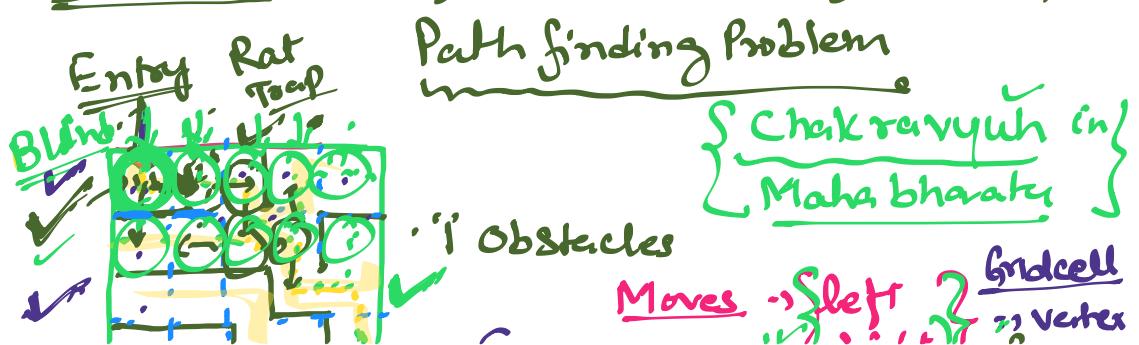
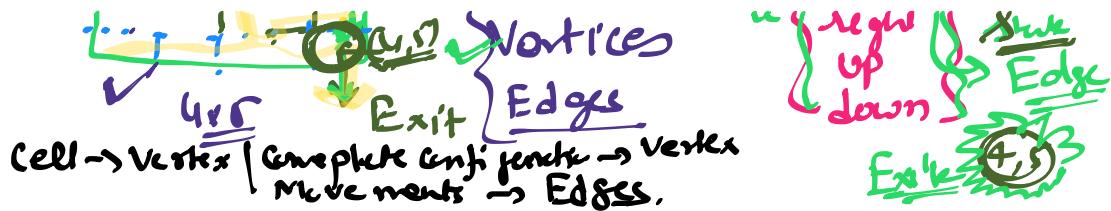


→ Graph (V, E) $V = 243$
 $E = \{\emptyset\}$

- Adjacency Matrix []
 number of edges are large } In comparison to Fully Connected Graph.
- Adjacency List
 Sparse (less number of edges) }


Problems: Maze Problem (Maze Game)

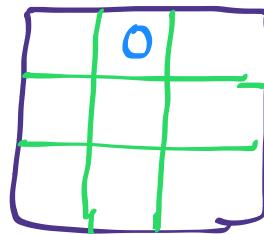




②. Tic-Tac-Toe

Two-player
 Computer \rightarrow X
 Human \rightarrow O

Win: Any row / column / diag
 you choose symbol



17x17

3x3

5x5

7x7

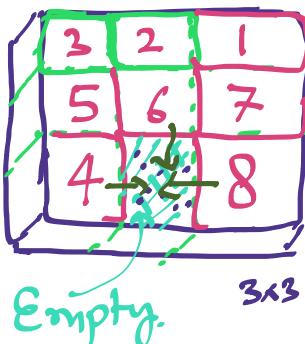
③ 8-puzzle

Block Game

only: you can slide the blocks
(Not to take it ✓
crit)

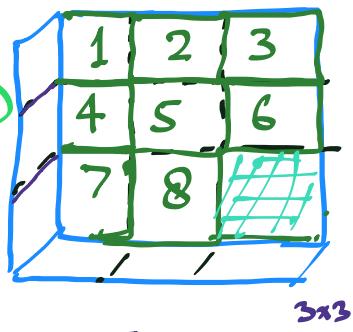
Moves:

left, up
right, down



Given

least #max



Target

4x4
5x5
6x6
...

