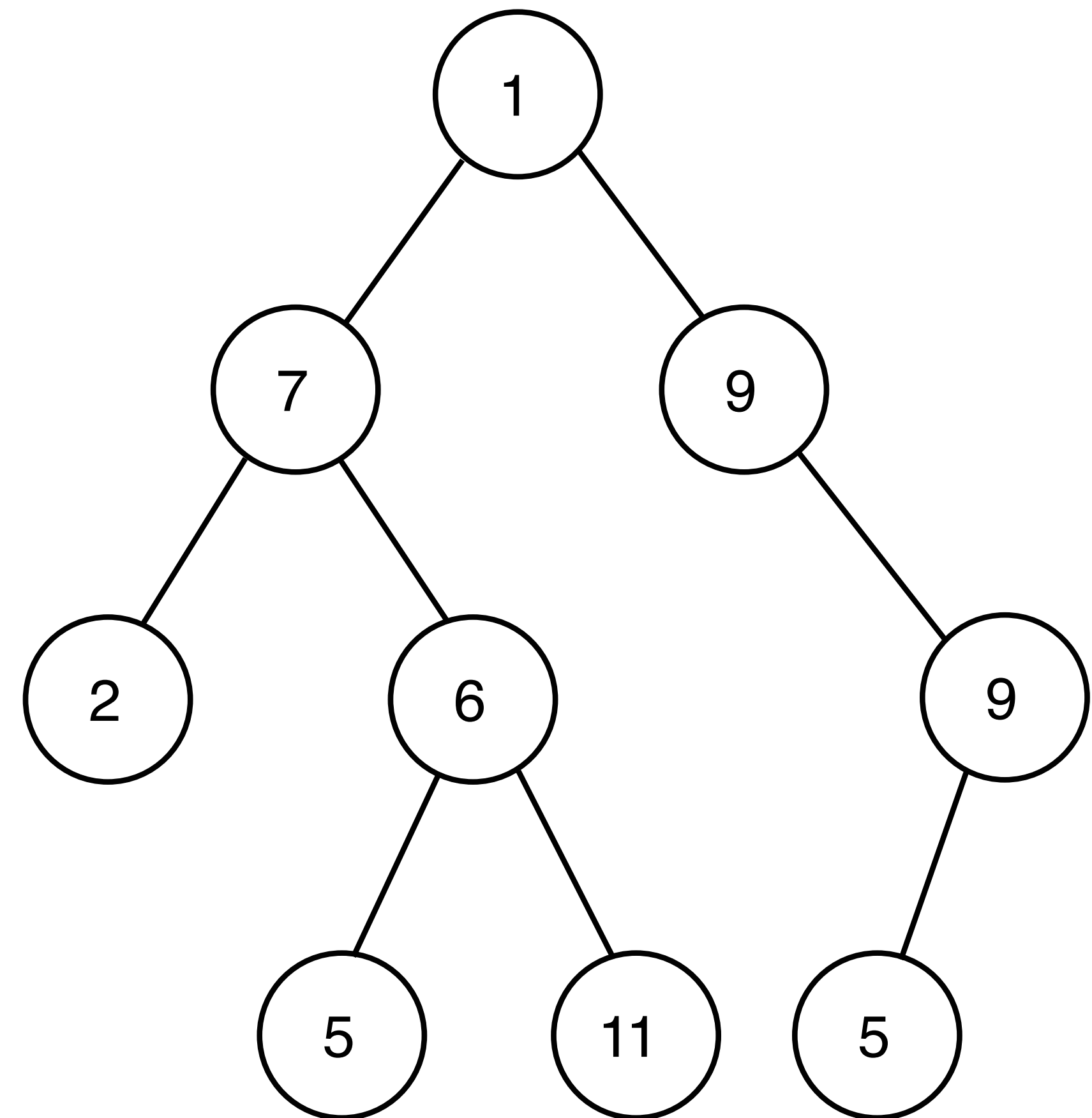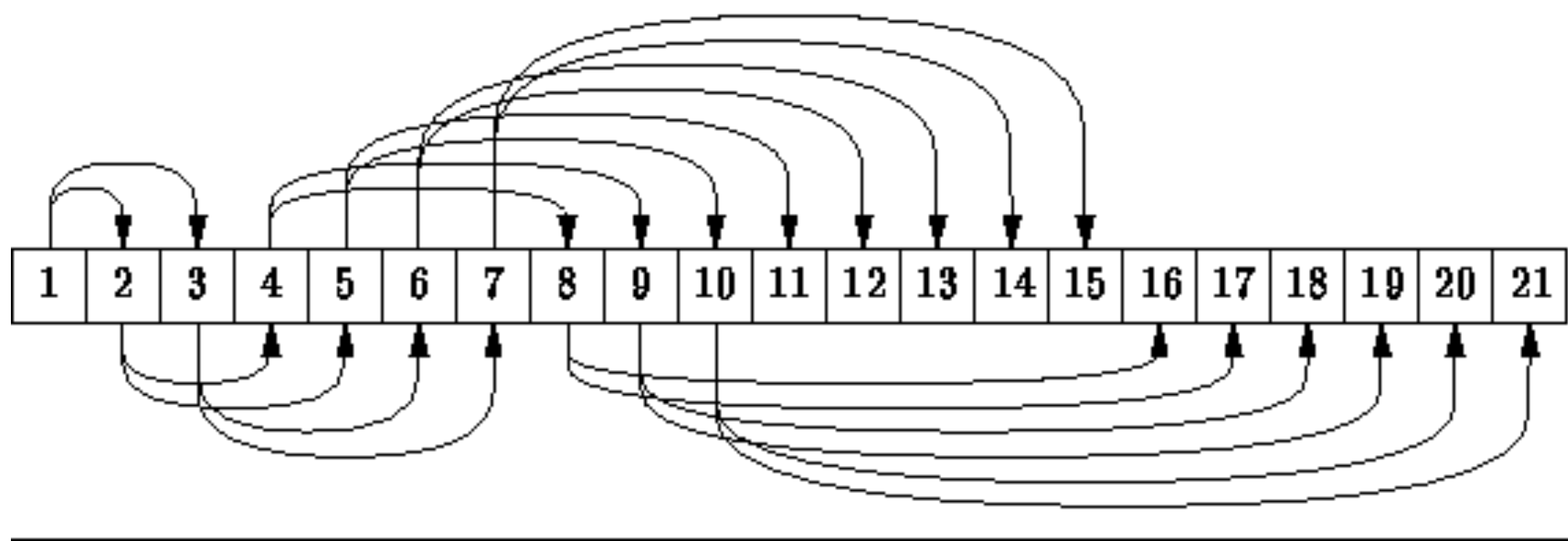# Binary trees

- Common type of tree: binary tree

- Each node in a binary tree has two children, "left" and "right"

- Easy to implement using an array (for full binary trees, like heaps)

Directed graphs

- Graphs can be directed or undirected - so far, have seen undirected graphs

- DIrected graphs have a slightly different mathematical definition:

  - Undirected: $E = \{\{v_1, v_2\} : v_1, v_2 \in V\}$

  - Directed: $E = \{(v_1, v_2) : v_1, v_2 \in V\}$

- Takeaway: order matters for edges in a directed graph, but not in an undirected one

- Indicate edge direction with arrows; (v_1, v_2) gets an arrow from v_1 to v_2.