

GENERATING TEST CASES FOR LEARNINGZONE

**A project report submitted to College of Arts and Sciences in partial
fulfillment of the requirement for Master Degree in
Information Technology (IT)**

Universiti Utara Malaysia

By

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Abstract

The increment of web-based applications in all over the internet increase the concern about quality of these web-applications, which requires testing the designs (both black and white boxes) of these systems and generating new methodologies and tools for testing. This research is concern about the applications that are related to Learning Management Systems (LMS) and precisely Modular Objected Oriented Dynamic/Distributed/Development Learning Environment (Moodle), an open source software. Universiti Utara Malaysia (UUM) has named its Moodle as LearningZone which still lacks of testing. Therefore, a suitable testing approach for deriving test cases to evaluate this open source application has been identified. This application represents the case study of this research which focuses mainly on student functionalities of LearningZone. Such an objective can be achieved through identifying the suitable UML diagram for the research's case study. Later on, applying the generation of the test cases from the chosen UML diagram. Finally, the generated test cases have to be evaluated in terms of accuracy and system's errors. This will ensure the suitability of the usage of that diagram for LearningZone as a result of this research.

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TABLE OF CONTENT

CHAPTER ONE

INTRODUCTION	1
1.1 Introduction	1
1.2 Problem Statement	2
1.3 Research Questions	2
1.4 Research Objectives	2
1.5 Scope of Research	3
1.6 Research Significance	3

CHAPTER TWO

LITRATURE RVIEW	4
2.1 Web-Based Applications	4
2.2 Learning Management System (LMS)	4
2.3 Moodle	5
2.4 Analyzing and Testing Tools of Web Applications	6
2.5 Software Quality Assurance (SQA)	7
2.6 Testing	8
2.7 Validation and Verification (V & V)	9
2.8 Scenario	11
2.9 Thin Thread	12
2.10 Testing Tools	13
2.11 Summary	14

CHAPTER THREE

METHODOLOGY	15
3.1 Theoretical Study	15
3.2 Testing Approach Application	15
3.2.1 Generating the UML Activity Diagram for the Functionality	16
3.2.2 Converting the UML Activity Diagram into An Activity Graph	16
3.2.3 Creating the NDT	17
3.2.4 Generating Test Cases from the Activity Graph	18
3.2.4.1 Using the Algorithm	18
3.2.4.2 Generate the Paths	20
3.2.4.3 Generate the Test Cases	21
3.3 Test Cases Evaluation	25
3.4 Data Analysis	28
3.5 Report Writing	28
Summary of Methods	29

CHAPTER FOUR

TEST APPROACH IMPLEMENTATION	30
4.1 Download Assignment	30
4.1.1 Generating the UML Activity Diagram for the Functionality	30
4.1.2 Converting the UML Activity Diagram into An Activity Graph	31
4.1.3 Creating the NDT	31
4.1.4 Generating Test Cases from the Activity Graph	32
4.1.4.1 Generate the Paths	32
4.1.4.2 Generate the Test Cases	32

4.2 Upload Assignment	33
4.2.1 Generating the UML Activity Diagram for the Functionality	33
4.2.2 Converting the UML Activity Diagram into An Activity Graph	34
4.2.3 Creating the NDT	35
4.2.4 Generating Test Cases from the Activity Graph	36
4.2.4.1 Generate the Paths	36
4.2.4.2 Generate the Test Cases	37
4.3 Change Password	40
4.3.1 Generating the UML Activity Diagram for the Functionality	40
4.3.2 Converting the UML Activity Diagram into An Activity Graph	41
4.3.3 Creating the NDT	42
4.3.4 Generating Test Cases from the Activity Graph	43
4.3.4.1 Generate the Paths	43
4.3.4.2 Generate the Test Cases	45
4.4 Forum Search	51
4.4.1 Generating the UML Activity Diagram for the Functionality	51
4.4.2 Converting the UML Activity Diagram into An Activity Graph	52
4.4.3 Creating the NDT	53
4.4.4 Generating Test Cases from the Activity Graph	53
4.4.4.1 Generate the Paths	53
4.4.4.2 Generate the Test Cases	54
Summary	55

