



SNS COLLEGE OF ENGINEERING



Kurumbapalayam (Po), Coimbatore - 641 107

An Autonomous Institution

Accredited by NBA - AICTE and Accredited by NAAC - UGC with 'A' Grade

Approved by AICTE, New Delhi & Affiliated to Anna University, Chennai

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

COURSE NAME : 19CS507- Artificial Intelligence

III YEAR /V SEMESTER

Unit 1- INTRODUCTION

Topic 5 : ISSUES IN THE DESIGN OF SEARCH
PROGRAMS



Issues in the design of search programs

- The direction in which to conduct the search (forward versus backward reasoning).
- How to select applicable rules (Matching)
- How to represent each node of the search process (knowledge representation problem)



Uninformed vs. informed search

- **Uninformed search strategies**

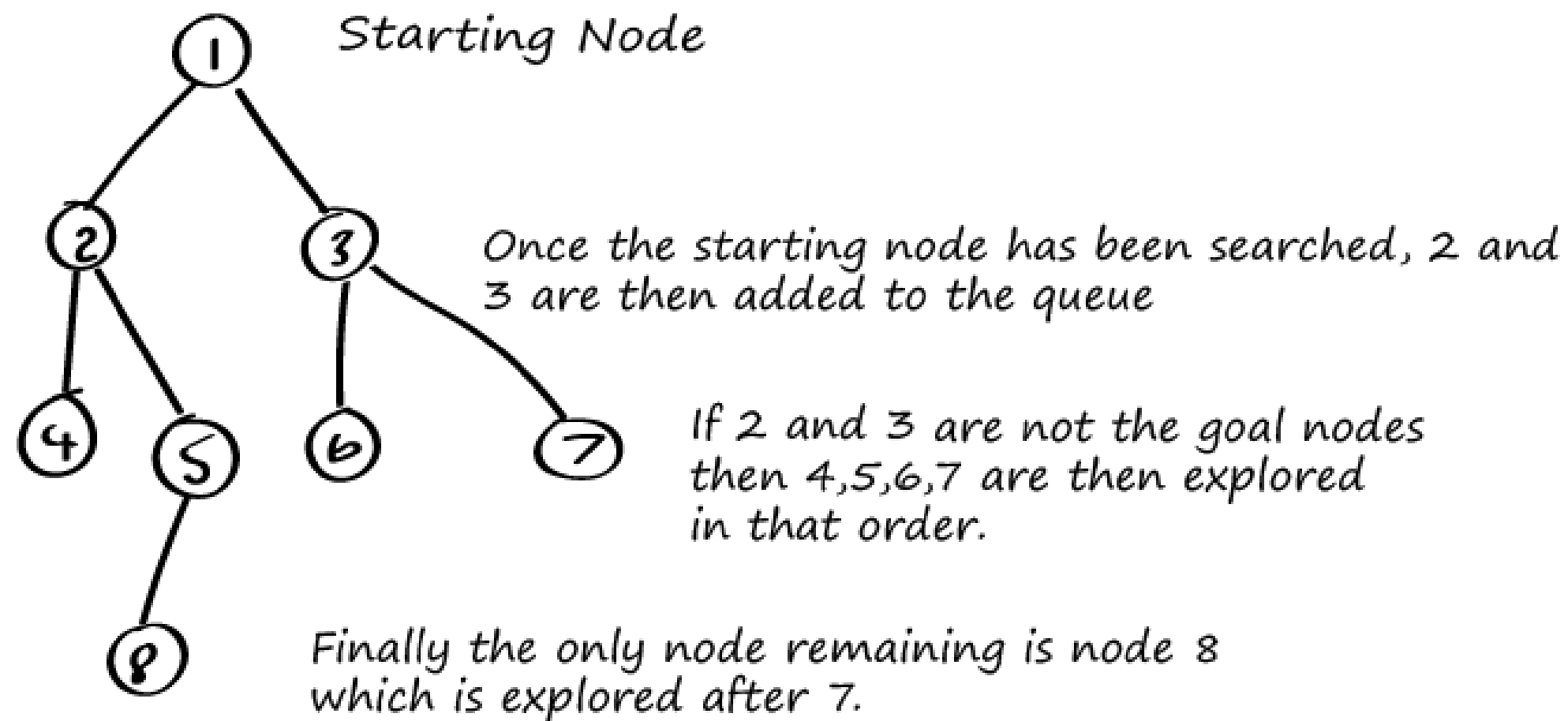
- Aka “blind search,”
- use no information about the likely “direction” of the goal node(s)
- Example methods: Breadth-first, depth-first, depth-limited, uniform-cost, depth-first iterative deepening, bidirectional

