Assignment on Stack & Queue:

1. Design a stack that includes a max operation, in addition to push and pop. The max method should return the maximum value stored in the stack.

2. Write a program that takes an arithmetical expression in RPN and returns the number that the expression evaluates to.

3. Implement a queue API using an array for storing elements. Your API should include a constructor function, which takes as argument the initial capacity of the queue, enqueue and dequeue functions, and a function which returns the number of elements stored. Implement dynamic resizing to support storing an arbitrarily large number of elements.

4. Queue insertion and deletion follows first-in, first-out semantics; stack insertion and deletion is last-in, first-out.

5. Implement a queue with enqueue, dequeue, and max operations. The max operation returns the maximum element currently stored in the queue.