Two data structures: queue and stack
David Gries and Scott Wehrwein

The queue and the stack

We briefly describe 2 data structures: the *queue* and the *stack.* We won't talk about implementing them, just using them.

A queue is a list of items with two operations for changing it. We show a queue with 4 values. The two operations are:

1. add(v): Append element v to the list.
2. remove(): Remove the first item in the list and return it.

The easy way to remember this is: While Cornell students stand in a line to buy hockey tickets, the British stand in a queue to buy tickets for a cricket match. A queue is also called a *FIFO list*, *FIFO* standing for *First-In-First-Out*.

A *stack* is a list of items that can be changed in two ways. A stack is usually drawn with items *stacked* one on top of the other. Here are the two ways to change a stack.

1. push(v): Put v on the top of the stack
2. pop(): Take the top value off the stack and return it.

An example of a stack in real life is a stack of cafeteria trays. You take the tray from the top of the stack. A stack is also called a *LIFO list*, *LIFO* standing for *Last-In-First-Out*.