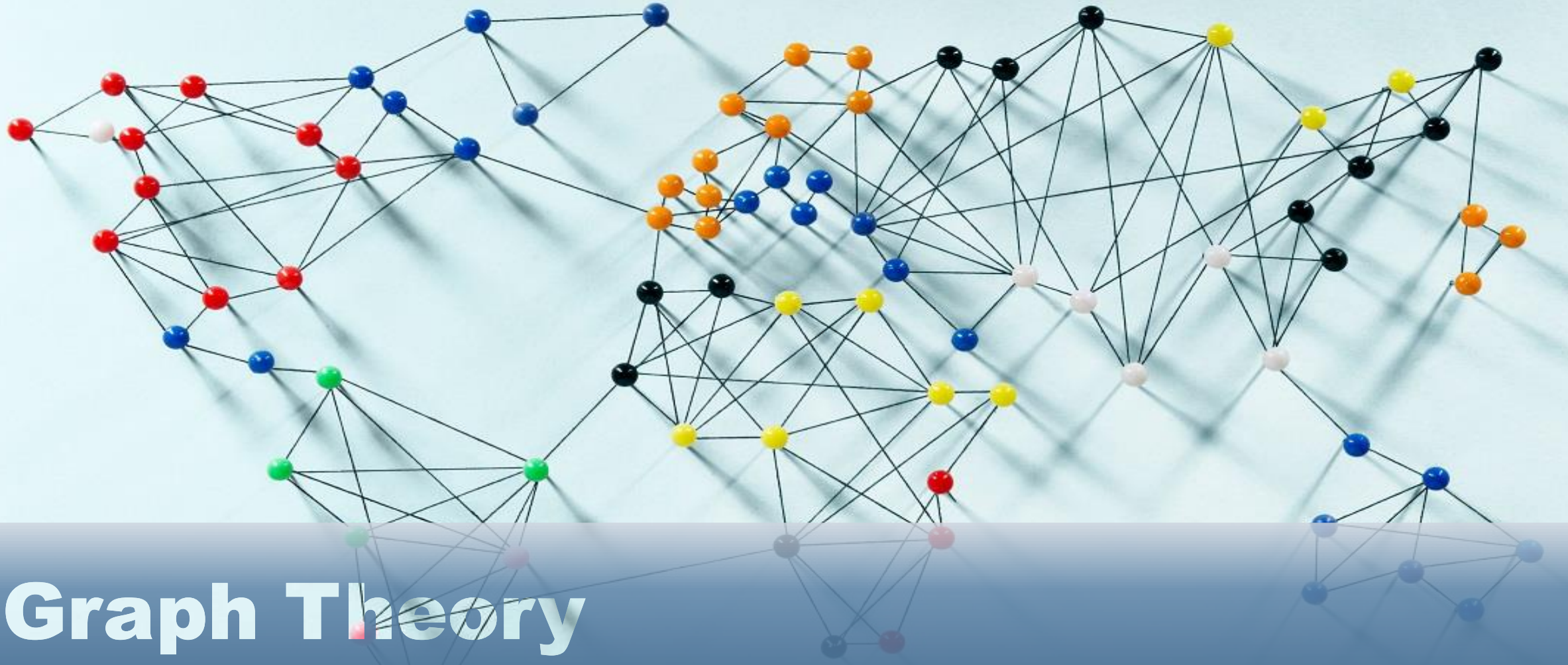

Graph Theory and its implementation in board games

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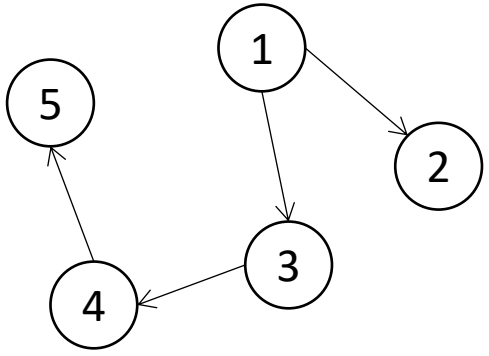
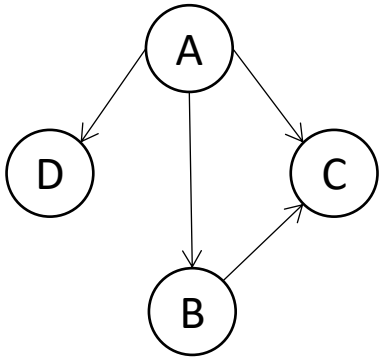
GRAPH : a list of pairs of “things” called vertex/vertices, and lines between those points, called edges

