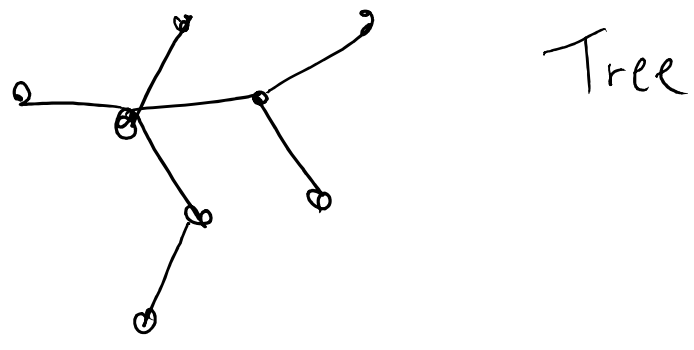
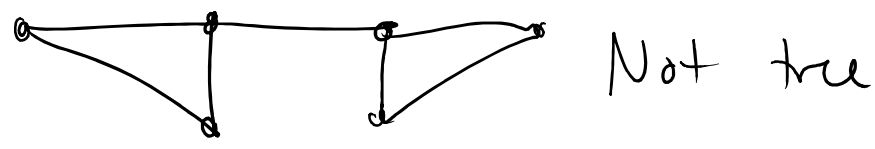


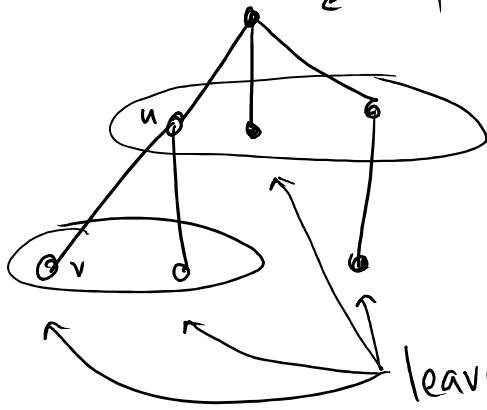
Trees - connected graph with no cycle or self loops



Rooted tree

special vertex is called root

$\{u, v\} \in E$, if u closer to root, u is "parent" of v , v is "child" of u .

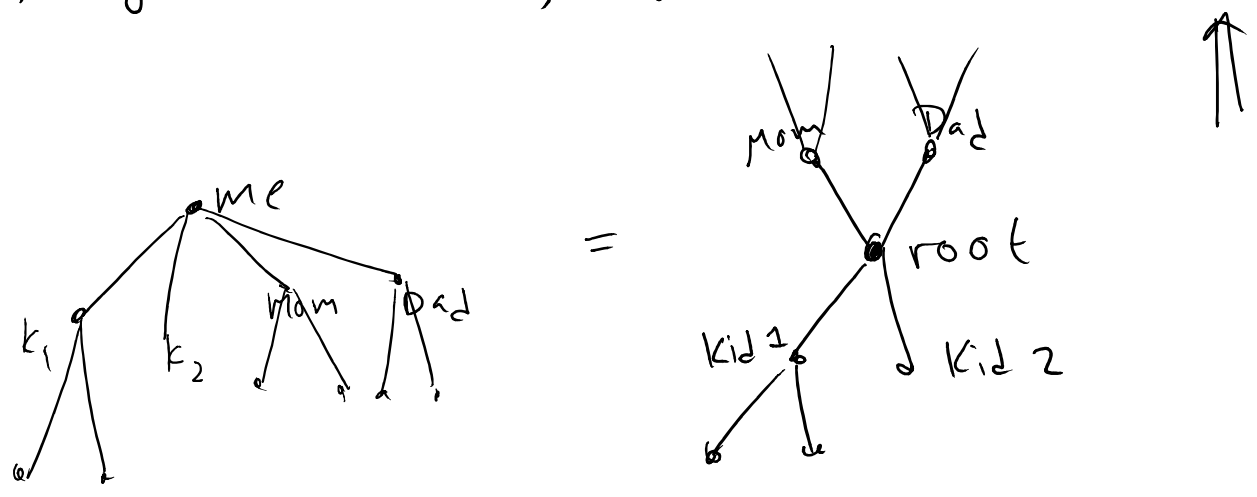


distance 1 = children of root

leaves = nodes without children

Q: Consider family tree where people are vertices, and we put an edge between parent & child. If I am the root, which nodes are child nodes of me?

- A) My children
- B) My Parents
- C) Children & Parents



def: An k-ary tree is a rooted tree where every node has at most k children.

Most Famous in Computer Science: Binary Tree
||
2-ary tree.

- Applications:
- Data structures
 - Codes