Stacks

1. What are stacks?
   1. Can use them to:
      1. Implement the undo feature
      2. Build compilers.
      3. Evaluate expressions (eg 1 + 2 \* 3)
      4. Build navigation
      5. Best for going back or doing something in reverse order
   2. Think of a stack of books
      1. We add books to the top and can only remove books from the top.
      2. Last In First Out (LIFO)
   3. Internally, we use an array or linked list to store the objects in a stack.
      1. So a Stack is basically a wrapper that gives us a different way of storing and accessing objects.
   4. Four operations (All run in O(1) time)
      1. Push() – Add an item to the top of the stack
      2. Pop() – Remove an item from the top of the stack
      3. Peek() – Returns the item at the top without removing it from the stack
      4. isEmpty() – is the stack empty or not.
      5. We don’t have lookups because stacks aren’t meant for that. We don’t use stack to store a list of products, customers, etc.