Exercise 5 – Aspects and Reviews

Aspects:

1. Take the system from last exercise and create two UML models. One showing the joint points and aspects. The other one showing the internals of each Aspect.

Review:

2. Have a look at **Code B.** Discuss with your neighbour the following questions:
   a) What is the purpose of this code?
   b) Why is it so hart to tell?
   c) What kind of things are in theList?
   d) What is the significance of the value 4?
   e) Have a look at the **Explanation A** to understand the code.
   f) Rewrite to code, so that it is easier to understand.
   g) Compare your old and new code. Has the complexity changed?

3. Have a look at the implementation of the HashQueue introduced in the second lecture (for the code see **Code B**). Discuss with your neighbour how you can improve the code.

Code A

```
...

public List<int [ ] > getThem( ) {

        List<int [ ] > list1 = new ArrayList<int [ ] >();

        for(int [ ] x : theList){
                if(x[0] == 4){
                        list1.add(x);
                        }
        }
        return list1;
}

...
```

Code B

```
package lecture1;
import java.util.HashMap;

class HashQueue<E> implements IQueue<E> {

	HashMap<Integer,E> h = new HashMap<Integer,E>();

	/** Position of first Element */
	int firstElement = 0;

	/** Element count */
	int noOfElements = 0;

	public void enter (E x) {
		h.put(new Integer(firstElement+noOfElements), x);
		noOfElements++;
	}

	public E exit() {
		E elem = h.remove(firstElement); noOfElements--;
		firstElement++;
		return elem;
	}

	public E top () {
		return h.get(firstElement);
	}

	public boolean isEmpty() {
		return noOfElements == 0;
	 }

	public void print() {
		System.out.print("( ");
		for (int i = 0; i < noOfElements; i++) {
			System.out.print(h.get(i + firstElement)+" ");
		}
		System.out.println(")\n----------------");
	}
}
```

Explanation A

Let’s say the method *getThem* belongs to a mine sweeper game. The method returns a list of all cells, which are marked by a flag.
theList is the representation of the board.
The value 4 means that the cell is “flagged.
The zeroth subscript gives the location of a status value.