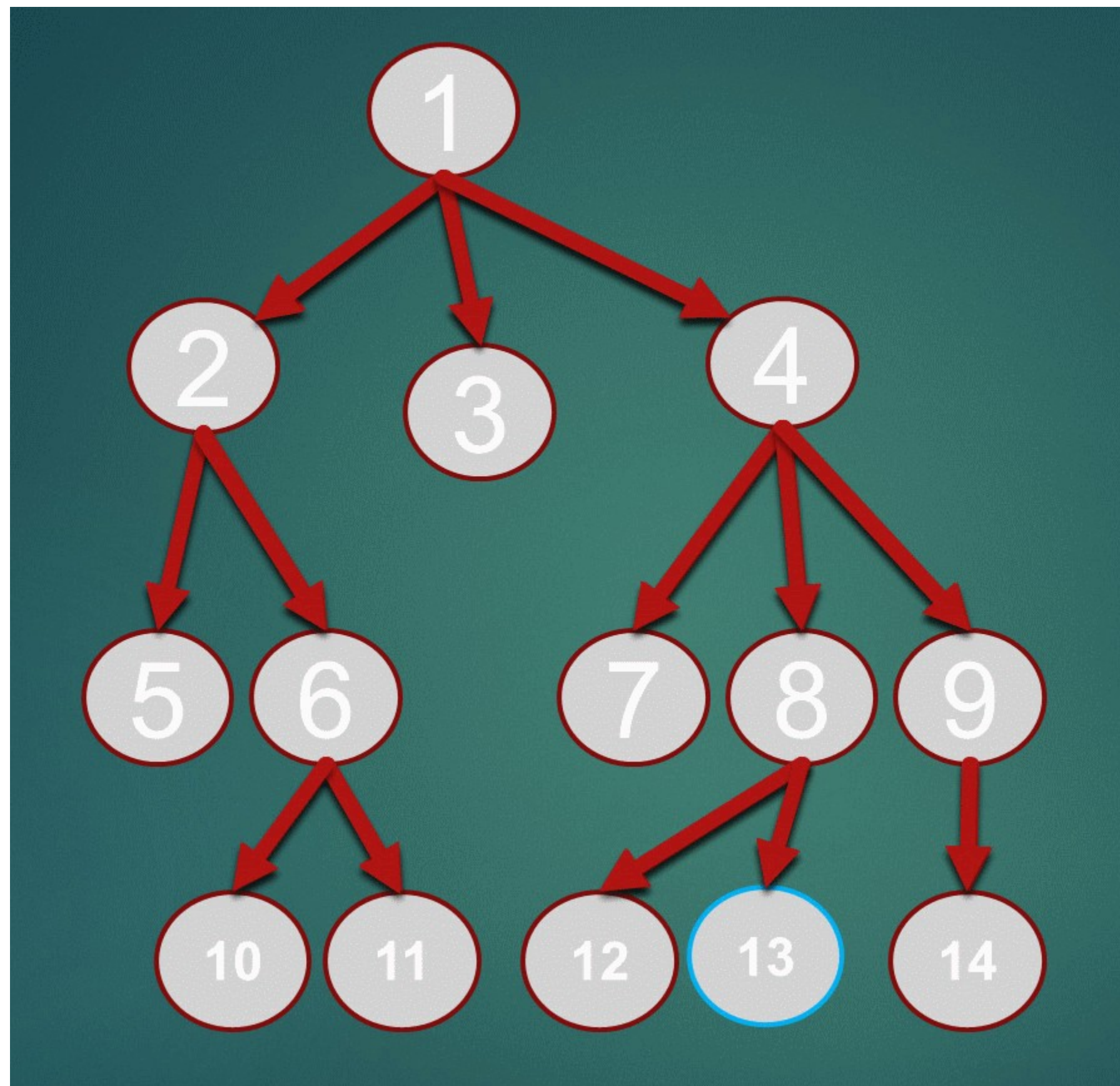
- **Informed search strategies**

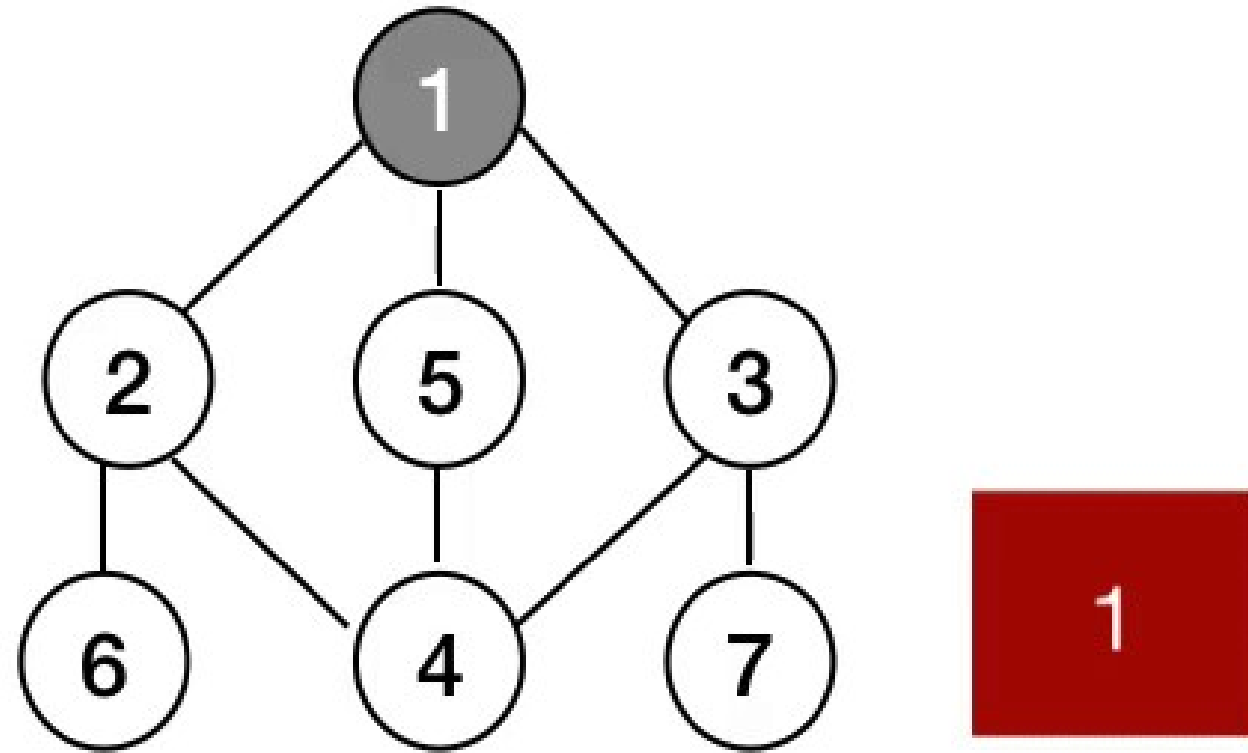
- aka “heuristic search”
- use information about the domain to (try to) (usually) head in the general direction of the goal node(s)
- Example methods: hill climbing, best-first, greedy search, beam search, A, A*

Breadth-first search is an algorithm for searching a tree data structure for a node that satisfies a given property. It starts at the tree root and explores all nodes at the present depth prior to moving on to the nodes at the next depth level.

