



## Crux Assignment (Stack)

1. Check for duplicate parenthesis in an expression e.g.  $((a + b) + ((c+d)))$  has duplicate parenthesis
2. Implement a class MinStack using the stack class we have already built. It should support  $O(1)$  push,  $O(1)$  pop and  $O(1)$  getMinimum() functions where getMinimum() returns the minimum element present in the stack. (Hint: You would need two stacks for doing this)
3. The span  $s_i$  of a stock's price on a certain day  $i$  is the maximum number of consecutive days (up to the current day) the price of the stock has been less than or equal to its price on day  $i$ . Given input array with all stock prices return the spans. We can do this using an array in  $O(n^2)$  time but stack can help us do it in  $O(n)$  time. Implement the array approach if you can't find a solution using stack.