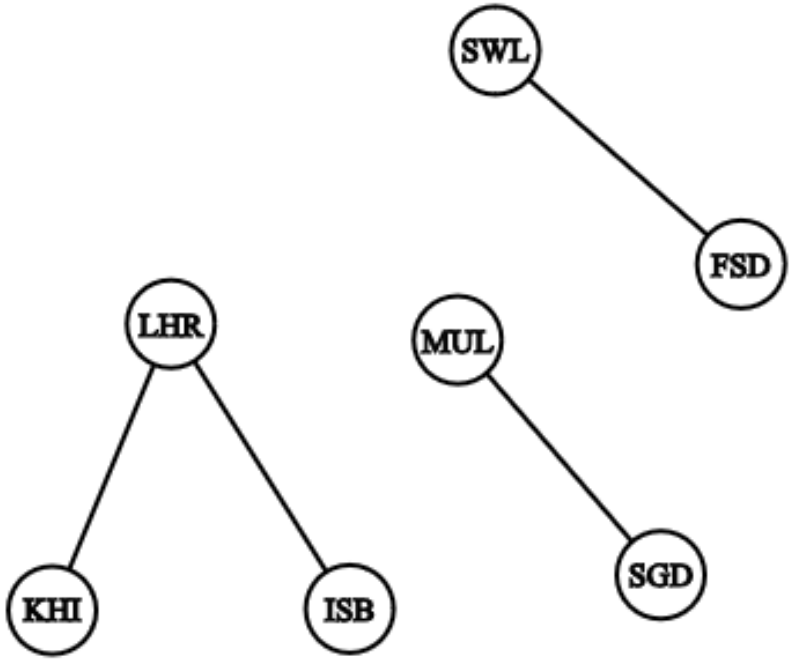
A = {(1→2), (1→3), (3→4), (4→5)}

B = {(A→B), (B→C), (A→C), (A→D)}

C = {(LHR, KHI), (LHR, ISB), (FSD, SWL), (MUL, SGD)}







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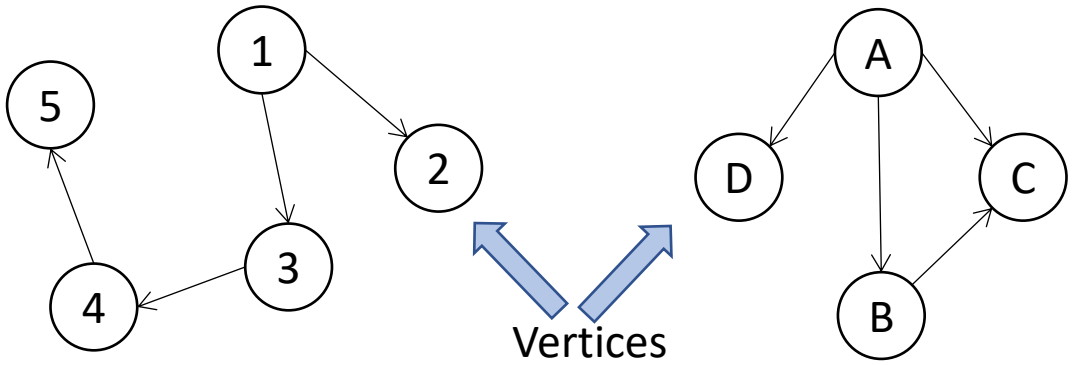

