Queues

1. Used anywhere you want to process things in the order you receive them.
2. Similar to a stack except the first item to be inserted is the first one that can be removed
   1. FIFO – First In First Out
   2. Think of a line of people in the real world.
      1. People enter at the back, and leave at the front.
3. Can be used in a situation where you have a resource but the resource must be shared amongst many consumers.
   1. So these consumers should line up and use the resource one by one
   2. Examples:
      1. Printers
      2. Operating Systems – Use queues to manage processes that wait in a queue for their turn. To run.
      3. Web servers - Use queues to manage incoming inquests.
      4. Live support systems – For example, when you have a problem with your web host, you may jump on their web site and use the live support.
         1. There is someone here responding to people’s requests.
         2. He or she cannot service everyone at the same time, so you have to go in a queue.
4. Operations
   1. Enqueue – Adding an item to the back of a queue.
   2. Dequeue – Removing an item at the front of a queue.
   3. Peek – Getting an item at the front of a queue.
   4. isEmpty and isFull.
   5. Just like Stacks, all of these are done in O(1) time.