

## **SECTION 1: Basic BFS / DFS Traversal**

**Pattern:** Traverse graph, mark visited, count components.

1. **1971 – Find if Path Exists in Graph** (Easy)
2. **547 – Number of Provinces** (Medium)
3. **323 – Number of Connected Components in an Undirected Graph** (Medium)
4. **200 – Number of Islands** (Medium)
5. **133 – Clone Graph** (Medium)

Focus: adjacency list, visited array, DFS/BFS fundamentals.

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## **SECTION 2: Grid Based BFS / DFS**

**Pattern:** Treat grid as graph, 4-direction movement.

1. **733 – Flood Fill** (Easy)
2. **695 – Max Area of Island** (Medium)
3. **130 – Surrounded Regions** (Medium)
4. **994 – Rotting Oranges** (Medium)
5. **1091 – Shortest Path in Binary Matrix** (Medium)

Focus: boundary checks, multi-source BFS, level-order traversal.

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## **SECTION 3: Cycle Detection & Graph Properties**

**Pattern:** Parent tracking, recursion stack, graph structure validation.

1. **141 – Linked List Cycle** (Easy, warm-up for cycle thinking)
2. **785 – Is Graph Bipartite?** (Medium)
3. **207 – Course Schedule** (Medium)
4. **261 – Graph Valid Tree** (Medium)
5. **802 – Find Eventual Safe States** (Medium)

Focus:

- Undirected cycle detection
  - Directed cycle detection
  - Tree properties
  - Bipartite coloring
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## **SECTION 4: Topological Sort (Ordering Problems)**

**Pattern:** Directed acyclic graph, ordering tasks.

1. **207 – Course Schedule** (Medium, cycle check)
2. **210 – Course Schedule II** (Medium, return order)
3. **1136 – Parallel Courses** (Medium)
4. **1203 – Sort Items by Groups Respecting Dependencies** (Hard but good practice)
5. **269 – Alien Dictionary** (Premium, classic topo problem)

Focus: in-degree, queue, DAG reasoning.

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## SECTION 5: State Graph / Implicit Graph Pattern

**Pattern:** Each state is a node, generate next states dynamically, BFS for minimum steps.

1. **55 – Jump Game** (Medium)
2. **45 – Jump Game II** (Medium)
3. **127 – Word Ladder** (Hard but essential state BFS)
4. **752 – Open the Lock** (Medium)
5. **909 – Snakes and Ladders** (Medium)

Focus:

- Modeling problem as graph
- BFS levels = minimum moves
- State generation
- Visited set handling