Stack ADT

```
interface Stack<T> {
   T pop();
   void push(T value);
   boolean isEmpty();
   int size();
   T peek();
}
```

1) Design a stack implementation using an array
2) Design a stack implementation using a linked list
3) Design a stack implementation using a Queue
4) Asteroid collision (Medium in leetcode.com)
   You are given an array of integers (asteroids).

   For each asteroid, the absolute value represents its size while the sign represents its direction. Positive means the asteroid is moving right and negative meaning left. No asteroid can be 0. Each asteroid moves at the same speed.

   If two asteroids meet, the smaller one will explode. If both are the same size, both will explode. Two asteroids moving in the same direction will never meet.
   Find out the state of the asteroids after all collisions.

```
Input: asteroids = [5,10,-5]

Output: [5,10]

Explanation: The 10 and -5 collide resulting in 10. The 5 and 10 never
collide.
```

5) Largest Rectangle in Histogram (Hard in leetcode.com)
   Given an array of integers called ***heights*** representing the histogram's bar height where the width of each bar is 1, return the area of the *largest rectangle in the histogram*.

```
Input: heights = [2,1,5,6,2,3]

Output: 10

Explanation: The above is a histogram where width of each bar is 1.

The largest rectangle is shown in the red area, which has an area = 10
units.
```