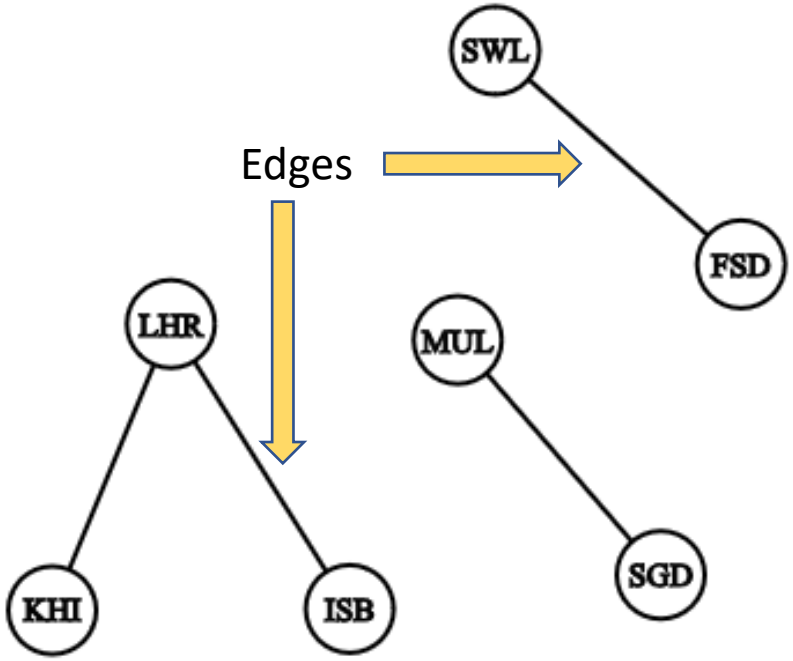

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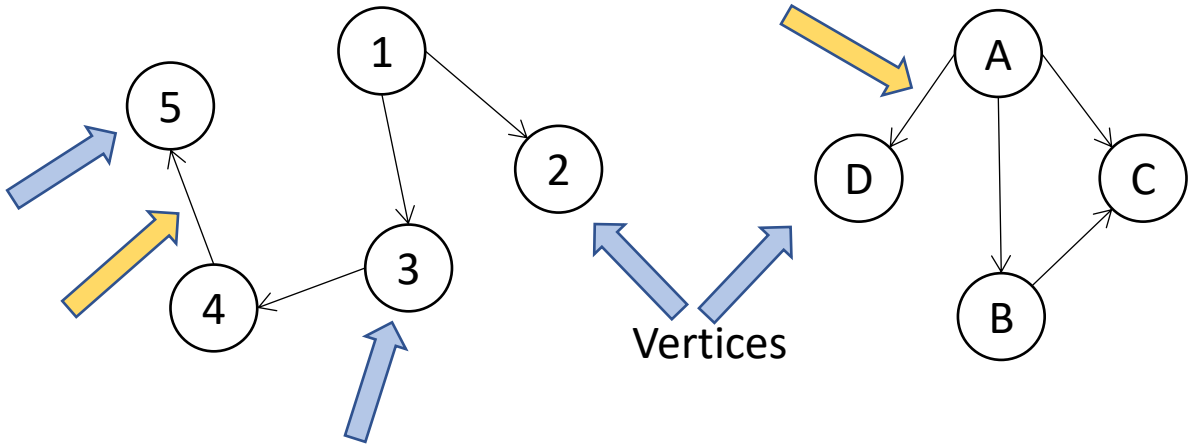