Breadth First Search

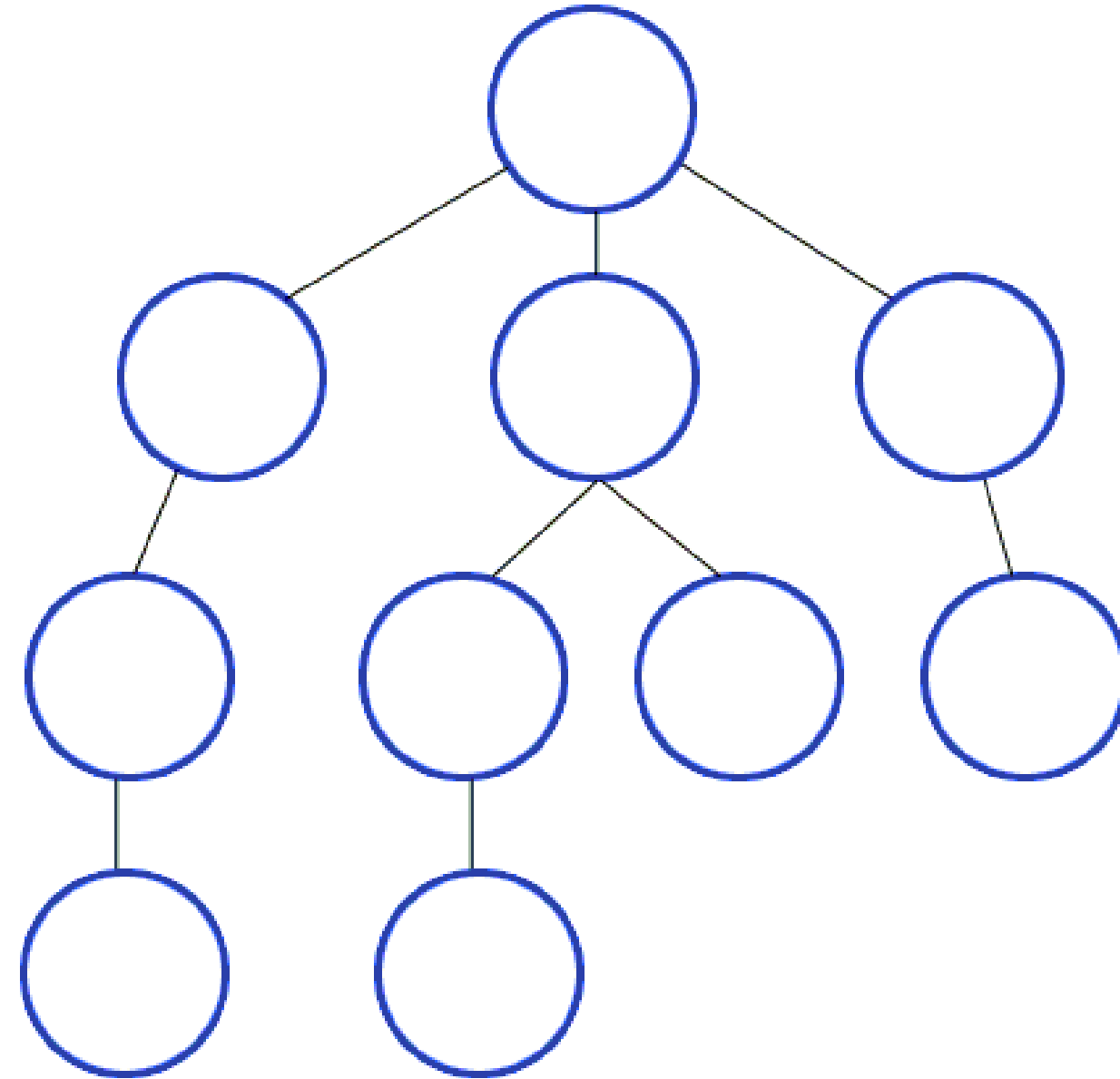


