

Mobile game Application for Religion engagement

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Abstract—Religion is a part of a fundamental human right to serve and worship their God according to their religion and belief. Mobile game application along with the development of mobile phone technology such as a smartphone, tablet, and laptop, can be used to increase the player or user interest to engage with religion thing. Using the mobile game application in mobile gadgets will expand quickly to install and use for religion engagement. The player can learn religion things with fun and entertain ways, where the player does not realize that they do something serious in an unserious way. This paper will explain the model system design for mobile game application for learning Catholicism in fun and entertaining way and for the first development was limited to only three Catholic catechisms such as bible learning, church lesson, and liturgy celebration. For the early development, three types of games were developed such as True or False game, Scramble words game, and multiple-choice game. The mobile game model was designed with a use case diagram, storyboard, and class diagram, where for the current implementation the mobile game application was implemented using a ten tables database.

Keywords—*Mobile game; religion Game; religious Video Game; Game; Serious Game; Game Information Systems*

I. INTRODUCTION

The development of a mobile game cannot be kept away from the development of mobile phone technology, where the price of this mobile phone technology from day to day more affordable. For example, the range price of the iPhone from Rp. 1.5 million for 16GB with 1GB RAM, Rp. 1.7 million for 32GB with 1 GB RAM, Rp. 2.5 million for 64GB with 1 GB RAM, Rp. 3.7 million for 128GB with 1 GB RAM and Rp. 10 million for 256GB with 2 GB RAM. For Android smartphone the price range from Rp. 400 thousand for 4GB with 512 MB RAM, Rp. 900 thousand for 16GB with 2 GB RAM, Rp. 1.5 million for 32GB with 2 GB RAM, Rp. 1.9 million for 64GB with 4 GB RAM, Rp. 3.1 million for 128GB with 4 GB RAM

and Rp. 13.5 million for 256GB with 6 GB RAM. Moreover, there is a possibility as well to run a mobile game application on a tablet or laptop where with Rp. 500 thousand we can have an 8GB android tablet with 512 MB RAM, Rp. 1.7 million for 16GB with 2GB RAM, Rp. 2.7 million for 32GB with 2GB RAM, Rp. 5.3 million for 64GB with 1GB RAM, Rp. 6 million for 128GB with 2GB RAM.

The low price of mobile gadget technology is an opportunity for the development of the mobile game where a game is not only for a game just but how the joy of games such as fun and entertainment can be injected to all systems which are recognized as the serious game [1,2]. Game information systems is a big banner for solution to change the current boring information systems into fun and entertain information systems[3,4], where the user who interacts with the system when doing their transactions do not realize that they play the game but for serious thing or they do the serious thing with ways of fun and entertain [5,6,7].

II. GAME FOR RELIGION PURPOSE

Religion as part of a human being is a fundamental human right to believe with the Godly thing as the same as atheism who do not believe in God [8,9,10,11]. No matter what religion, humans learn their religion thing and activities in their family, school, community, worship place, etc. [12,13]. Along with the development of technology particularly with computer technology, it is easier for a human to learn anything on the internet and not also miss to learn religion things on the web [14,15]. We can find any text or sound information about specific religion on the internet by searching using a search engine such as Google or seeing a video about a particular religion information on youtube[16,17,18].

TABLE I. STORYBOARD MAIN MENU

<i>Storyboard</i>	
Project: mobile game application for religion engagement	
Scene: 1	Scene ID: MAIN MENU
<div> <div>LOGO TITLE</div> <div>PLAY</div> <div>OPTION</div> <div>CREDITS</div> </div>	
Scene Description: this the main menu when the player opens the app's application.	
Link from Scene ID	Link to Scene ID:
OPTION	NEW GAME, OPTION, CREDIT, EXIT
CREDIT	GAME
Color scheme: #88bbf7, #fcf19d, #9bcf78	
Text Attributes: -	
Images: mainMenu.jpg, playBtn.png, optionBtn.png, creditsBtn.png, logo.png	
Audio: menuBGM.mp3	

The game as a technology that adopts fun and entertains can be utilized to make fun and cheer when the user learns a specific religion [19,20]. The game will help humans to determine their faith in fun and joy atmosphere particularly for children [21,22]. Indeed, the rapid development of smartphone technology will make easy for a human to access such as a game in the form of a mobile game where it is can be installed in a smartphone with specific requirement [23,24,25].