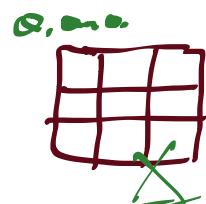
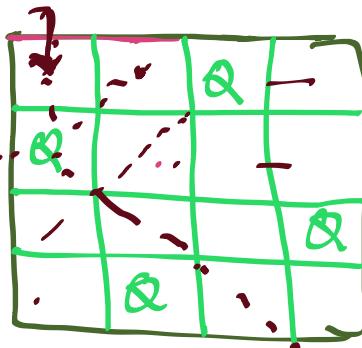
④ n × n Queen

Q₁, Q₂, Q₃, Q₄

Q

4 - Queens

Queens are not in attacking positions.



Sol"

No two Queens are in same row / columns / diagonals

Every row, Every column must have a Queen

⑤. Chess Board

multi player. (2 Pts)

Computer → 6

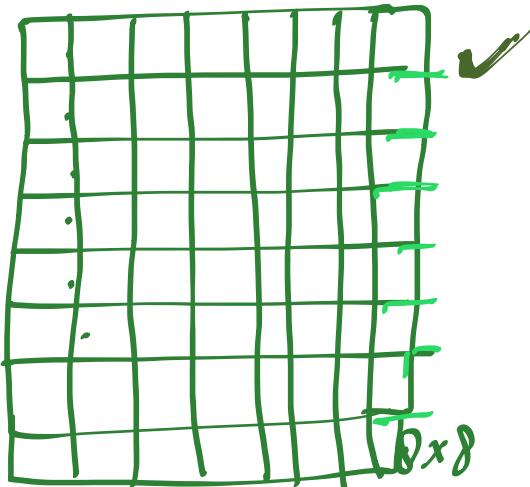
Human → 6

{ King, Queen, Rook }
{ Bishop, Pawn, Knight }

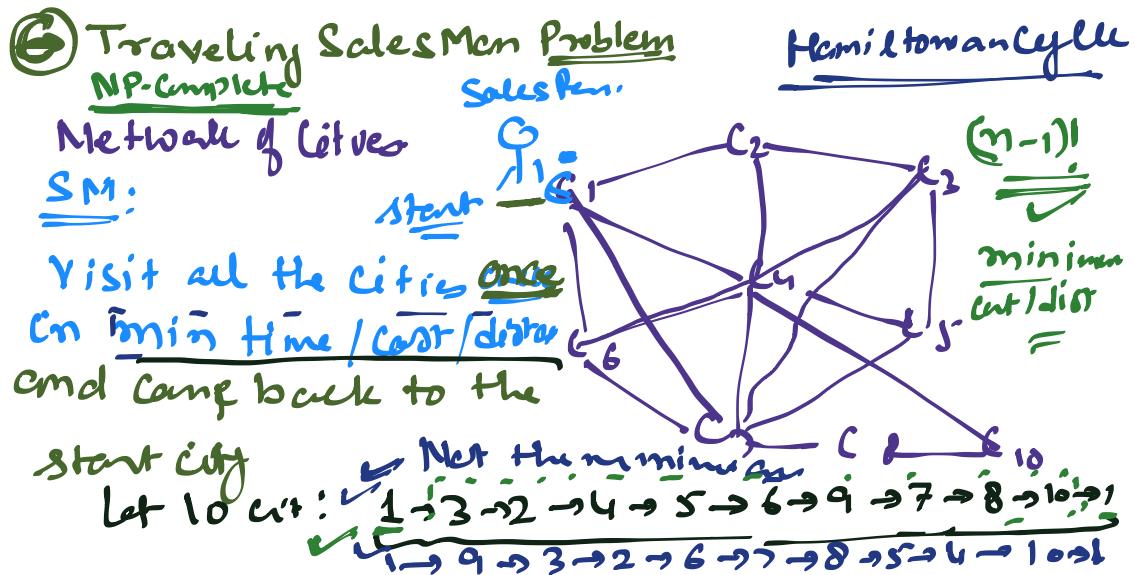
Win: Checkmate

Moves:

Reinforcement Learning



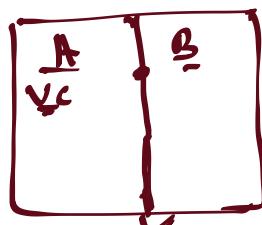
Part History



$$2.43 \times 10^{18} \quad \underline{21 \text{ cities}} \quad \underline{100 \text{ cities}} \quad \approx 10^{157}$$

⑦ Robot Navigation:

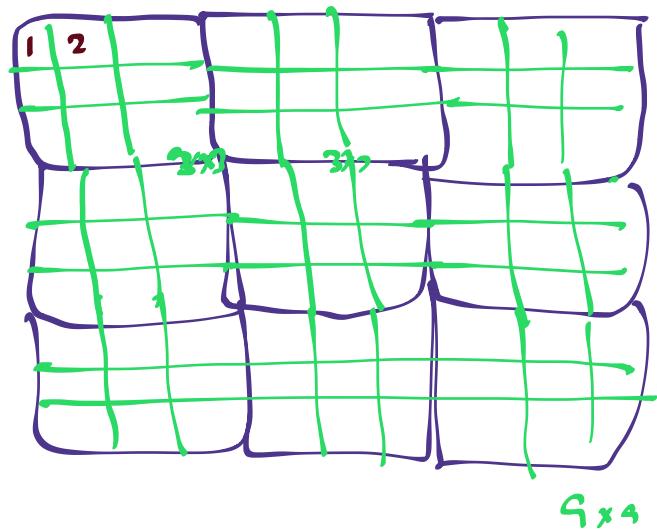
Vacuum Cleaner
Robot



⑧ Sudoku Problem

Valid Complet. ✓
Winning Strategy

1 - 9
in
each



⑨ Rubik's Cube

Computer

solved

jumble it and try to

solve. every face

must have same color

bit

Middle

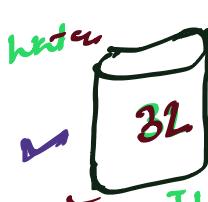
bottom

Top



More: Rotation {Clockwise, Anticlockwise
top to bottom, bottom to top}

⑩ Water-Jug Problem Puzzle

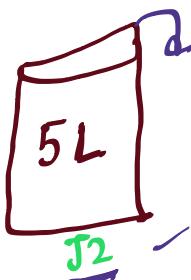


Empty. }

Full the jugs

J1 → J2

J2 → J1



1 L litre
How will you measure
1L - Jar 2

2L

4L

6L

7L

8L

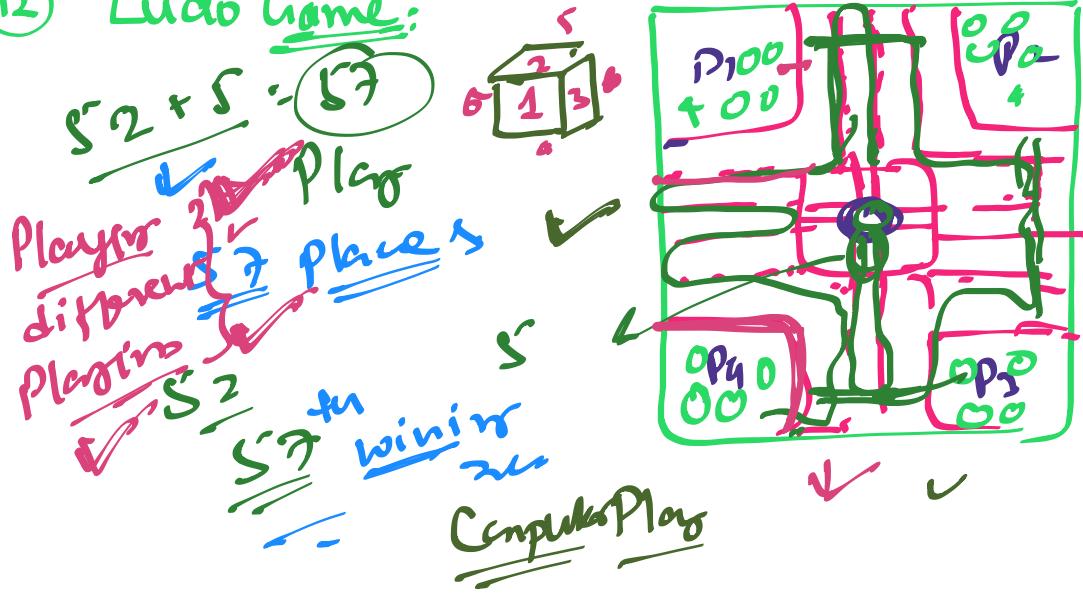
:

11

Man-goat-Cabbage-Lion River Crossing problem



⑫ Ludo Game:



⑬ Fair Play

Snake - ladder

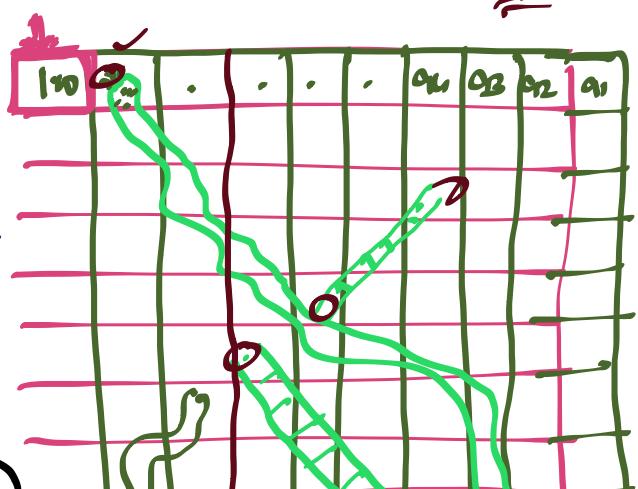
Unbiased

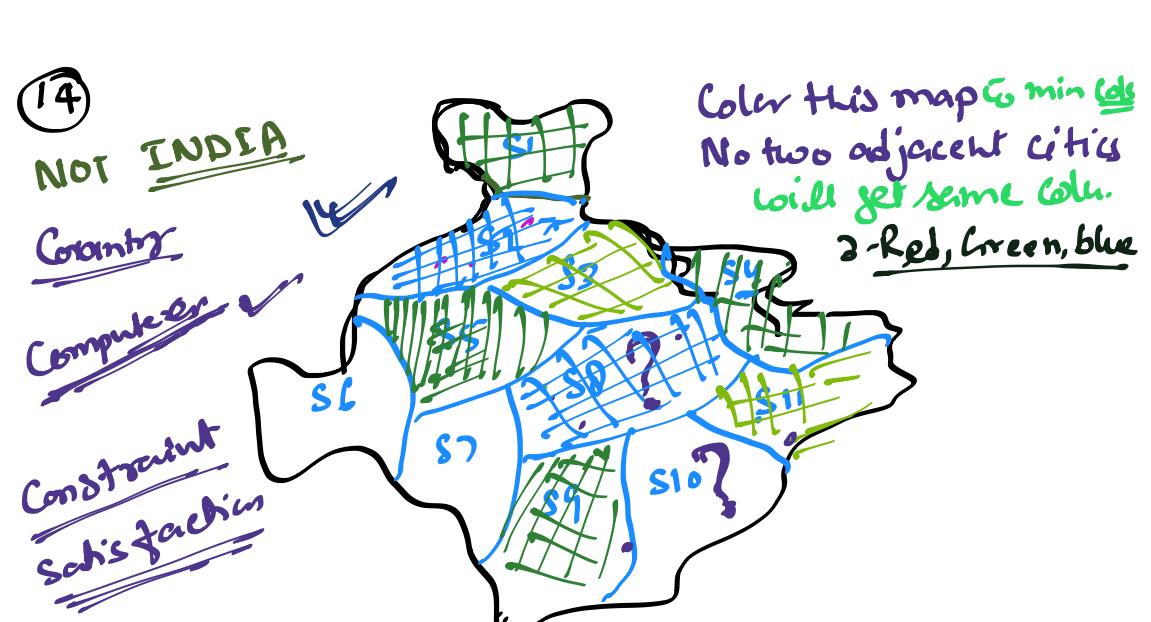
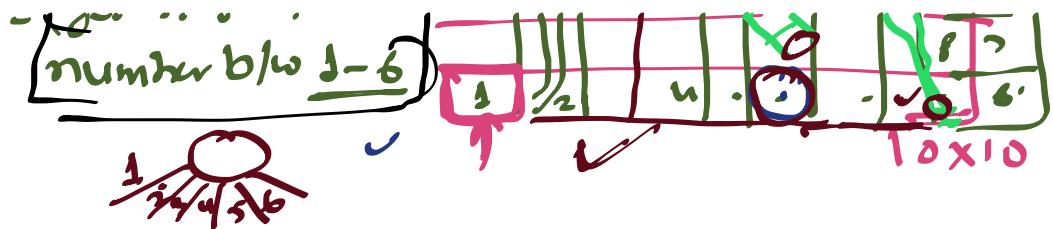
Game Play rule