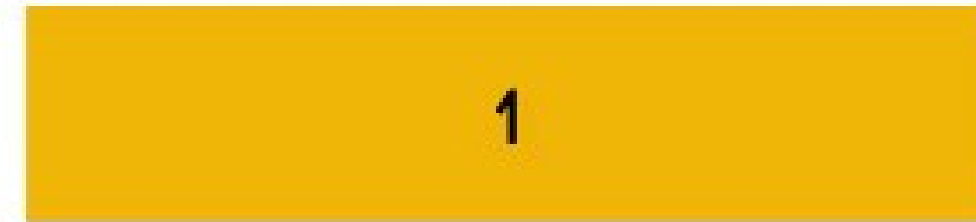
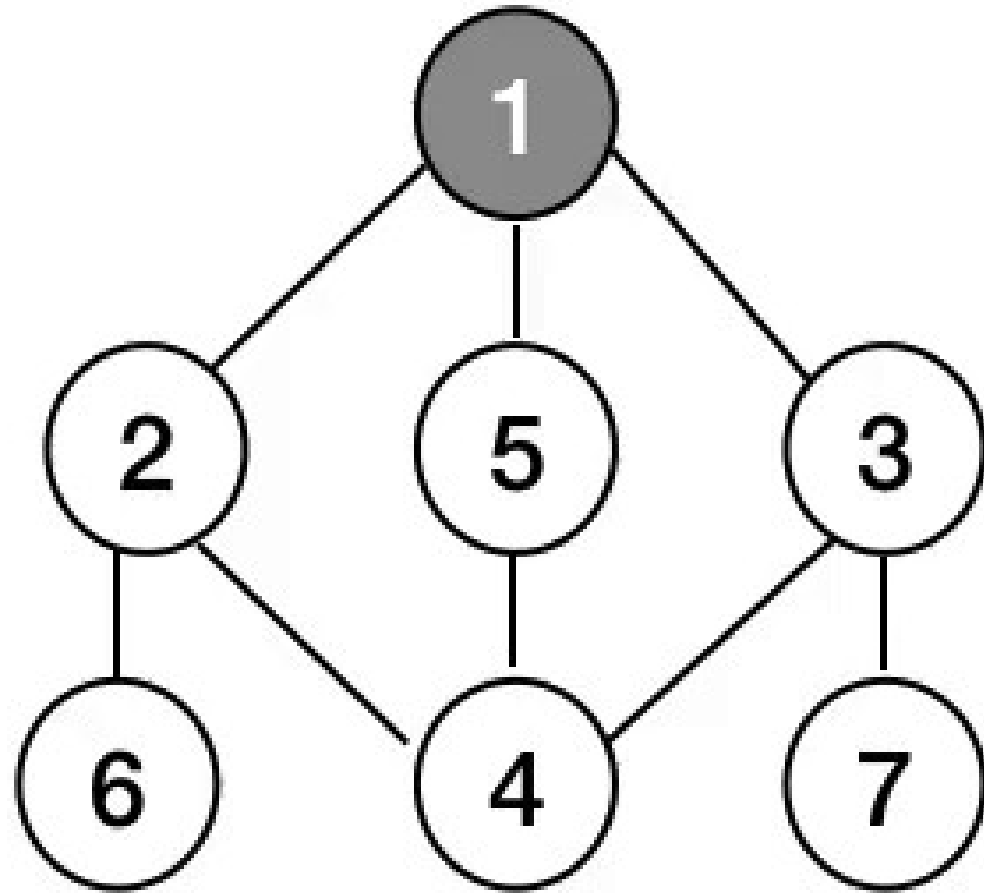