In this paper, we develop a mobile game application for Catholicism engagement, where it is a requirement to deliver catholic catechism (http://www.vatican.va/archive/ccc_css/archive/catechism/ccc_toc.htm) such as Catholic prayer, Credo, Liturgy celebration, Sacrament, Devotion to the Virgin Mary and Saints, Catholic scriptures, ordained ministry and so on. However, for the first time we built three learning for Bible learning, church lesson and liturgy celebration and to increase the fun and entertain then we started first with a True or False game, Scramble words game, and multiple-choice games.

III. MODEL SYSTEM DESIGN OF MOBILE GAME APPLICATION



Fig. 1. Main Menu display of the mobile game application

The model design of the mobile game application[26,27] was designed with a use case diagram[28,29] and storyboard as seen in the next figures and tables. Moreover, the mobile application should need to improve by listening their user feedback[30], testing and measured [31,32] with object-oriented approach[33]. Figure 1 shows the main menu display of the mobile app when the user opens the mobile game application with a storyboard as seen in table 1. Figure 2 shows the use case diagram of the main menu of the mobile game application which consists of three sub-use cases such as:

1. View Credits
If this link is clicked, will display the copyrights of the application.
2. View Setting
If this link is clicked, there will be three settings the player can modify which are:
 - a. Set Background Music
The player can choose what song to be used as the background music theme.
 - b. Set Sound Effects
The player can choose whether or not to use the sound effects when playing the game. Such as sound if they click a button.
 - c. Set Vibrate Setting
The player can choose whether or not to use vibrate when playing the game. Such as when they click a button.
3. Start or Continue the Game
The button name later can change from either "start" or "continue," depends on the player's status as a new player or existing player. If the player hasn't played the game before (new player), the system will take the player to fill

the registration form first consists of name, gender, & email. Then the player will be directed to the game, world map exactly.

If the player has played the game before (existing player), the system will take the player immediately to the world map to continue from where the player played back.

Figure 3 is the world map of the mobile game application when the player chooses to play the game with a storyboard in table 2, and figure 4 is the use case diagram for the world map of the mobile game application. The player can enter the world map either after they have completed the registration if they are a new player or by clicking the "Continue" button if they are an existing player. The world map form is a map screen which has some location as marks where a player can visit. There are three places the player can choose to visit in the world map as shown either in figure 3 or 4:



Fig. 3. World map of the mobile game application

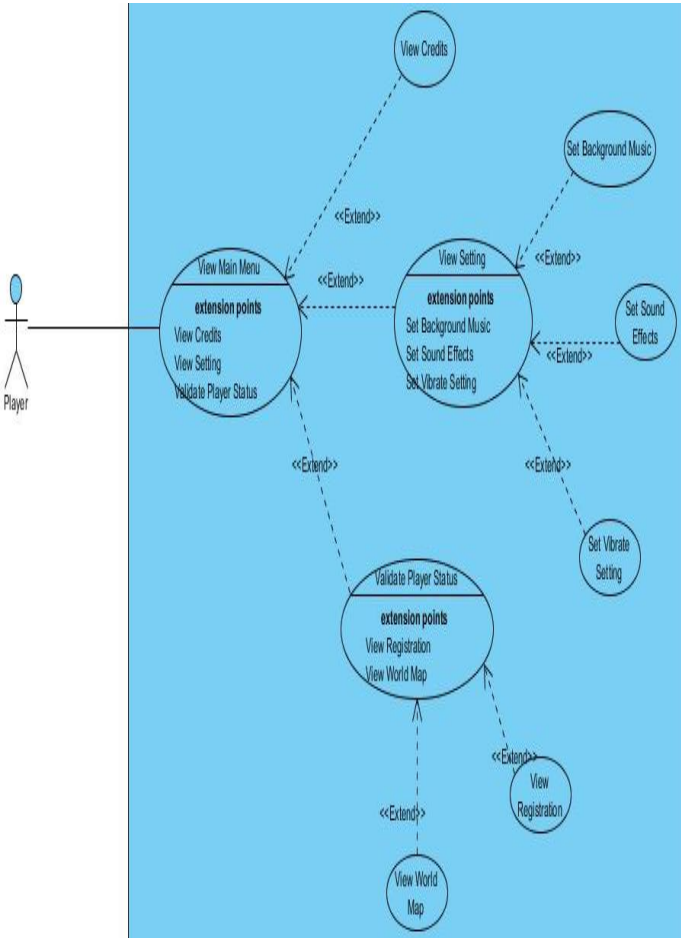


Fig. 2. Use case diagram of Main Menu display of the mobile game application

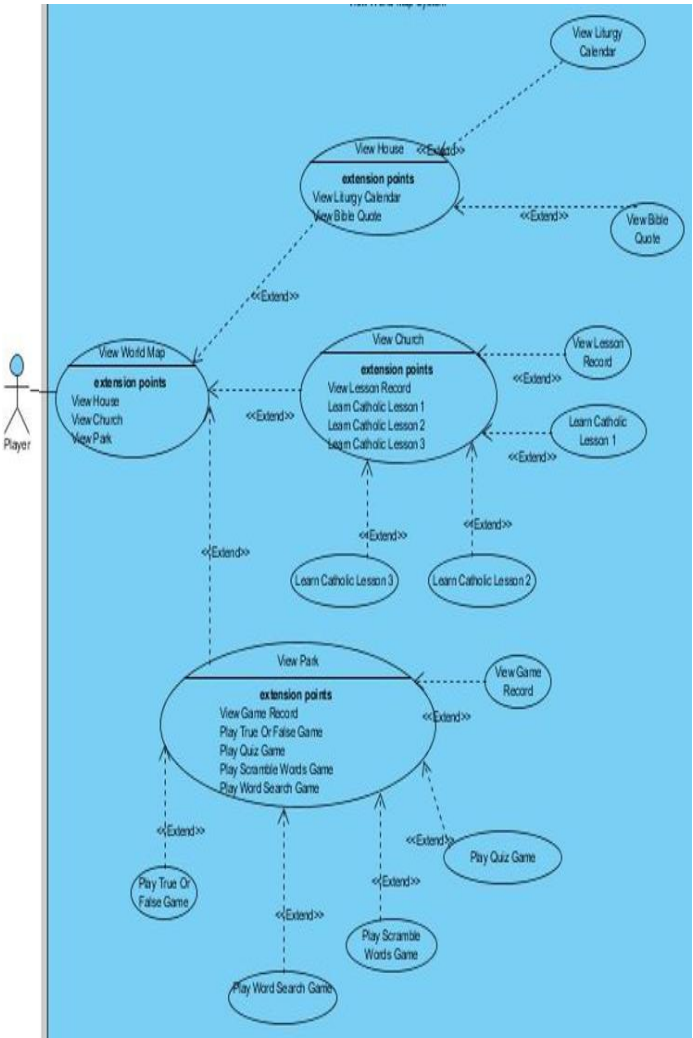


Fig. 4. Use case diagram of World Map Menu display of the mobile game application

1. House

If the player clicked the house icon, the screen would change to the inside house view (the player's room exactly).

In the house, a player can choose either view:

 - a. The liturgy calendar

Will display the liturgy calendar in the year with the exact date when a player plays the game.
 - b. Check the bible quote.

Will display a quote from the bible verse which will change daily.
2. Church

If the player clicked the church icon, the screen would change to the church view (inside the church exactly) where there is a pastor the player can interact with for:

 - a. Learning catholic lesson

If a player chooses this option when talking to the pastor, the screen will change to display lessons players can learn. There are currently three lessons:

 - 1) Sacraments

The player will gain about seven sacraments in Catholics.
 - 2) Religious Days

The player will learn about religious days in Catholics.
 - 3) Saints

Players will learn about saints in Catholics.

The player will start with lesson #1 and must complete the lessons and the games in the park before the player can unlock lesson #2 and so on.
 - b. Check the learning record

If a player chooses this option when talking to the pastor, the dialog box will display what lessons that the player has accomplished.
3. Park

If the player clicked the park icon, the screen would change to the park view where there are four cathkidz magazine mascot that the player can interact with for to play mini-games of which contents based on the lesson the player learns at church. Each game has its game host who is one of the cathkidz magazine mascots. There are four games the player can choose:

 - a. True or False Game

The game is about guessing whether a statement popped out on screen is true or false. The concept of True or False Game is where there is a statement being stated and the player must choose whether the statement is true or not. For each statement that player answers correctly, they will score a point. The point is later accumulated to view the result of the total score after the player has completed answering. There is a timer running to see how long it takes for the player to complete answering all statements.

