Software Quality

TP2: Test

Introduction:

A stack is a LIFO (Last In, First Out) kind of storage. The stack have a fixed size (we choose 5), determined at instantiation.

Java Class Stack include the following methods:
public int getSize();
public int getNumberOfElements();
public boolean isFull();
public boolean isEmpty();
public void push(int x) throws IllegalStateException;
public int head() throws IllegalStateException;
public void pop() throws IllegalStateException;

Question 1:

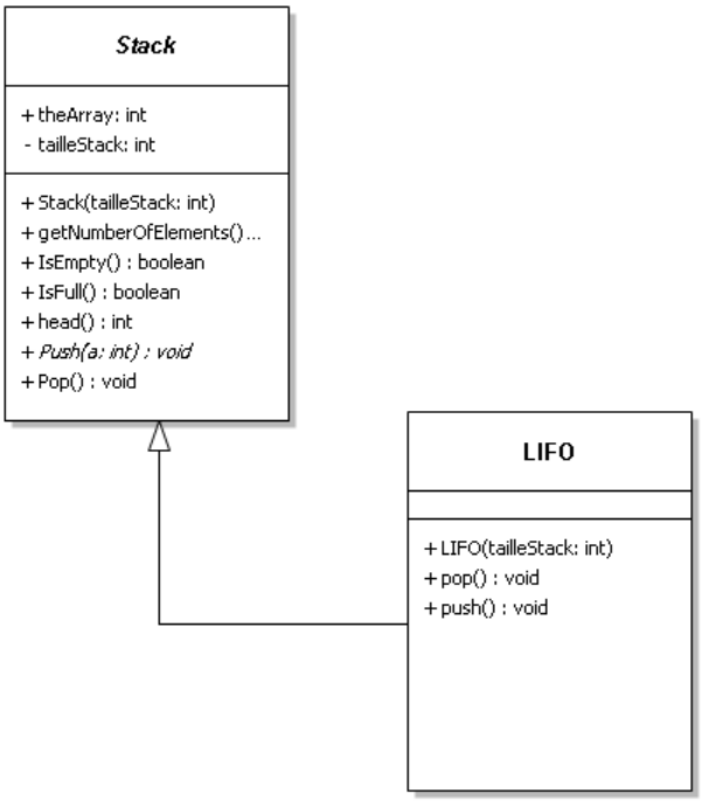
See code.

Question 2:

See code.

Question 3:

We created a class Stack that contain all of the operations of a stack as requested. The class LIFO inherit from the class Stack and have his own two operations: pop and push to instantiate them as they are abstract in Stack. The exception **IllegalStateException** is taken in charge by the operations push, head and pop.



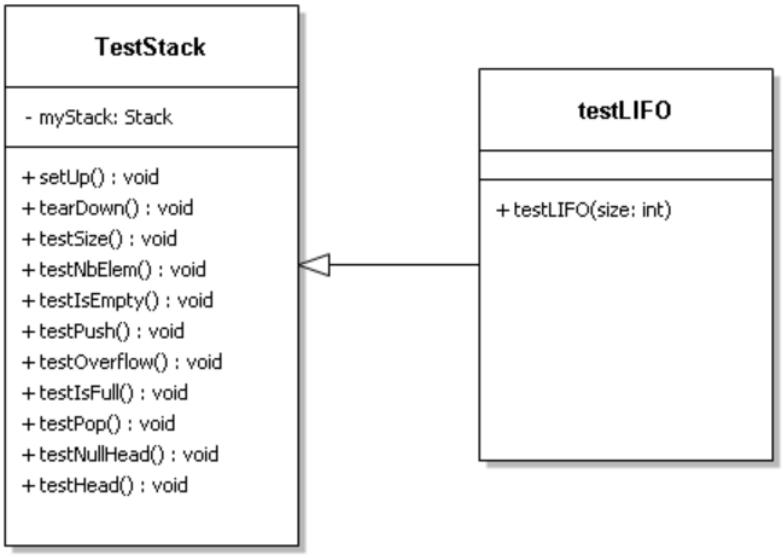
This schema could be applied to a FIFO class too because the class Stack has all the required methods for a LIFO and a FIFO class. FIFO would also have two operations pop and push.

Question 4:

We would just have to rewrite the pop and push units test thanks the the inheritance of LIFO from Stack.

