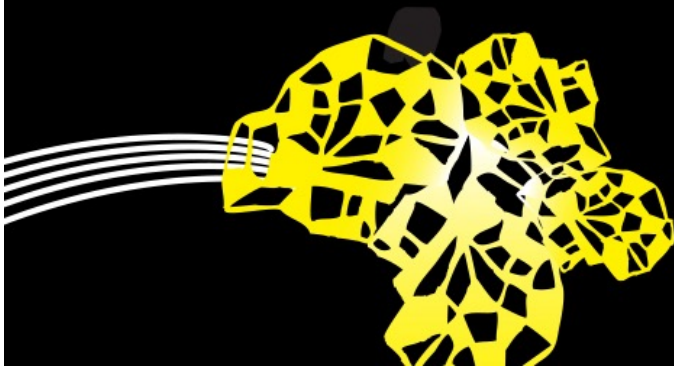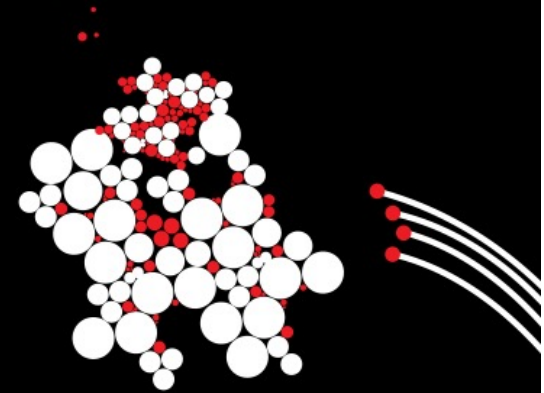# UNIVERSITY OF TWENTE.

Postconditions

Topic of Software Systems (TCS module 2)

Lecturer: Marieke Huisman
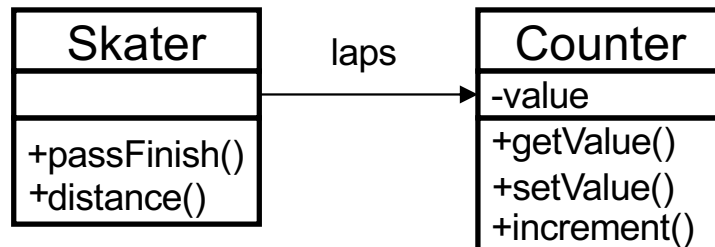
DEFINITION OF POSTCONDITION

A postcondition belongs to a method

- Condition that should always hold after the method terminates
    - Method implementation should ensure this
    - Caller can rely on this
- Condition expressed using method result, method arguments, and/or `public` methods (evaluated at beginning and end of method)

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POSTCONDITION
RESPONSIBILITY OF THE CALLED OBJECT (IMPLEMENTER)

Skater
+passFinish() +distance()

laps →

Counter
-value
+getValue() +setValue() +increment()

```java
public class Skater {

    private Counter laps;

    public static final int LAPSIZE = 600;

    public void passFinish() {
        laps.increment();
    }

    public int distance() {
        return laps.getValue() * LAPSIZE;
    }
}
```

Question

What should be the

postcondition of `getValue()`?

Answer

It should return a positive number!

`ensures \result >= 0;`

POSTCONDITION
RESPONSIBILITY OF THE CALLED OBJECT (IMPLEMENTER)

Skater
+passFinish() +distance()

laps →

Counter
-value
+getValue() +setValue() +increment()

```java
public class Skater {

    private Counter laps;

    public static final int LAPSIZE = 600;

    public void passFinish() {
        laps.increment();
    }

    public int distance() {
        return laps.getValue() * LAPSIZE;
    }
}
```
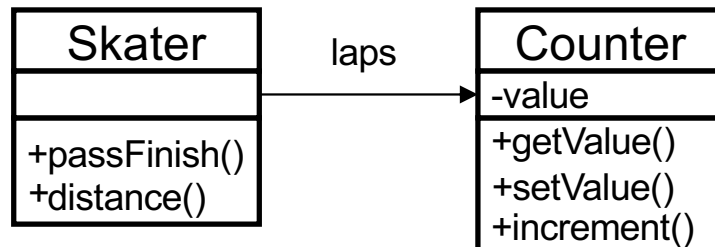
Question

What should be the

postcondition of `increment()`?

Answer

The result of getValue() should equal to the result of getValue()
before the call plus 1

`ensures getValue() == \old(getValue()) + 1;`

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