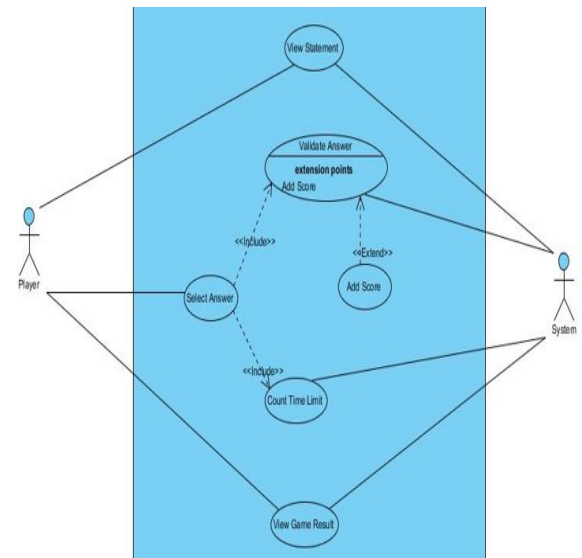


Fig. 5. Use case diagram of True or False Game of the mobile game application



Fig. 6. Display menu of True or False Game of the mobile game application

Figure 5 shows the use case diagram of True or False Game of the mobile application and figure 6 shows the display menu of True or False Game of the mobile application.

- b. Quiz Game

The game is about answering multiple-choice questions like "Who wants to be a millionaire game." The concept of the Quiz game is a multiple choice question where there is a question and the player must select one answer. For each answer that player answers correctly, they will score a point. The point is later accumulated to view the result of the total score after the player has completed answering. There is a timer running to see how long it takes for the player to complete answering all statements. Figures 7 and 8 show the use case diagram and display menu of Quiz Game of the mobile application respectively.

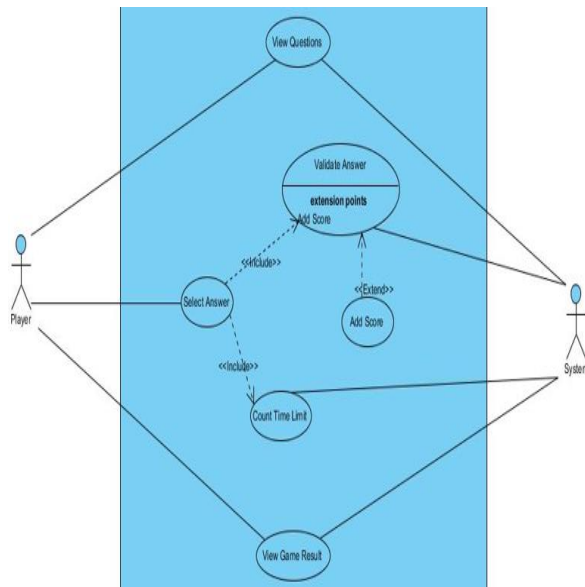


Fig. 7. Use case diagram of Quiz Game of the mobile game application



Fig. 8. Display menu of Quiz Game of the mobile game application

c. Scramble Words Game

The game is about arranging letters to form a word from a bible verse. The concept of the Scramble Words Game is there are some words from bible verse of which letters are not arranged in correct order and player must solve this by re-arranging the letter. For each sentence that the player correctly completes, they will score a point. The point is later accumulated to view the result of the total score after the player has completed answering. There is a timer running to see how long it takes for the player to complete all the sentences. Figures 9 and 10 show the use case diagram and display menu of Scramble Words Game of the mobile application respectively.

