Stacks and queues with linked lists

Given a singly linked list, let’s see how long it would take to implement a stack.

The tail pointer is not needed for a stack

New data structure: trees

We can think of a linked list as a linear list

In a linked list, each node has at most 1 predecessor and at most 1 successor.

In contrast, a tree is hierarchical: each node has at most 1 predecessor, but can have many successor.

We can extend the parent relation to get your ancestors (usually include yourself)

We can extend the child relation to get descendents (usually include yourself)

Let’s define linked list recursively: a list is either empty (base case) or a node containing data and a pointer to a sublist (recursive case)