**CHAPTER 5**

**THE CODETEST - A WEB BASED RPG**

**System Overview**

The CodeTest - A Web Based RPG is an online role playing game which has the same mechanics and capabilities of Pokemon games. The game serves as a learning tool and at the same time, making gamers enjoy themselves fully to the game’s capabilities as such the game also includes Pokemon games popular combat system in which there will be NPC’s scattered all over the region or simply in each levels of the said region. For instance if the player is found by an NPC, both will enter the combat system. The player will be forced to complete the NPC’s task. The task consists of making the player fulfill the task given by the NPC in which he/she has to solve the problem of the NPC in a way of coding. The game has its embedded programming, in which the player can enter lines of codes so that the player can get pass through the NPC, or simply win the given task. Given that if the player failed to complete the task or shall we say, he/she does not have any idea how to code the given task, hints will be there but there will be a decrease of the total score after completing the task.

The game itself of course has a story so that the player won’t get bored by simply battling NPC’s, fulfilling their tasks. Of course every story has its antagonists or villains, or evil organizations that are hell bent on taking over the world.

**System Objectives**

The study aims to develop a web based game that will help the students or users learn programming while enjoying.

It specifically aims to:

1. Introduce the project to the students/users who are interested in programming and on how to play it
2. Lessen the chance of failing the major subject because the user already know the ways of programming
3. Lessen the burden of the users when learning programming by playing the proposed game
4. Establish communication to the internet to allow the users to save their progress throughout the game
5. Design a user-friendly interface that will be suitable for any people accessing it.

**System Scope and Limitations**

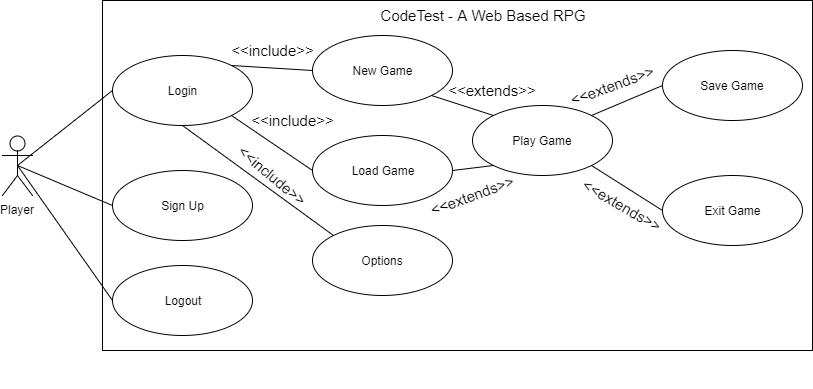
The CodeTest - A Web Based RPG mainly focuses on the students of College of Computer Studies, Engineering and Architecture in La Salle University - Ozamiz. To those who are IT/CS students who wants to improve their skills and learn more about programming. This game can be played by anyone as long as they have the knowledge to code.

**Architectural Design**

**Data Tree**

**User Hierarchy**

**Use Cases**



**Figure Use Case Diagram**

**Player Use Case List**

**Login**: The player must login his/her account before playing the game

**Sign Up**: The player will need to register if he/she does not have an account yet or want to create another account

**Logout**: The player can log out of their respective accounts

**New Game**: The player will have play a new game if they do not have progress or saved game yet

**Load Game**: The player can load their previous save game in their respective accounts

**Options**: Allow players to adjust graphics, sound or resolution of the game

**Play Game**: The player can also, of course, play the game, whether a new one or their previous saved game

**Save Game**: Whenever they are in a rush or taking measures, they can save the game to prevent losing progress

**End Game**: Allows players to end their game, thus leading to the main menu of the game

**Player Use Case Description**

**Table 1**

**LOGIN**

|  |  |
| --- | --- |
| U1: Login | |
| Pre-Condition: Sign Up | |
| Actor’s Action | System Response |
| 1. Player enters username and password | 1. The system checks if username and password exist |
| Post-Condition: Main Menu appears | |
| Abnormal Path: If the username and password is invalid, the system will ask to re-enter both | |

**Table 2**

**SIGN UP**

|  |  |
| --- | --- |
| U2: Sign Up | |
| Pre-Condition: None | |
| Actor’s Action | System Response |
| 1. The user enters needed information on each field | 1. The system checks if the entered information already existed on the database   3. “Successfully registered. Please click the button to proceed” is displayed |
| Post-Condition: Login scene | |
| Abnormal Path: If the username and password already exists, the system will ask to enter a new one | |