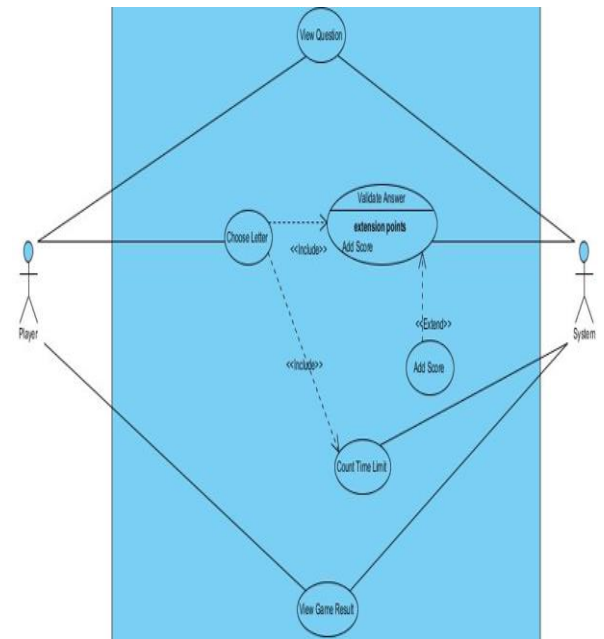


Fig. 9. Use case diagram of Scramble Words Game of the mobile game application



Fig. 10. Display menu of Scramble Words Game of the mobile game application

d. Play Word Search Game

The game is fill in the blank game to arranging a bible verse. The concept of the Word Search Game is there are some words missing from a bible verse. The player must look for the missing words in a table consists of various letters that can form words to complete the bible verse. For each sentence that the player correctly completes, they will score a point. The point is later accumulated to view the result of the total score after the player has completed answering. There is a timer running to see how long it takes for the player to complete all the sentences. Figures 11 and 12 show the use case diagram and

display menu of Play Word Search Game of the mobile application.

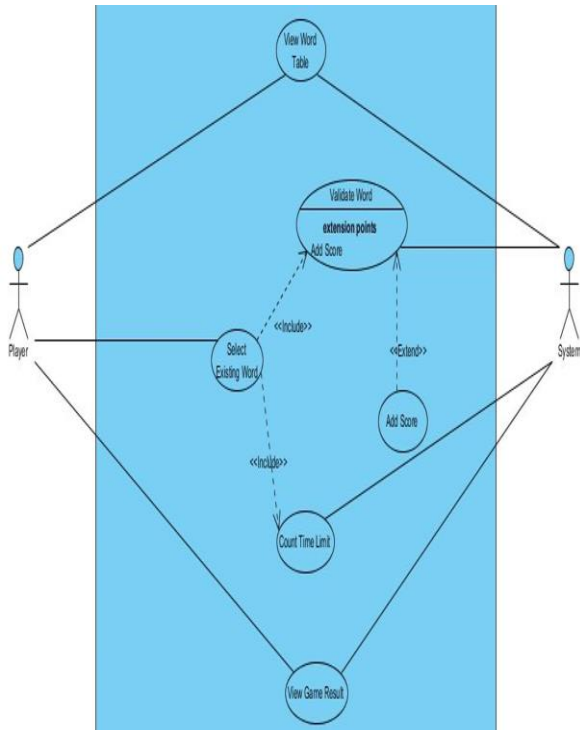


Fig. 11. Use case diagram of Play Word Search Game of the mobile game application



Fig. 12. Display menu of Play Word Search Game of the mobile game application

Storyboard	
Project: mobile game application for religion engagement	
Scene: 1	Scene ID: WORLD MAP
<div> <div>CATHTOWN</div> <div>QUIT</div> <div>PARK</div> <div>CHURCH</div> <div>HOUSE</div> </div>	
Scene Description: in this World Map screen, a player can choose site visits such as Park, Church, and House.	
Link from Scene ID	Link to Scene ID:
MAIN MENU	EXIT GAME
PROLOGUE	CHURCH
	PARK
	HOUSE
Color scheme: #afded8, #c8d669, #c9d8d7, #96bc5f	
Text Attributes: -	
Images: churchIcon.png, parkIcon.png, houseIcon.png, worldMap.jpg, quitBtn.png	
Audio: menuBGM.mp3	

Besides playing the game, the player can also choose to talk to the game host to ask the game records from the mini-game they play. The content of the game record is such as the score & the time limit in accomplishing the mini-game.

IV. MODEL DATABASE DESIGN OF MOBILE GAME APPLICATION

Figure 13 shows the database which is used in the mobile game application which contents ten tables database such as

1. BibleVerse
2. ChurchLesson
3. LiturgyCalendar
4. User
5. TrueofFalseGame
6. TrueofFalseAnswer
7. ScrambleWordsGame
8. ScrambleWordsAnswer
9. MultipleChoiceGame
10. MultipleChoiceGameAnswer.