CHAPTER FIVE	
CONCLUSION	56
5.1 Findings and Results	56
5.2 Limitation	57
5.3 Future Work	57
5.4 Conclusion	58
REFERENCES	59
APPENDIX A	61
APPENDIX B	62
APPENDIX C	63
APPENDIX D	70

LIST OF FIGURES

Figure 3.1: Algorithm for Generating the Paths from the Activity Graph	19
Figure 3.2: Activity Diagram for “Login”	21
Figure 3.3: Activity Graph for “Login”	22
Figure 3.4: The Generated Paths for “Login”	23
Figure 3.5: Faults Check Out Form	26
Figure 3.6: Faults Description Form	27
Figure 4.1: Activity Diagram for “Download Assignment”	30
Figure 4.2: Activity Graph for “Download Assignment”	31
Figure 4.3: The Generated Path for “Download Assignment”	32
Figure 4.4: Activity Diagram for “Upload Assignment”	33
Figure 4.5: Activity Graph for “Upload Assignment”	34
Figure 4.6: The Generated Paths for “Upload Assignment”	36
Figure 4.7: Activity Diagram for “Change Password”	40
Figure 4.8: Activity Graph for “Change Password”	41
Figure 4.9: The Generated Paths for “Change Password”	44
Figure 4.10: Activity Diagram for “Forum Search”	51
Figure 4.11: Activity Graph for “Forum Search”	52
Figure 4.12: The Generated Paths for “Forum Search”	53

LIST OF TABLES

Table 3.1: Adopted Mapping Rules Table from Kundu & Samanta (2009)	17
Table 3.2: NDT for ‘Login’	22
Table 3.3: The Generated Test Cases for “Login”	24
Table 4.1: NDT for “Download Assignment”	31
Table 4.2: The Generated Test Case for “Download Assignment”	32
Table 4.3: NDT for “Upload Assignment”	35
Table 4.4: The Generated Test Cases for “Upload Assignment”	37
Table 4.5: NDT for “Change Password”	42
Table 4.6: The Generated Test Cases for “Change Password”	45
Table 4.7: NDT for “Forum Search”	53
Table 4.8: The Generated Test Cases for “Forum Search”	54

LIST OF ABBREVIATIONS

UUM	Universiti Utara Malaysia
UML	Unified Modeling Language
LMS	Learning Management System
Moodle	Modular Object Oriented Dynamic Language Environment
IS	Information System
V&V	Validation and Verification
CRM	Customer Relationship Management
BPR	Business Process Reengineering
CMS	Course Management System
VLE	Virtual Learning Environment
PHP	Preprocessor Hypertext Preprocessor
SQL	structured Query Language
Mac	Macintosh
SQA	Software Quality Assurance
HTML	Hyper Text Markup Language
E2E	End to End

CHAPTER ONE

INTRODUCTION

1.1 Introduction

Nowadays, there are many open source applications available for organisation to choose from to be used as applications in their organization. In the education context, one of the commonly used information systems (IS) is Learning Management System (LMS). This application is important as a means of sharing of resources among students and lecturers, for facilitating active learning and important for distance and virtual learning.

Many of these open source applications have undergone certain degree of testing. However, when they are adapted and applied in a new environment, where some of them might not be tested adequately or not tested at all. Taking an example of Moodle, one of the leading LMS, at the point this research was conducted, it has been tested only at unit level testing as conducted by the Moodle's contributors (Moodle.org). However, how well this application is tested at the educational institutions that adopt this application is not known.

The purpose of this study is to identify a testing approach that might be suitable to test running applications. One of the important elements in conducting testing is test case generation. Patton (2001, p. 65) as cited in Kaner (2003), has defined that test cases as specific inputs and approach that are followed in software are tested. Moreover, studying a system is the initial point of system construction and test case generation that can be planned at an early stage of the software development life cycle (Kundu & Samanta, 2009).

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