Assignment HW8

**Cover Page**

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SE-4367.0U1-Testing

**Assignment Choice:**

N/A for this assignment

10 July, 2018

**Proof of Working Software**

GitHub link:

<https://github.com/AlexLundinEducational/SE-4367-Testing>

Branch Summary:

master – managed by Alex, only fully completed pulls allowed to make TA’s life easy. Master only contains assignment material once they reach completed status.

working – flexible branch for team, ideally, this material should build without causing technical debt during the project.

Commit for grading:

HW8\_ Complete, Ready for Merge to master and Ready for Grading

Phase 1 Development

Phase 2 Development

Phase 3 Development

Proof of Functional Tests

1. (5 points) List **all predicates** in the method. How many have one clause, two clauses, three clauses, and more than three?

There are two predicates in turnHeaterOn:

1. **This predicate has 4 clauses**

Lines 28-30 :

(((curTemp < dTemp - thresholdDiff) ||

(Override && curTemp < overTemp - thresholdDiff)) &&

timeSinceLastRun > minLag))

(a || (b && c)) && d

1. **This predicate has 1 clause**

Line 34 :

(Override)

b

p1 = (a || (b && c)) && d )

p2 = b

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | a | b | c | d | (a || (b && c)) && d ) | Pa | Pb | Pc | Pd |
| R1 | T | T | T | T |  |  |  |  |  |
| R2 | T | T | T | F |  |  |  |  |  |
| R3 | T | T | F | T |  |  |  |  |  |
| R4 | T | T | F | F |  |  |  |  |  |
| R5 | T | F | T | T |  |  |  |  |  |
| R6 | T | F | T | F |  |  |  |  |  |
| R7 | T | F | F | T |  |  |  |  |  |
| R8 | T | F | F | F |  |  |  |  |  |
| R9 | F | T | T | T |  |  |  |  |  |
| R10 | F | T | T | F |  |  |  |  |  |
| R11 | F | T | F | T |  |  |  |  |  |
| R12 | F | T | F | F |  |  |  |  |  |
| R13 | F | F | T | T |  |  |  |  |  |
| R14 | F | F | T | F |  |  |  |  |  |
| R15 | F | F | F | T |  |  |  |  |  |
| R16 | F | F | F | F |  |  |  |  |  |

2. For each predicate, write the **truth table** and choose rows from the truth tables that **satisfy PC**.

a. (10 points) You must submit the truth tables and clearly mark which rows will be used. These are your abstract tests.

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | a | b | c | d | (a || (b && c)) && d ) | Pa | Pb | Pc | Pd |
| R1 | T | T | T | T | T |  |  |  |  |
| R2 | T | T | T | F | F |  |  |  |  |
| R3 | T | T | F | T | F |  |  |  |  |
| R4 | T | T | F | F | F |  |  |  |  |
| R5 | T | F | T | T | F |  |  |  |  |
| R6 | T | F | T | F | F |  |  |  |  |
| R7 | T | F | F | T | F |  |  |  |  |
| R8 | T | F | F | F | F |  |  |  |  |
| R9 | F | T | T | T | T |  |  |  |  |
| R10 | F | T | T | F | F |  |  |  |  |
| R11 | F | T | F | T | F |  |  |  |  |
| R12 | F | T | F | F | F |  |  |  |  |
| R13 | F | F | T | T | F |  |  |  |  |
| R14 | F | F | T | F | F |  |  |  |  |
| R15 | F | F | F | T | F |  |  |  |  |
| R16 | F | F | F | F | F |  |  |  |  |

b. (5 points) For each abstract test, create input values that satisfy the truth assignments and that reach the predicate.

* + 1. c. (10 points) Implement each test in Junit file “**ThermostatTest\_PC.java**”. Include comments that state which predicate and which truth assignment (row in the truth table) is being implemented.
  1. d. (5 points) Run your tests.

3. For each predicate, write the **truth table** and choose rows from the truth tables that **satisfy CC**.

a. (10 points) You must submit the truth tables and clearly mark which rows will be used. These are your abstract tests.

* 1. b. (5 points) For each abstract test, create input values that satisfy the truth assignments and that reach the predicate.
  2. c. (10 points) Implement each test in Junit file “**ThermostatTest\_CC.java**”. Include comments that state which predicate and which truth assignment (row in the truth table) is being implemented.
  3. d. (5 points) Run your tests.

4. For each predicate, write the **truth table** and choose rows from the truth tables that **satisfy CACC**.

a. (10 points) You must submit the truth tables and clearly mark which rows will be used. These are your abstract tests.

* 1. b. (5 points) For each abstract test, create input values that satisfy the truth assignments and that reach the predicate.
  2. c. (10 points) Implement each test in Junit file “**ThermostatTest\_CACC.java**”. Include comments that state which predicate and which truth assignment (row in the truth table) is being implemented.
  3. d. (5 points) Run your tests.