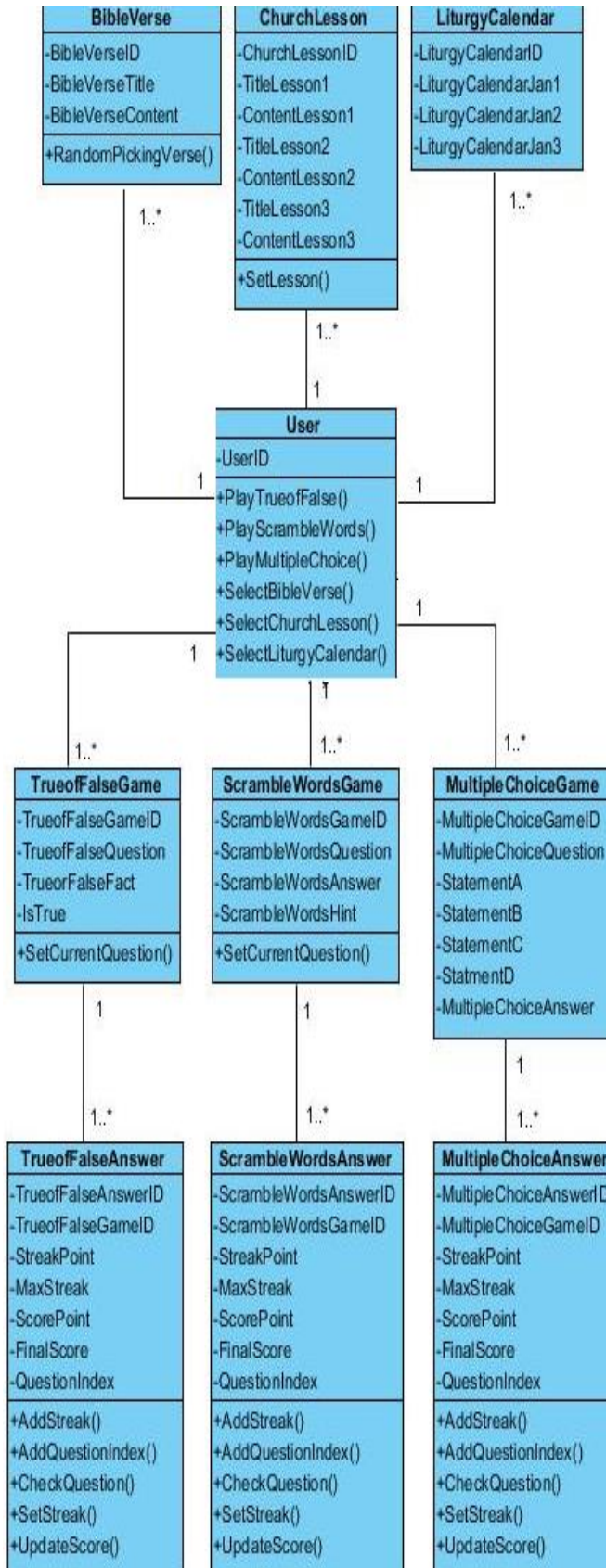


Fig. 13. Class diagram of the database of the mobile game application

The table user is used as player information which includes data player including time and date game access, score, etc. Since this mobile game application was developed with only three Catholic catechisms such as bible learning, church lesson, and liturgy celebration, then BibleVerse table deals with Bible learning information, ChurchLesson table deals with church lesson information and LiturgyCalendar table deals with Liturgy celebration information.

Moreover, since this mobile game application was equipped with only three types of games such as True or False game, Scramble words game and multiple-choice games. Tables TrueofFalseGame and TrueofFalseAnswer deal with the True or False game, tables ScrambleWordsGame and ScrambleWordsAnswer deal with Scramble Words game and tables MultipleChoiceGame and MultipleChoiceGameAnswer deal with multiple choices game. Tables such as TrueofFalseGame, ScrambleWordsGame, and MultipleChoiceGame deal with each game information content while tables such as TrueofFalseAnswer, ScrambleWordsAnswer, and MultipleChoiceGameAnswer are player answering record for each type of games.

V. CONCLUSIONS

Mobile game application for religion engagement is one alternative way for a human to be more facilitated to learn their religion information in fun and entertain ways. Religion mobile game is one of a serious game which focuses on religion purposes where at the end, the player can increase their religion knowledge in different and innovative ways without recognizing that they do serious thing such as learning religion thing. Using games for determining a serious matter is a remarkable achievement were using a fun and entertaining way to inject the knowledge particularly for religion information.

However, the real religion practices should be applied based on their religion and belief and in the guidance of each religion hierarchy and government by the Ministry of Religious Affairs. This mobile game application is one tool to spread the religion knowledge using the technology, and in the end, there must be approval from each religion department to approve the utilizing this technology to understand each religion for their people.

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