**Table 3**

**LOGOUT**

|  |  |
| --- | --- |
| U3: Logout | |
| Pre-Condition: Login | |
| Actor’s Action | System Response |
| 1. The user clicks “Logout” button if he/she wishes to log out of his/her account | 1. The system logs out the user |
| Post-Condition: Login scene | |
| Abnormal Path: If connection is lost, the player can’t do a thing if he/she keeps on clicking the logout button | |

**Table 4**

**NEW GAME**

|  |  |
| --- | --- |
| U4: New Game | |
| Pre-Condition: Login | |
| Actor’s Action | System Response |
| 1. The user clicks “New Game” button if he/she is new to the game or wishing to create a new one to replace the old one 2. The player chooses gender for his/her character for it to be sent to the game world | 1. Prologue scene will then proceed 2. The system will automatically save the game after the player choosing the character’s gender and will be stored |
| Post-Condition: None | |
| Abnormal Path: If connection is lost, since it automatically saves the very first minute of the game, the player can’t do a thing until the connection comes back | |

**Table 5**

**LOAD GAME**

|  |  |
| --- | --- |
| U5: Load Game | |
| Pre-Condition: Login | |
| Actor’s Action | System Response |
| 1. The user clicks “Load Game” button if he/she wishes to continue the game | 1. The system acquires the current account’s saved file and loads it 2. Save file’s progress is successfully loaded |
| Post-Condition: | |
| Abnormal Path: The saved file’s corrupted as a result from losing connection while the game is saving | |

**Table 6**

**PLAY GAME**

|  |  |
| --- | --- |
| U6: Play Game | |
| Pre-Condition: New Game or Load Game | |
| Actor’s Action | System Response |
| 1. The user roams around the level map until he/she encounters an NPC 2. The user enters the correct code, according to what task the NPC gave to him/her | 1. NPC automatically interacts to the player if found 2. Combat is initiated, the player will have to do what the NPC gave 3. An embedded in-game compiler is displayed for the code of the user to be entered 4. The compiler checks if it displays the same result as what the NPC gave |
| Post-Condition: | |
| Abnormal Path: None | |

**Table 7**

**OPTIONS**

|  |  |
| --- | --- |
| U7: Options | |
| Pre-Condition: New Game or Load Game | |
| Actor’s Action | System Response |
| 1. Clicks the “gear” button on the side of the screen 2. Clicks “Option” button 3. Adjusts to what he/she wants to have a better gameplay | 1. System responds to the user’s option changes till he/she resets it back |
| Post-Condition: | |
| Abnormal Path: None | |

**Table 8**

**SAVE GAME**

|  |  |
| --- | --- |
| U8: Save Game | |
| Pre-Condition: New Game or Load Game | |
| Actor’s Action | System Response |
| 1. Clicks the “gear” button on the side of the screen 2. Clicks “Save Game” button | 1. NPC automatically interacts to the player if found 2. System saves the user’s progress 3. Stores save file into the database 4. System displays “Successfully saved” |
| Post-Condition: | |
| Abnormal Path: The saved file have a chance of being corrupted as a result from losing connection while the game is saving | |

**Table 8**

**EXIT**

|  |  |
| --- | --- |
| U9: EXIT | |
| Pre-Condition: New Game or Load Game | |
| Actor’s Action | System Response |
| 1. Clicks the “gear” button on the side of the screen 2. Clicks “Exit” button | 1. System displays “Make sure you have saved quitting to avoid loss of progress” over “Are you sure you want to quit the game?” 2. System proceeds to Main Menu |
| Post-Condition: | |
| Abnormal Path: None | |

**Class Diagrams**

**Sequence Diagrams**

Done

**Activity Diagrams**

Done

**System Function**

**Physical Environment and Resources**

These are the system specifications used by the proponents in developing the research:

**Developer Side System/Application**

**Hardware**

**Platforms to be used:**

**RAM**: 4.00 GB up to 16 GB

**Hard Disk Drive**: 1000 GB

**Processor**: Intel Core i5-7200U 2.5 GHz

**Software**

**Platforms to be used:**

**OS**: Windows 10 x64 bit

**Platform**: Unity, MySQL Workbench, Tiled, Tiled2Unity

**Language**: C#, Lua, SQL

**Deployment Specification**

**Recommended System Requirements**

**Desktop Computer:**

**Computer OS**: Windows 7 or later

**RAM**: 2.00 GB

**Browser**: Internet Explorer, Firefox, Safari, Chrome, Opera, Mozilla, Netscape