**Hw - Stack (12 marks)**

**Copy all files to project “src” folder.**

You are given all classes for coding a stack.

Class StackArray and StackLinkedList are given.

Write code for the following method in class StackUtility:

**public** **static** String operate(MyStack s1, MyStack s2) **throws** Exception {

This method uses 2 stacks to decode a secret word built from:

**static** String *alphabets* = "abcdefghijklmnopqrstuvwxyz";

s1 contains an incomplete representation of the word to decode. S2 contains the operations to be used on data of s1 to do the decoding. For example:

The following s1 and s2 will produce the word “cat”:

20

-

< 0 indicates operator subtract.

>=0 indicates operator add.

-2

-4

5

-4

-8

7

1

0

+

0

4

-

S2 can have many dummy (not use) frames.

2

4

S2

S1

S1 can have a dummy (not use) frame.

By popping each 2 values from s1 and applying addition/subtraction (according to s2), we can store the result in another stack (say, s3). The above s1 and s2 will produce the following s3.

2

0

19

S3

Each number in s3 indicates a position in alphabets. Hence we get character at 2nd position (c), 0th position (a), and 19th position (t). Thus “cat” will be the returned string from this example.

* Your code must work on any implementation of Stack, or you will lose points.

JUnit is in StackUtilityTest.java

* testWordSimpleAdd() 1 mark
* testWordSimpleSubtract() 1 mark
* testWordSimpleSequence() 1 mark
* testWord01() 3 marks
* testWord02() 3 marks
* testWord03() 3 marks

How to submit!

Submit only StackUtility.java in your assignment.