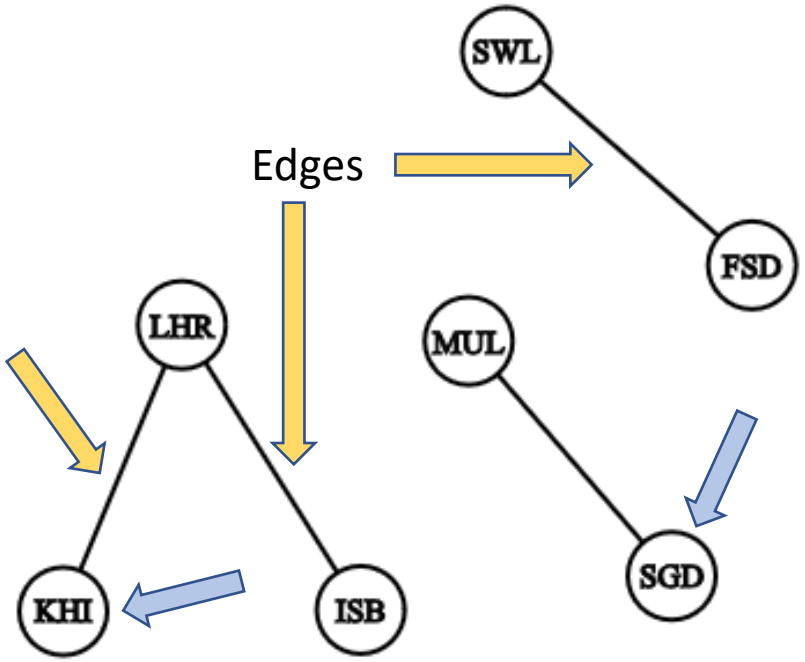
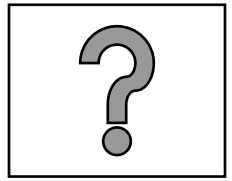
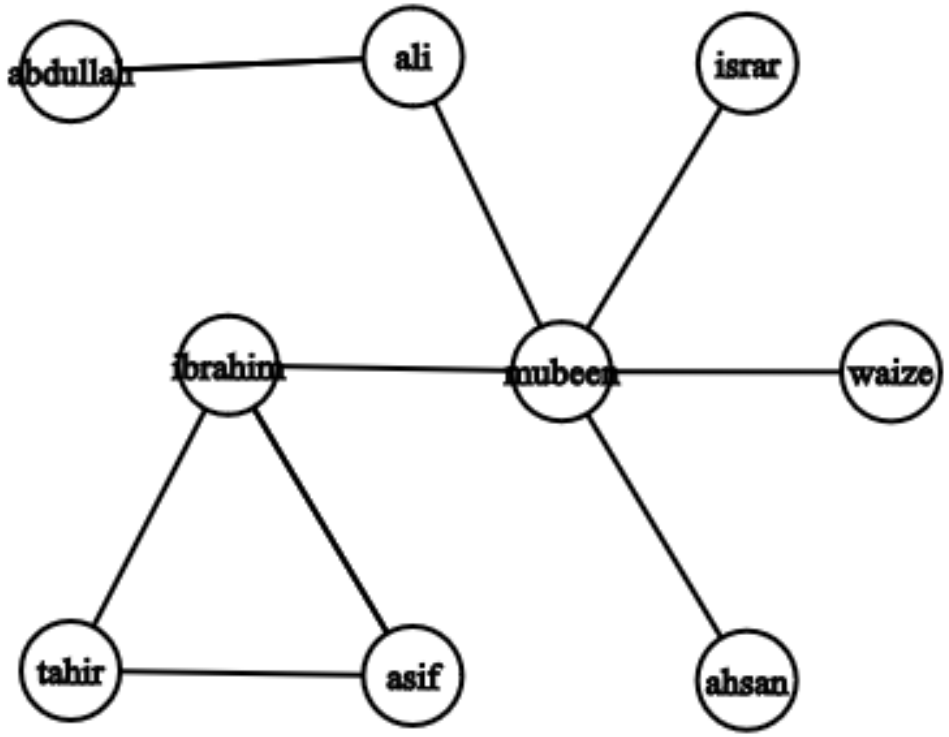




