

Names: _____

CS Logins: _____

Activity 1: Pseudocode for a Capped-capacity Stack

Write pseudocode for the functions `isEmpty()`, `push(obj)`, and `pop()` for a capped-capacity stack. Assume your stack has the following constructor and `size()` functions. Write the big-O runtime on each operations.

```
Stack() :                                O(    )           function push(obj) :       O(    )  
    data = array of size 20  
    count = 0  
  
function size() :                         O(1)  
    return count  
  
function isEmpty() :                     O(    )           function pop() :         O(    )
```

What should happen if the user tries to push to a stack that is at full capacity? What about when someone tries to pop from an empty stack?

Activity 2: Expanding Stack - Analysis of Incremental Strategy

Based on the calculations in lecture of the number of operations per push for 5, 10, and 15 pushes, using an incremental expansion strategy where $e = 5$, what would be the average number of operations per push for **20 pushes**?