Trees!
“The most important non-linear data structure in computer science.”
- David Knuth, The Art of Programming, Vol. 1

We will primarily talk about binary trees:
- How many parents does each vertex have?
- Which vertex has the fewest children?
- Which vertex has the most ancestors?
- Which vertex has the most descendants?
- List all the vertices in b’s left subtree.
- List all the leaves in the tree.

Definition: Binary Tree
A binary tree T is:

The height of a tree T is:
Tree Property: Full

Tree Property: Perfect

Tree Property: Complete

Towards a Tree Implementation – Tree ADT:

<table>
<thead>
<tr>
<th>ADT Functionality (English Description)</th>
<th>Function Call</th>
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Tree Class

BinaryTree.h

Trees are nothing new – they’re fancy linked lists:

Theorem: If there are n data items in our representation of a binary tree, then there are ____________ NULL pointers.

CS 225 – Things To Be Doing:

1. mp_lists extra credit deadline Monday
2. Practice for Exam 1 open.
3. Daily POTDs