### "ZOODOKU GENESIS" A Mobile Game for the Android Operating System

An Undergraduate Research Presented to
The Computer Studies Department
College of Science and Computer Studies
De La Salle University-Dasmariñas

In Partial Fulfillment

Of the Requirements for the Degree

Bachelor of Science in Computer Science

Balot, Czenaro Zionne J.
Gonzales, Kenneth James G.
Rendor, Jamilla Jyssa Mae E.

Ms. Roda N. Sanares
Adviser

#### **ABSTRACT**

ZOODOKU Genesis is a game for devices running the Android operating system versions 2.3.5 (Gingerbread) to 4.2 (Jellybean). It is a sudoku game designed to attract kids ages 5 and up to play the game and to develop their critical thinking skills.

ZOODOKU Genesis consists of 3 levels namely: Easy, Medium and Hard. Each level has 5 stages of which the players need to finish. Before unlocking the next stage, the player must first finish the current stage. The player is only given 3 lives to complete each stage. The game uses animals instead of numbers in the traditional sudoku. There are missions that are needed to be accomplished per stage. It also displays the fastest time for finishing a puzzle. Each stage finished is saved to keep track of the progress being made of the player. The player can also choose the animals to be played on each level Easy (4 x 4 puzzle), Medium (6 x 6 puzzle) and Hard (9 x 9 puzzle). To make it more interactive, each animal chosen will display the name of the animal and also the sound it makes in real life.

The main program of ZOODOKU GENESIS was developed using the Android Development Tool (ADT Bundle), graphics were made using Adobe Photoshop CS5.5, CS6 and Inkscape portable, sounds were made using Mixcraft 6.1, SQLite was used for the database of the game.

# **Table of Contents**

| Acknowledgment                          |    |
|---|----|
| Abstract                                |    |
| Chapter 1: Introduction                 |    |
| Project Context                         | 1  |
|   |    |
| Purpose and Description                 | 2  |
|   |    |
| Objectives                              | 5  |
|   |    |
| Scopes and Limitations                  | 6  |
|   |    |
| Chapter 2: Review of Related Literature |    |
| Local Literature                        | 8  |
|   |    |
| Foreign Literature                      | 11 |

**Chapter 3: Technical Background** 

| Research Paradigm             |    | 14 |
|-------------------------------|----|----|
| Concept of Study              |    | 25 |
| Conceptual Process            |    | 29 |
| Conceptual Operation          |    | 30 |
| Chapter 4: Design Methodology |    |    |
| Project Development           | 34 |    |
| Development Planning          |    | 43 |
| Evaluation of Project         |    | 48 |

**Chapter 5: Results and Discussion** 

| Instruments Used to Gain Result            | 53 |
|--|----|
| Results and Detailed Discussion            |    |
| Obtained in the Final Evaluation           | 56 |
| Basis of Data                              | 57 |
| Data Tables                                | 58 |
| Acceptability of the Study                 | 61 |
| Interpretation of Data based from the      |    |
| Objectives of the Study                    | 61 |
| Chapter 6: Conclusions and Recommendations |    |
| Conclusion                                 | 63 |
| Recommendation                             | 64 |

# Appendices



## LIST OF FIGURES

| Figure 3.1.1.1 Splash Screen                  | 14 |
|---|----|
| Figure 3.1.1.2 Main Menu                      | 14 |
| Figure 3.1.1.3 Settings                       | 15 |
| Figure 3.1.1.4 Rules                          | 15 |
| Figure 3.1.1.4 Rules  Figure 3.1.1.5 About    | 15 |
| Figure 3.1.1.6 Amethyst Zoo                   | 15 |
| Figure 3.1.1.7 Emerald Zoo                    | 16 |
| Figure 3.1.1.8 Peridot Zoo                    | 16 |
| Figure 3.1.1.9 Game Start                     | 16 |
| Figure 3.1.1.10 Fighting Animals              | 16 |
| Figure 3.1.1.11 Crying Baby                   | 17 |
| Figure 3.1.1.12 Game Over                     | 17 |
| Figure 3.1.1.13 Solved Puzzle                 | 17 |
| Figure 3.1.1.14 Level Up                      | 17 |
| Figure 3.1.1.15 It's Travel Time              | 18 |
| Figure 3.1.2 Zoodoku Genesis Use Case Diagram | 19 |
| Figure 3.2.1 Zoodoku Genesis IPO Model        | 26 |
| Figure 3.2.2.1 Iterative- Incremental Model   | 27 |
| Figure 3.3.1 Zoodoku Genesis HIPO Model       | 30 |
| Figure 4.1.1.1 Splash screen                  | 36 |
| Figure 4.1.1.2 Welcome screen                 | 37 |

| Figure 4.1.1.3 Changing of Animals                         | 38 |
|--|----|
| Figure 4.1.1.4 4 x 4 Game Area Without a Mistake Committed | 39 |
| Figure 4.1.1.5 4 x 4 Game Area With a Mistake Committed    | 40 |
| Figure 4.1.1.6 6 x 6 Game Area Without a Mistake Committed | 41 |
| Figure 4.1.1.7 6 x 6 Game Area With a Mistake Committed    | 42 |
| Figure 4.1.1.8 9 x 9 Game Area Without a Mistake Committed | 43 |
| Figure 4.1.1.9 9 x 9 Game Area Without a Mistake Committed | 44 |
| Figure 5.4.1 Game Functionality                            | 58 |
| Figure 5.4.2 Game Options and Processes                    | 59 |
| Figure 5.4.3 Game Efficiency                               | 60 |
| Figure 5.4.4 Graphical User Interface                      | 60 |
|  |    |
|  |    |