**Course: Software Testing**

**Lab 1-Java Refresher and Basics of Unit Testing**

Designed and prepared by: Dr. Vahid Garousi

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

**Table of Contents**

[1 Introduction 1](#_Toc153387341)

[2 TODO’s 1](#_Toc153387342)

[2.1 TODO1: Development of three other if-code blocks to verify the other three fields in the UserTest class 2](#_Toc153387343)

[2.2 TODO2: Testing User class-Refactoring the test-code of constructor’s tests by creating a separate method of it 2](#_Toc153387344)

[2.3 TODO3: Interpret and explain your understanding of defects in SUT (production-code) and test-code bases 2](#_Toc153387345)

[2.4 TODO4: Developing the other four assertions in the UserTest class 2](#_Toc153387346)

[2.5 TODO5: Developing a test suite named AccountTest class for class Account 2](#_Toc153387347)

[2.6 TODO6: Develop the code for SimpleBankingApp.getBalance() 2](#_Toc153387348)

[2.7 TODO7: Your observations after running and analyzing main() method of SimpleBankingApp 2](#_Toc153387349)

[2.8 TODO8: Developing the testWithdrawals() test method in SimpleBankingAppTest 2](#_Toc153387350)

[3 What “technical” skills did you learn in this lab? 2](#_Toc153387351)

[3.1 “technical” skills learned by student A 2](#_Toc153387352)

[3.2 “technical” skills learned by student B 2](#_Toc153387353)

[4 Teamwork and division of work 2](#_Toc153387354)

[4.1 How the teamwork/effort of the lab was managed and divided 2](#_Toc153387355)

[4.2 Writing the lab report 3](#_Toc153387356)

[4.3 Lessons learned from your teamwork in this lab 3](#_Toc153387357)

[5 Technical difficulties/ challenges encountered, and you overcame them 3](#_Toc153387358)

[5.1 Technical difficulties/ challenges encountered 3](#_Toc153387359)

[5.2 How did you overcome the above difficulties/ challenges? 3](#_Toc153387360)

[6 Comments/feedback on the lab and lab document itself 3](#_Toc153387361)

[6.1 What was your learning experience in the lab? 3](#_Toc153387362)

[6.2 Was the lab document easy to follow? 3](#_Toc153387363)

[6.3 About time budget? (Was there too much/too little time for this lab?) 3](#_Toc153387364)

[6.4 Please provide your comments on how to improve the lab work and lab document 3](#_Toc153387365)

**URL of your project in GitHub.com**

www.github.com/…

# Introduction

## An introduction of the lab work

Write an introduction to your lab work. Your lab report is a “technical report”. The introduction section of a technical report should specify the context of the report. It should specify the purpose, objectives of the project, and an overview of the work done. There are various online resources on how to write the introduction section of a technical report: <https://www.google.com/search?q=technical+report+%22introduction%22>

## Previous experience / knowledge of each team member with Java, OO programming and unit testing

### Student 1: NAME

### Student 2: NAME

# TODO’s

Note that although some TODO’s are (will be) done in the code environment, we still want students to provide screenshot of their code work on for those TODO’s in the rest of this section.

## TODO1: Development of three other if-code blocks to verify the other three fields in the UserTest class

Provide screenshot of your code and its execution output

No need for explanation

## TODO2: Testing User class-Refactoring the test-code of constructor’s tests by creating a separate method of it

Provide screenshot of your code and its execution output

No need for explanation

## TODO3: Interpret and explain your understanding of defects in SUT (production-code) and test-code bases

Write a minimum of half a page in your report, to discuss the followings. Use your experience and provide examples from your lab-work.

Important: if you use internet resources in your report, including this section, ensure giving the references, and also paraphrase the text.

### --Your understanding of defects in SUT (production-code) and test-code bases: in general, and also in the specific case of your lab1 work.

Text and examples

### --How can we design effective test-suites, i.e., that are as small as possible (in terms of number of test cases), while still maximizing the chances of finding defects in a SUT?

Text and examples

### --What are the consequences of defects in test code?

Text and examples

### --How can we maximize the chances of finding or preventing defects in test-code?

Text and examples

## TODO4: Developing the other four assertions in the UserTest class

Provide screenshot of your code and its execution output

No need for explanation

## TODO5: Developing a test suite named AccountTest class for class Account

Provide screenshot of your code and its execution output

No need for explanation

## TODO6: Develop the code for SimpleBankingApp.getBalance()

Provide screenshot of your code and its execution output

No need for explanation

## TODO7: Your observations after running and analyzing main() method of SimpleBankingApp

Text… (see the lab document for details)

## TODO8: Developing the testWithdrawals() test method in SimpleBankingAppTest

Provide screenshot of your code and its execution output

## TODO9:

## TODO10:

## TODO11:

## TODO12:

# What “technical” skills did you learn in this lab?

Be as precise as possible

Note that the focus here is on “technical” skills. “Soft” skills learned (such as teamwork) shall be discussed in the next sections below.

## “technical” skills learned by student A

## “technical” skills learned by student B

# Teamwork and division of work

Teamwork and division of work

## How the teamwork/effort of the lab was managed and divided

* You can say for example discuss which sections / parts of the lab 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.**

# Technical difficulties/ challenges encountered, and you overcame them

## Technical difficulties/ challenges encountered

Text…

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

Text…

# Comments/feedback on the lab and lab document itself

This section has the following sub-sections.

## What was your learning experience in the lab?

Text…

## Was the lab document easy to follow?

Text…

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

Text…

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

Text…