

SUPERVISOR'S APPROVAL

**COLLABTIFACTS:
COLLABORATIVE PROJECT ARTIFACTS MANAGEMENT SYSTEM
USING CLOUD COMPUTING TECHNOLOGY**

By

**MUHAMMAD DANIAL BIN NORDIN
2012960121**

This report was prepared under the supervision of project supervisor, Prof. Madya. Aishah Ahmad @ Abd Mutalib. It was submitted to Faculty of Computer and Mathematical Sciences and was accepted in partial fulfilment of the requirements for the degree of Bachelor of Information Technology (Hons) Information Systems Engineering.

Approved by

.....
Prof. Madya. Aishah Ahmad @ Abd Mutalib
Project Supervisor

FEBRUARY 10, 2015

STUDENT'S DECLARATION

I certify that this report and the project to which it refers is the product of my own work and that any idea or quotation from the work of other people, published or otherwise are fully acknowledged in accordance with the standard referring practices of the discipline.

.....

MUHAMMAD DANIAL BIN NORDIN

2012960121

FEBRUARY 10, 2015

ABSTRACT

Bachelor of Information Technology (Hons.) Information Systems Engineering (ISE) students are having problem in governing their project artifacts, especially in the 3 core courses (ITS470, ITS570, ITS670) project that is continuous for 3 consecutive semester, where the deliverables of one course is an input to another. This project is aim to create a project artifact management system using cloud computing for students to manage their project and lecturers to monitor the students project progress. The students are having problems in synchronizing their efforts. This project was named Collabtifacts, which combine the word collaborate and artifacts. The project was split into 5 phase: Project Planning, Literature Review, Requirement Gathering and Analysis, System Design and System Development. Cloud technologies were reviewed and compared and Google Drive was chosen for this project. The requirements for this project was gathered by interview and questionnaire of the students. It was analyzed using Event Decomposition and CRUD technique and it was documented in Software Requirement Specification. The system design and structures were made in UML modelling technique saved in a Software Development Document (SDD). When system was in Beta development phase, 2 group of ITS670 students were given a test usage of the system and give their feedback in a Post-Usage Evaluation Form. They believe it could solve their problems, but some are reluctant to trust a new system. The lecturers were not able to give their feedbacks as the researcher time was limited. There are still some future work need to be done to fully implement the system.

TABLE OF CONTENTS

CONTENTS PAGE

SUPERVISOR’S APPROVAL	ii
STUDENT’S DECLARATION	iii
ACKNOWLEDGEMENT	iv
ABSTRACT	v
TABLE OF CONTENTS	vi
LIST OF FIGURES	x
LIST OF TABLES	xii
LIST OF ABBREVIATIONS	xiii

CHAPTER ONE : INTRODUCTION

1.1 Research Background	1
1.2 Problem Statements	5
1.3 Aim	5
1.4 Objectives	5
1.5 Stakeholder	6
1.6 Scope	6
1.7 Significance of Research	6
1.8 Thesis Structure	6
1.9 Summary of Chapter One	7

CHAPTER TWO: LITERATURE REVIEW

2.1 Programme of Study and Course	8
2.2 Information Systems Engineering (ISE)	9
2.3 Information Systems Engineering Courses	10
2.4 Project Management	11
2.4.1 System Development Life Cycle (SDLC)	122

2.5 Cloud Computing and Cloud Storage	14
2.5.1 Dropbox	16
2.5.2 Google Drive	17
2.5.3 Microsoft OneDrive	18
2.5.4 MEGA	19
2.5.5 Summary of Differences of Cloud Storage Services	200
2.6 Implementing Cloud Computing	211
2.6.1 Google Application Programming Interface (API)	22
2.6.2 REST	22
2.6.3 JSON	24
2.6.4 Authentication and Authorization	25
2.6.5 OAuth2 Authentication	25
2.6.6 Google Drive Software Development Kit	26
2.6.7 Collaborative Editing System	27
2.6.8 Google Drive Realtime API	28
2.6.9 UML Deliverables	29
2.6.10 Revision Control	311
2.6.11 Role-Based Access Control	31
2.7 Summary of Chapter 2	32

CHAPTER THREE : METHODOLOGY

3.1 Project Phases	344
3.2 Project Planning Phase	355
3.3 Knowledge Acquisition Phase	355
3.4 Requirement Gathering and Analysis Phase	35
3.5 System Design Phase	366
3.6 System Development and Implementation Phase	36
3.7 Summary of Chapter 3	377

CHAPTER FOUR: HARDWARE AND SOFTWARE CONFIGURATION

4.1. Hardware Requirements	38
4.2. Software Requirements	39