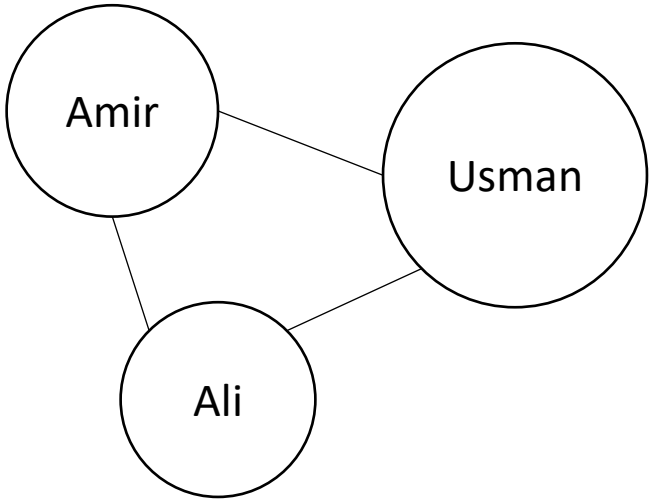
Difference between Directed and undirected graphs?

Instagram followers





Relation between Siblings



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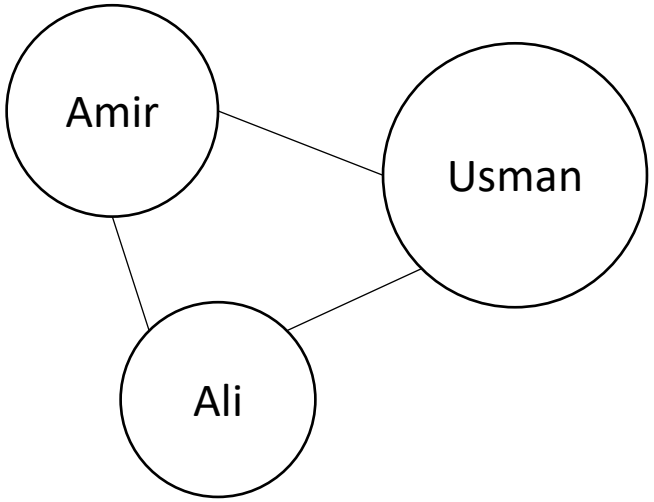

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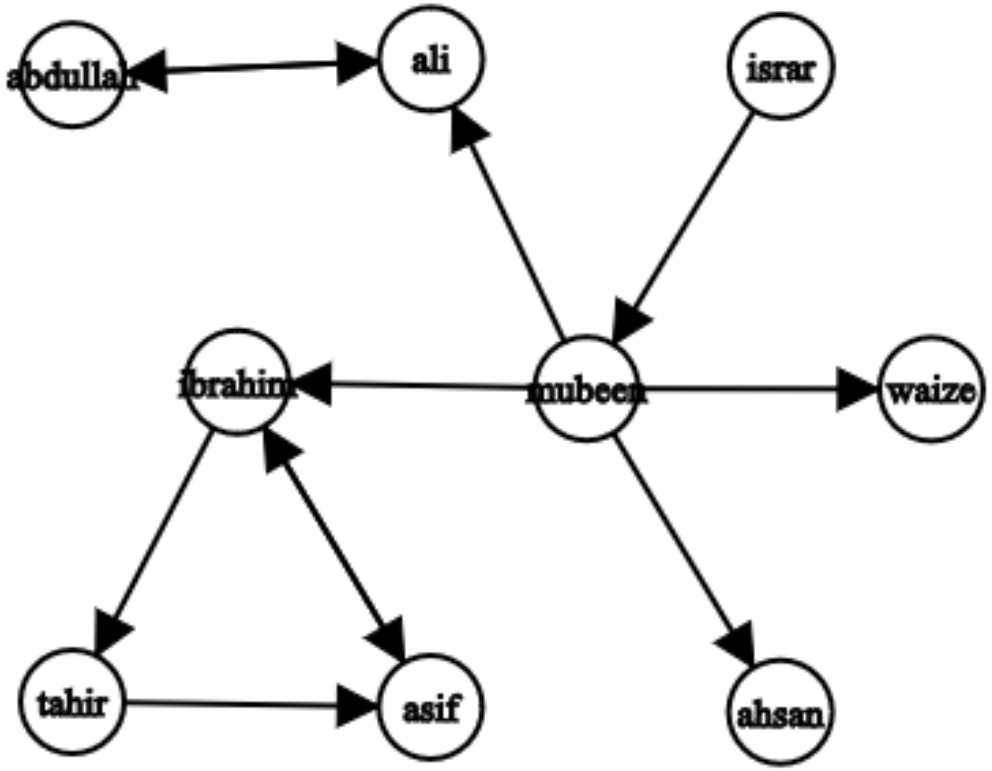

GRAPH REPRESENTATION

1. Edge List
    1. Individual track of all edges
    2. Need to check all edges

2. Adjacency List
    1. Track of all adjacent to a particular edge
    2. Need to check relevant list of adjacent

3. Adjacency Matrix
    1. Table in form of rows and columns that keep track of all possible edges in terms of YES/NO
    2. Only need to check one cell.

Things we need for our area of research:

1. How to traverse a graph
2. Count neighbors of a vertex
3. Deleting and inserting edges
4. Path and cycle of vertices

Graph in Board Games

Most board games are played two-dimensional grid.

- Nodes represent the cells where game pieces are placed.
- Winning conditions involve finding paths (edges) with consecutive stones.

Implementation

Topics like graph theory, and recursion play crucial roles in modeling and solving the game.