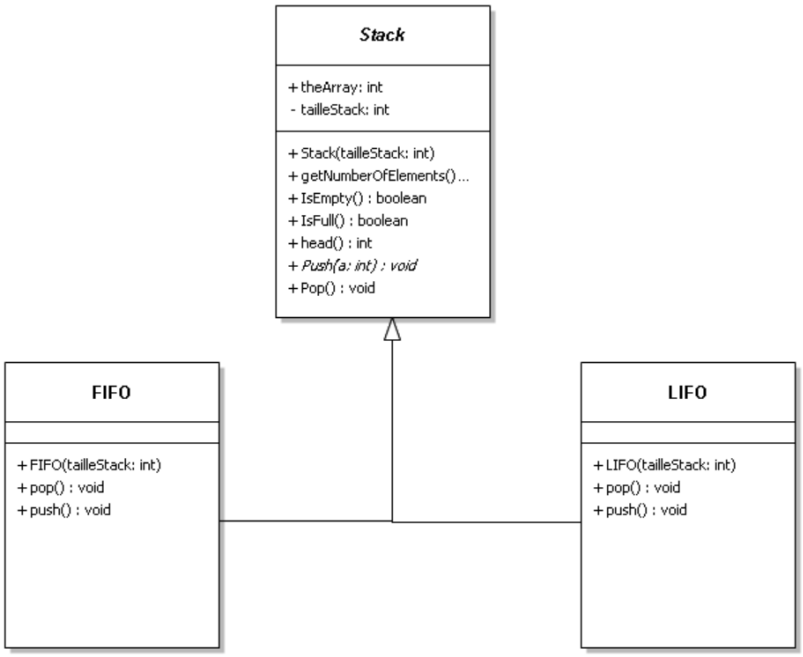
Question 5:

Class Diagram for the LIFO test:



Question 6:

We use also the Stack class for the FIFO and FIFO will have to instantiate as well the pop and push functions.



Question 7:

See code.

Question 8:

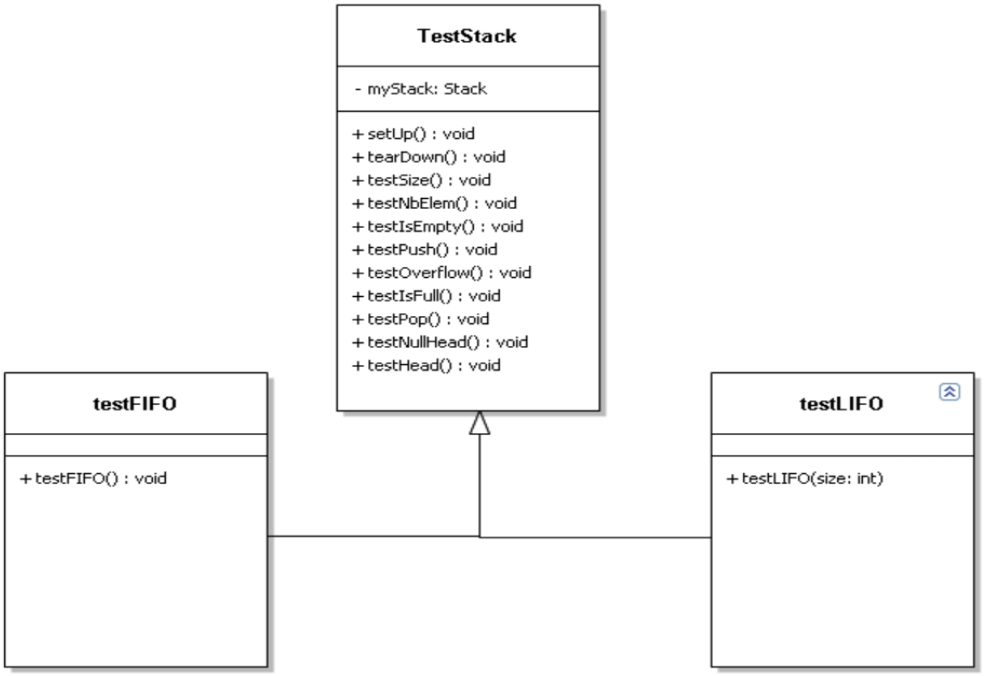
See code.

Question 9:

As well as for the LIFO, we don't rewrite all the functions except the pop and push methods.

Question 10:

Class diagram for the tests FIFO, LIFO:



Question 11:

//to do

Question 12:

See code.

Question 13:

See code.