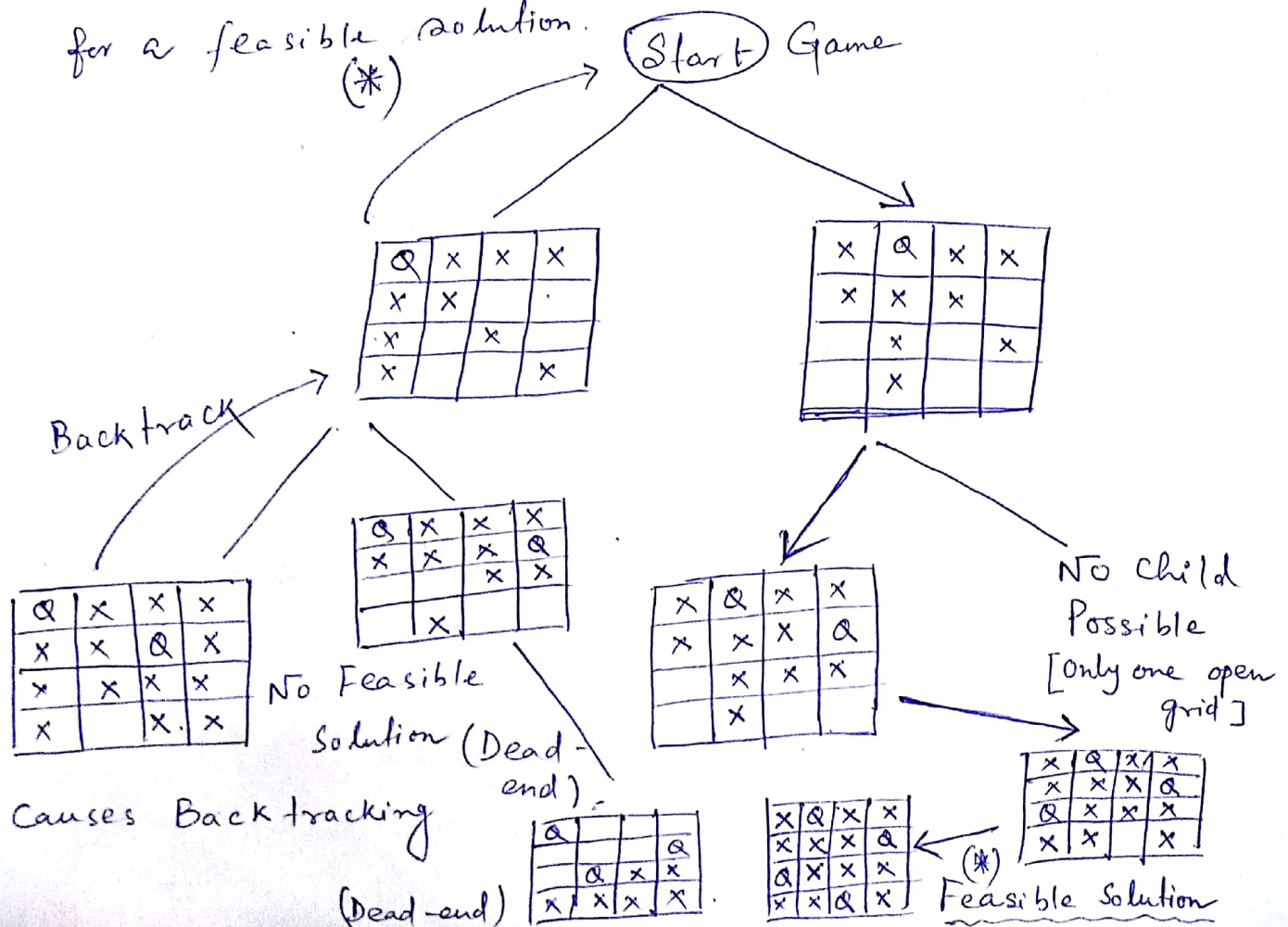## GAME-1

4-Queen Problem: The 4-Queen Problem consists in placing four queens on a 4×4 chessboard so that no two queens can check (capture) each other. That is no two queens are allowed to be placed on the same row, the same column, or the same diagonal.

Feasible Solution: The feasible solution for 4.queen problem depends on the placing of the queen in appropriate grids. Following diagram describe the situation for a feasible solution.

Backtracking : In 4-Queen problem, when we observe a Dead-end, back-tracking (going back to the previous state) is the normal/natural solution. Back-tacking ease the searching process, and overall time may reduce for that.

Feasible solution of a 4-Queen Problem depends on the constraints of placing 4-Queens in respective rows. e.g., Fig 1 is a feasible solution, whereas Fig 2 is not a feasible solution

Fig 1

No Place to ← Put any Queen

Fig ② X

Mirror Image Solution

In 4-Queen Problem, the complementary solution may exists. i.e., if we simply place a mirror in front of a 4×4 Chess-board (as fig 3). and get a complementary solution (as Fig 4). This minimize the overall complexity to find the feasible solution of 4-Queen Problem.

Fig 3

Fig 4.