

**Note:** 2 out of 4 lab assignments will be graded and counted towards 20% of the course. Python is the ONLY accepted programming language for this course.

**WARNING:** disciplinary actions (zero mark for the lab, or immediate failure of the course, or academic warning) will be taken for any plagiarism.

**Due time:** Friday, 9<sup>th</sup> March, 23:59PM through NTULearn -> MH1402 -> Labs -> LAB2 Submission. You may submit multiple times, only the last version counts.

**Task:** refer to the framework provided in the file QueueFromStack.py, implement the stack using fixed size list, i.e., implement the 4 functions

push(self,e)     push the element 'e' to the stack  
pop(self)        pop and return the last element in the stack  
size(self)        return the number of elements in the stack  
isEmpty(self)    return True if the stack is empty, False otherwise

Using the stack implemented above, implement the Queue with two stacks, so that the amortized running time for dequeue and enqueue is  $O(1)$  (as illustrated in Q5 of Tutorial Week 5)

enqueue(self,e) enqueue the element 'e'  
dequeue(self)    remove and return the first element in the queue, return None if the queue is empty

Complete ONLY the functions with # IMPLEMENT HERE #, and do NOT modify any other place. If implemented correctly, you should see the same output shown.