

KALAYAAN: A PHILIPPINE HISTORY PUZZLE GAME

THESIS

JOHN JOYIE A. AUSTRIA

JERWIN JAMES PANCHO

College of Engineering and Information Technology

CAVITE STATE UNIVERSITY

Indang, Cavite

June 2022

KALAYAAN: A PHILIPPINE HISTORY PUZZLE GAME

An Undergraduate Thesis
Submitted to the Faculty of
College of Engineering and Information Technology
Cavite State University
Indang, Cavite

In partial fulfillment
of the requirements for the degree
Bachelor of Science in Information Technology



JOHN JOVIE A. AUSTRIA
JERWIN JAMES PANCHE
June 2022

ABSTRACT

AUSTRIA, JOHN JOVIE A., and PANCHO, JERWIN JAMES. KALAYAAN: A PHILIPPINE HISTORY PUZZLE GAME. Undergraduate Thesis. Bachelor of Science in Information Technology, Cavite State University, Indang, Cavite. June 2022. Adviser Ms. Joy M. Peji.

A study entitled “Kalayaan: A Philippine History Puzzle Game” was conducted at Cavite State University-Indang Campus from January 2021 to January 2022. This application aims to improve the learning of the grade six students at Palawit Elementary School in historical subjects. By playing this game, they engage in the topic without being inattentive. This game helps the student to give more focus on the subject while using their mobile devices.

Kalayaan: A Philippine History Puzzle Game is a mobile game application that helps the students learn about important people, places, and dates in history. KALAYAAN: A Philippine History Puzzle Game is composed of five modules: Tutorial, Settings, Information, Puzzle Game, and the Scoreboard Module. Each module has different functionalities that help students to study and learn History.

The researchers employed the prototyping approach as a guide throughout development. The six phases were elaborated such as requirement analysis, design, building and prototyping, prototype refining, assessment by the customer, and final output. Adobe Photoshop was used for designing the application while Unity and Visual Studio were for the development of the mobile application.

The application was rated excellent by all the participants in all identified specifications including the reliability, functionality, usability, and user-friendliness affirmed that the application has passed, completed, and meet all the needed requirements and achieved the objectives of the study. Using mean and standard assessment, the data was collated, examined, and statistically processed.

Table of Contents

BIOGRAPHICAL DATA iii

ABSTRACT v

ACKNOWLEDGMENT vi

Table of Contents ix

LIST OF FIGURES xi

LIST OF TABLES..... xiii

LIST OF APPENDICES..... xiv

INTRODUCTION 1

 Statement of the Problem..... 2

 Conceptual Framework 4

 Significance of the Study..... 7

 Time and Place of the Study 7

 Scope and Limitations of the Study 7

 Definition of Terms 10

REVIEW RELATED LITERATURE 12

 Technical Background..... 12

 Related Literature..... 16

 Comparison Table 19

METHODOLOGY 20

 Materials 20

 Method..... 20

 System Architecture 26

 Use Case Diagram..... 28

RESULTS AND DISCUSSION 29

 System Development 29

 System Overview 30

 System Evaluation..... 40

Summary, Conclusion, and Recommendations	53
Summary	53
Conclusion	54
Recommendations	55
REFERENCES	56
APPENDIX FIGURES.....	57

LIST OF FIGURES

Figure	Page No.
1 Conceptual Framework for Kalayaan.....	6
2 Prototyping Model as Method Design of Game Application	21
3 System Architecture of Kalayaan.....	26
4 Use Case Diagram of Kalayaan.....	28
5 Intro Page.....	30
6 Main Menu Page	31
7 Settings Module Page	31
8 Info Module Page	32
9 Enter Name Popup Message.....	32
10 Puzzle Game Module Page.....	33
11 Hanapin Module Page.....	33
12 Score Board Popup Page.....	34
13 Instruction Popup Page	34
14 Hanapin Actual Game	35
15 Multiplayer Page.....	35
16 VS Page.....	36
17 VS Actual Game Page	36
18 Level Selection Page.....	37
19 Kilalanin Actual Game	37
20 Bouin at Alamin Actual Game.....	38
21 Win Popup Message	38
22 Lose Popup Message.....	39

23 Retry Again Message39

24 Exit Popup Message40

LIST OF TABLES

Table	Page No.
1 Comparison Table.....	19
2 Breakdown of Respondents	40
3 Numerical Rating.....	41
4 Likert Scale	42
5 Evaluation Results of the Functionality of the Software.	43
6 Evaluation Results of the Reliability of the Software.....	43
7 Evaluation Results of the Usability of the Software.....	44
8 Evaluation Results of the Efficiency of the Software.....	45
9 Evaluation Results of the Maintainability of the Software.....	45
10 Evaluation Results of the Probability of the Software	46
11 Evaluation Results of the User-friendliness of the Software	47
12 Overall Evaluation of Non-Technical Users	47
13 Evaluation Results of the Functionality of the Software.	48
14 Evaluation Results of the Reliability of the Software.....	49
15 Evaluation Results of the Usability of the Software	49
16 Evaluation Results of the Efficiency of the Software.....	50
17 Evaluation Results of the Maintainability of the Software.	51
18 Evaluation Results of the Portability of the Software.	51
19 Evaluation Results of the User-friendliness of the Software.	52
20 Overall Evaluation of Technical Users.....	52

LIST OF APPENDICES

Appendix	Page No.
1 FISHBONE.....	57
2 INTERVIEW REPORT.....	60
3 SURVEY REPORT.....	64
4 K-12 MOST ESSENTIAL LEARNING COMPETENCIES (MELCs).....	71
5 INTEGRATION TESTING.....	75
6 UNIT TESTING.....	76
7 EVALUATION FORM.....	78
8 Ethics Review Board Forms 1 – 5.....	81

Kalayaan: A Philippine History Puzzle Game

**JOHN JOVIE A. AUSTRIA
JERWIN JAMES PANCHO**

An undergraduate thesis manuscript submitted to the faculty of the Department of Information Technology, College of Engineering and Information Technology, Cavite State University, Indang, Cavite in partial fulfillment for the degree of Bachelor of Science in Information Technology with Contribution No. 2021-22-2-83 Prepared under the supervision of Ms. Joy M. Peji

INTRODUCTION

Nowadays, cell phones, which are frequently known as mobile gadgets, play an important part in society. Almost everyone, including young children, has a cell phone. It became an everyday necessity. The mobile phone is not only a means of communication, but also a source of amusement, as it allows users to surf the web, listen to the radio or MP3 files, and even enjoy mobile games. As technology advances, a growing number of cellular phone-based gadgets have developed. Almost every mobile phone currently can play two-dimensional (2D) and three-dimensional (3D) games, which are immensely popular. Apart from the good, amazing quality graphics that mobile phones can produce, recent mobile phones have no keypad, which is paving the way for more consumers in the industry.

The majority of today's mobile game releases are essentially pure entertainment, with players receiving no educational knowledge or values other than satisfaction from the game. Furthermore, some modern games are themed on extremely brutal and terrible themes such as war, battling, and slaughtering fights. Interactive technology, like other digital games, can help students learn the method