

**UNIVERSITI TEKNOLOGI MARA**

**A STUDY ON TESTING APPROACH  
FOR MOBILE APPLICATION  
TESTING**

**SITI HAFIZAH BINTI ZAINOL ABIDIN**

IT Project submitted in partial fulfillment  
of the requirements for the degree of  
**Master of Science in Information Technology**

**Faculty of Computer and Mathematical Sciences**

January 2017

## ABSTRACT

Mobile application testing is more challenging than testing web application on desktop due to several factors. These factors are different range of mobile devices with different screen sizes and hardware configurations, wide varieties of mobile devices, different mobile operating systems, and also different version of operating system. Furthermore, different issues on complexity of measuring quality areas and selection of test tool and appropriate test approach. The main aim of this research is to study test approach for mobile application testing based on current industry best practices and international software testing standard applied in two (2) organizations in Malaysia. There are two objectives in this research. The first objective is to identify appropriate test approach for mobile application testing based on current industry best practices and second objective is to recommend the employment of test measurement in mobile application testing. This research utilized mainly qualitative method in collecting data from experts and practitioners. The qualitative methods that have been chosen for this research is interview with the practitioners and experts with related field in mobile application testing. For the finding, researcher is summarized in the recommendation on appropriate test approach for mobile application testing. It also determined the limitation of the test approach and future recommendation towards improvise the test approach in current industry best practice.

## ACKNOWLEDGEMENT

First and foremost, the deepest gratitude of all shall be bestowed to Allah the Almighty and The Merciful for all the insight which He gave to us that lead to the completion of this research. Without His blessings and consent, I might not have enough courage and determination to complete this research. All my thanks and appreciation will be lay upon Him.

My deepest gratitude is extended to Dr Ahmad Iqbal Hakim Suhaimi, for all assistance, advice, guidance, encouragement, new ideas and invaluable support given as my project supervisor for a better quality in my research. Thank you for being such a great mentor. I also would like to express my gratitude and sincere appreciation to Dr Emma Nuraihan Mior Ibrahim for her invaluable knowledge, comment and recommendation on how to enhance my research.

Not forgetting very special thanks to all participant and all the lecturers, friends also colleagues of Master Science (Information Technology) for their support and encouragement during the process of completing this research.

Finally, I would like to express my deepest gratitude to my beloved parents and families for all support and courage towards my success. Without their personal sacrifices and being a constant source for encouragement, especially in the final stages, this thesis would not have been possible.

Thank You.

# TABLE OF CONTENTS

	<b>Page</b>
<b>AUTHOR'S DECLARATION</b>	i
<b>ABSTRACT</b>	ii
<b>ACKNOWLEDGEMENT</b>	iii
<b>TABLE OF CONTENTS</b>	iv
<b>LIST OF TABLES</b>	vii
<b>LIST OF FIGURES</b>	viii
<b>CHAPTER ONE: INTRODUCTION</b>	
1.1 Introduction	1
1.2 Research Background	1
1.3 Problem Statement	2
1.3.1 Complexity of Measuring Quality Areas When Performing Mobile Application Testing	2
1.3.2 Selection of Test Tool and Test Approach	3
1.4 Research Aims	3
1.5 Research Questions	4
1.6 Research Objectives	4
1.7 Research Scope	4
1.8 Research Significant	4
1.9 Research Design Summary	5
1.10 Summary	6

## **CHAPTER TWO: LITERATURE REVIEW**

2.1	Introduction	7
2.2	Mobile Application Development	7
2.2.1	Evaluation on Criteria of Mobile Application	8
2.3	Software Testing of Mobile Application	8
2.3.1	Challenges on Testing Mobile Application	9
2.3.2	Type of Testing for Mobile Application	10
2.3.3	International Standard and Guideline	11
2.4	Mobile Testing Approach	12
2.4.1	Manual Testing Versus Automation Testing	13
2.4.2	Emulation Based Testing Versus Device Based Testing	14
2.4.3	Mobile Application Testing on Cloud	14
2.5	Summary	15

## **CHAPTER THREE: RESEARCH METHODOLOGY**

3.1	Introduction	16
3.2	Research Framework	17
3.3	Phase 1: Define Research Problem	18
3.3.1	Literature Review	18
3.3.2	Identify Problem Statement, Research Objective, Research Question, Research Aim, Scope and Significant of Research	18
3.4	Phase 2: Data Collection	19
3.4.1	Interviews	19
3.5	Phase 3: Data Analysis	21
3.6	Phase 4: Interpret Analysis	21
3.7	Summary	22