HOMEWORK #4

제출마감 : 2022. 10.5. 09:00(AM)

제출장소 : 자연대연구실험동 연구실(313동 313호, VBLab) 앞에 있는 **리포트함 혹은 PLATO 과제폴더**

제출방법 : 프로그램 코드를 요구하는 프로그래밍을 직접해야 하는 경우를 제외하고 모든 숙제(과제)는 **손으로 답안을 작성(워드프로세서, 편집기 사용하지 않음)**해야 한다. 제출방법은 제출장소에 마감시간 이전에 직접 제출하거나, 온라인에 제출해야 하는 경우는 손으로 작성한 리포트를 스캔한 파일을 지정한 폴더에 제출한다.

1. Suppose an initially empty stack S has performed a total of 25 push operations, 12 top operations, and 10 pop operations, 3 of which generated a StackEmpty exception that was caught and ignored. What is the current size of S?(Text Book Exercise No:R-5.3)

2. Alice has three array-based stacks, A, B, and C, such that A has capacity 100, B has capacity 5, and C has capacity 3. Initially, A is full, and B andC are empty. Unfortunately, the person who programmed the class for these stacks made the push and pop functions private. The only function Alice can use is a static function, transfer(S,T), which transfers (by iteratively applying the private pop and push functions) elements from stack S to stack T until either S becomes empty or T becomes full. So, for example, starting from our initial configuration and performing transfer(A,C) results in A now holding 97 elements and C holding 3. Describe a sequence of transfer operations that starts from the initial configuration and results in B holding 4 elements at the end. (Text Book Exercise No:C-5.10)

3. 수식 ((5 + 2) * (8 − 3))/4를 postfix notation(후위표기식)으로 바꾸는 과정을 스택을 사용하여 설명하고 그 결과인 후위표기식 5 2 + 8 3 − * 4 / 을 스택을 이용하여 계산하는 과정을 설명하시오.(Text Book Exercise No: C-5.8)

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4. Queue의 자료구조를 설명하고 이를 위한 ADT를 설계하시오.

5. Describe the output for the following sequence of queue operations: enqueue(5), enqueue(3), dequeue(), enqueue(2), enqueue(8), dequeue(), dequeue(), enqueue(9), enqueue(1), dequeue(), enqueue(7), enqueue(6), dequeue(), dequeue(), enqueue(4), dequeue(), dequeue(). (Text Book Exercise No: R-5.9) [주: 각 operation는 교재의 정의를 따른다).