SCHOOL OF COMPUTER SCIENCES

Academic Session 2023/2024, Semester II

CSE442: Software Testing

Assignment: Software Test Design

A. Introduction:

The purpose of this assignment is to give you an appreciation of conducting system testing. The scope of system testing is only limited to **black box-functional testing** for features developed in a test object. This test focuses on verifying and validating the requirements in terms of existence and correctness, i.e. being delivered and being correct respectively.

A mock software testing project, called **Automated Teller Machine System (ATMS)** is used as the **test object** for this assignment. ATMS installer is provided in softcopy. To run the ATMS software, you only need to double-click the ATMS executable jar file provided.

*You would also be provided with 2 textbooks from MSTB in the first/second week which would provide some basic guidance for this assignment. These books are **ON LOAN** for this course. Please remember that the books would need to be returned by the end of the semester.

At the end of this assignment, you should be able to:

i. gain an overall understanding on the process of system testing in particular to black box testing techniques.
ii. construct black box test cases and scenarios based on the testing principles and techniques.
iii. demonstrate black box testing for validation.

The assignment will be carried out in a group of **4 students**.

B. Tasks:

1. Choose **TWO** of the following of ATMS functional requirements to be tested below:

    a) Withdrawal - 1) Checking
    b) Withdrawal - 2) Savings
    c) Deposit - 1) Checking
    d) Deposit - 2) Savings
    e) Transfer - 1) Checking
    f) Transfer - 2) Savings
    g) Balance Inquiry - 1) Checking
    h) Balance Inquiry - 2) Savings

2. Identify **TWO** black-box test design technique that is suitable to test the chosen functions. If you have selected only one technique, provide a strong argument for this that is supported with suitable references.

3. Design sufficient test cases for testing the chosen functions. 'Sufficient' here refers to a balance between ensuring adequate coverage of all functionalities and practical constraints such as time and resources. The goal is to cover as many scenarios as possible that could potentially lead to failures, keeping in mind the critical paths and functionalities within the application.

4. Demonstrate the black box testing for validation.

5. Prepare a simple documentation that provides metrics used to monitor the testing progress. For examples:

    a) % of test cases run
    b) % of test cases passed &
    c) incident classification

C. Test Basis Documentation

The ATMS Test Plan, Software Requirements Specification (SRS), Software Design Specification (SDS) documentations are provided in eLearn@USM on which your test cases are based.

D. Assessment Criteria:

1. Sufficient test cases with appropriate test design techniques applied (50%)
2. Justified metrics used to monitor the testing progress (50%)

E. Deadline: Week 12 (14 Jun 2024 before 4.00pm). Submit through the eLearn platform.

F. Important:

Your answers to this assignment must be your own work. **You will be assigned 0 marks for this entire assignment if any of your answer bears a close resemblance** to other groups' submission. If a team member does not contribute to the assignment, **0 marks will be given as well**. Thank you.