**Course: Software Testing**

**Lab. Report #3 – White-box testing and code coverage**

|  |  |
| --- | --- |
| Group #: |  |
| Student Names: |  |
|  |

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# Test plan for white-box unit testing

Text…

# Description of four selected test cases you have designed using coverage information, and how they have increased code coverage (see the lab doc for details)

A table showing the increase in number of test cases for each method under test from Lab2 to Lab3, such as:

|  |  |  |  |
| --- | --- | --- | --- |
| **Class under test** | **Method under test** | **Number of test cases (test methods) in Lab2** | **Number of test cases (test methods) in Lab3** |
| Range | combine(Range range1, Range range2) | 6 | 9 |
| contains(double value) | 8 | 11 |
| … | … | … |
| … | … | … |
| … | … | … |
| DataUtilities | calculateColumnTotal(Values2D data, int column) | 6 | 7 |
| calculateRowTotal(Values2D data, int row) | 9 | … |
| createNumberArray(double[] data) | 11 | … |
| createNumberArray2D(double[][] data) | … | … |
| getCumulativePercentages(KeyedValues data) | … | … |

**Note: The above is just an example. We are NOT providing the number of test cases for you.**

Next, we want you to discuss some details of how your design and development of additional JUnit test cases (test methods), in lab3 compared to lab2, improved code coverage of methods under test.

# Showing that the coverage threshold is achieved for each class

# Output of test suite execution: Include a screenshot of test suite execution in JUnit showing their Pass/Fail/Error status, and the top-bar numbers

# Comparison on the advantages and disadvantages of requirements-based and coverage-based test generation

**Using your examples and experiences learned in labs 2 and 3**

Text…

# Manual data-flow coverage calculations for Range.constrain(double) method

Text…

# Manual mutation testing for the method calculateColumnTotal

Text…

# How the team work/effort was divided and managed

## How the team work/effort of the lab was managed and divided

* You can say for example discuss which parts of the lab-work (e.g., classes under test, etc.) was done by who…
* And also discuss the meetings that you had to plan and run the lab work
* Etc.

## Writing the lab report

Fill up the following table to specify who wrote what part of the lab document:

|  |  |
| --- | --- |
| **Lab-report section** | **Written by** |
| 1- Introduction | Student A |
| 2-.. |  |
| … |  |

## Lessons learned from your teamwork in this lab

Only include lessons learned from **your teamwork in this section**. **“Technical”** lessons learned **shall be discussed in another section below.**

# Difficulties/ challenges encountered, overcoming them, and lessons learned

## Difficulties/ challenges encountered

Text…

## How did you overcome the above difficulties/ challenges?

Text…

## “Technical” Lessons learned

Only include **“technical”** lessons learned from **in this section**. Lessons learned **your teamwork shall be discussed in another section above.**

# Comments/feedback on the lab and lab document itself

This section has the following sub-sections.

## About time budget? (Was there too much/too little time for this lab?)

Text…

## Was the lab document easy to follow?

Text…

## Please provide your comments on how to improve the lab work and lab document

Text…