Reference-based Representation
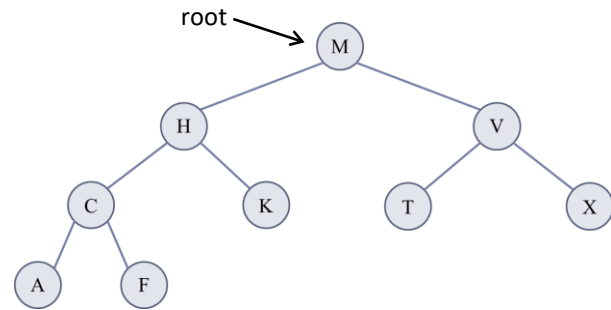
What does a Binary Tree node look like?

Using what we know from linked-lists, how can we traverse a tree?
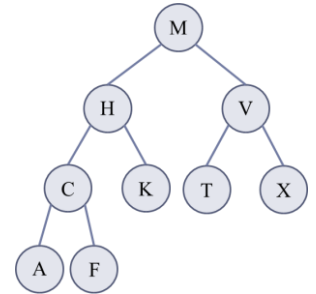
root →

Observation:

How can we add a node to an existing tree at a certain location?

Array-based representation

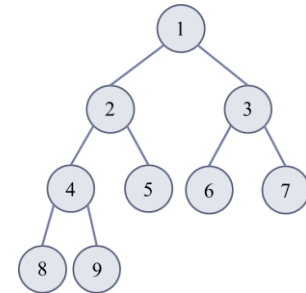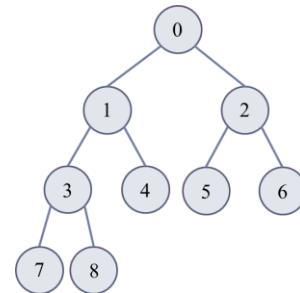What would an array look like representing the same Binary Tree?

Two methods:

M	H	V	C	K	T	X	A	F						
0	1	2	3	4	5	6	7	8	9	10	11	12	13	14

-	M	H	V	C	K	T	X	A	F					
0	1	2	3	4	5	6	7	8	9	10	11	12	13	14

Viewing the tree by the index number of each item:

Left child: Left child:
Right child: Right child:
   Parent: Parent:

What index would we insert the value **U** so that it was **T**'s right child?

Programming Exercise:

Write a recursive method that, given a node, returns the height of that node. Assume that the height of a tree with just a single root node is 0.