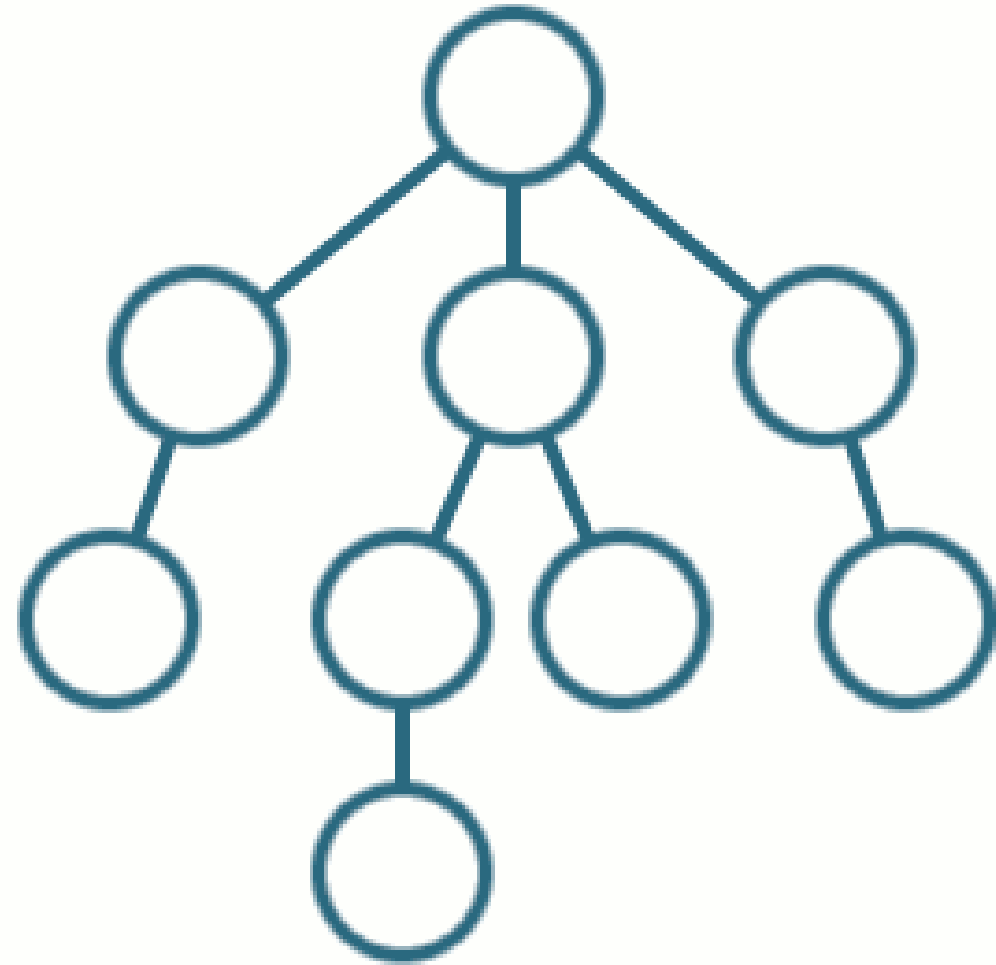


Depth-first search (DFS) is an algorithm for traversing or searching tree or graph data structures. The algorithm starts at the root node (selecting some arbitrary node as the root node in the case of a graph) and explores as far as possible along each branch before backtracking





DFS



BFS





REFERENCES



1. S. Russell and P. Norvig, "Artificial Intelligence: A Modern Approach", Prentice Hall, Third Edition, 2009.

THANK YOU