Ch 21 Stacks & Queues

Stacks
stack - a collection of items that allows addition and removal of items in a last-in-first-out (LIFO) manner (page 1219)

 Operations on Stack<E>:
```
push( E item)
E pop()
E peek()
boolean isEmpty()
```

Implement Stack as:
- Array - maintain top of stack index
- Linked list - head of list is top of stack

Some common stack applications: plates in a cafeteria, method calls in Java, etc.

Queues
queue - a collection of items that is accessed in a first-in-first-out (FIFO) fashion (page 1233)

Operations on Queue<E>
```
enqueue( E item)
E dequeue()
E peek()
boolean isEmpty()
```

Implement array as:
- Array - maintain front and rear indices
- Linked list - use head and tail

Some queue applications: printer queue, customers in line, cars at a toll booth, etc.

You can see animated stacks and queues at:

www.cs.usfca.edu/~galles/visualization/Algorithms.html