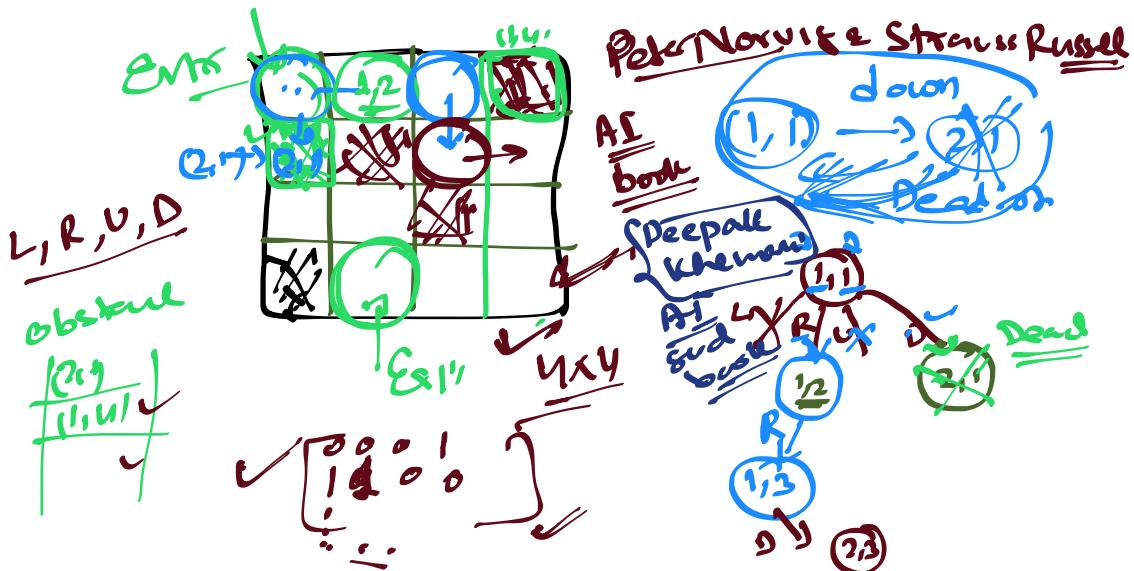
rolling the dice

= Path is random

Value $\sqrt{S^2 + S^2}$







2³⁰ nodes in the graph

NOT POSSIBLE in Morden memory

